CURRICULUM VITAE

University of Idaho

NAME: Martin, Bryn A.

DATE: Tuesday, December 11, 2018

RANK OR TITLE: Assistant Professor

DEPARTMENT: Biological Engineering

OFFICE LOCATION AND CAMPUS ZIP: E/P 408, 0904

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DATE OF FIRST EMPLOYMENT AT UI: August 10, 2015

DATE OF TENURE: Untenured

DATE OF PRESENT RANK OR TITLE: August 10, 2015

EDUCATION BEYOND HIGH SCHOOL:

Degrees:

PhD Mechanical Engineering, University of Illinois at Chicago, IL, U.S.A.	2008
MS Mechanical Engineering, University of Illinois at Chicago, IL, U.S.A.	2005
BS Mechanical Engineering, University of Illinois at Chicago, IL, U.S.A.	2002

Certificates and Licenses:

Registered Professional engineer in the state of Idaho (Reg. 17993) since July 3, 2018	2018
Accelerated course and certification for management of tech. start-ups, EPFL, Switzerland	2009
Certified Electronics Technician training at Technology Center of DuPage, Addison, IL	1998

EXPERIENCE:

Teaching, Extension and Research Appointments:

Assistant Professor, Department of Biological Engineering, University of Idaho, ID	2015 – present
Instructor (10%), University of Washington, WWAMI Regional Medical Education Program (Idaho)	2016 – present
Research Assistant Professor, Department of Mechanical Engineering, University of Akron, OH	2013 – 2015
Fellow, SNSF International Short Visit, Swiss Federal Inst. of Technology (EPFL), Lausanne, CH	2014 – 3 month
Director, Conquer Chiari Research Center, University of Akron, OH	2012 – 2015
Scientist, Swiss Federal Institute of Technology, EPFL, Lausanne, Switzerland	2011 – 2012
Postdoctoral Fellow, Swiss Federal Institute of Technology, EPFL, Lausanne, Switzerland	2009 – 2011

Joint Faculty Appointments:

Joint Faculty, National Skull Base Center, CA	2017 – present
Joint Faculty, California Institute of Neuroscience, CA	2017 – present
Joint Faculty, University of Washington, Neurosurgery, WA	2016 – present
Joint Faculty, Center for Modeling Complex Interactions, University of Idaho, ID	2016 – present
Joint Faculty, Mechanical Engineering, University of Idaho, ID	2015 – present

Academic Administrative Appointments: None.

Scientific Advisory Board (SAB) and Executive Board Membership:

Scientific Advisory Board, Chiari and Syringomyelia Foundation, New York, NY	2018 – present
Scientific Advisory Board, Alcyone Lifesciences Corp., Concord, MA	2017 – present
Scientific Advisory Board, Neurapheresis.org, Duke University, USA	2017 – present
Medical Advisory Board Member, Chiari Project Foundation, Santa Cruz, CA	2017 – present
Executive Board Member, International Soc. for Hydrocephalus and CSF Disorders, Umea, Sweden	2015 – 2019
Executive Board Member, International Cerebrospinal Fluid Dynamics Society, Zurich, Switzerland	2011 – present
Executive Board Member, International Hydrocephalus Imaging Working Group, U.S.A.	2011 – present

Consulting:

SwanBio Therapeutics, Bala Cynwyd, PA: Consultant for intrathecal infusion technologies and drugs	2018 – present
Minnetronix Neuro Corp., St. Paul, MN: Consultant for CSF filtration technologies	2017 – present
Cerebral Therapeutics Corp., Boulder, CO: Consultant for intra-ventricular drug delivery	2017 – present
Behavior Imaging Corp., Boise, ID: Telemedicine consultant for autism evaluation technology	2017
Alcyone Lifesciences Corp., Concord, MA: Consultant for medical device	2016 – present
Voyager Therapeutics Corp., Cambridge, MA: Consultant for MRI of intrathecal drug delivery	2014 – 2015
Medtrad Biosystems, Palo Alto, CA: Design consultant for anthropomorphic bioreactor	2011
Neurosyntec, Los Gatos, CA: Neurohydrodynamics consultant for funded NSF SBIR grant	2010 – 2011

Non-Academic Employment:

Baxter Healthcare, Biosurgery, Round Lake, IL: Industrial Project Research Assistant	2007
Motorola, Biomonitoring Group, Schaumburg, IL: Industrial Project Research Assistant	2005 – 2006
Hospira, New Product Technologies Group, Lake Forest, IL: Internship	2007
Baxter, Global R&D, Round Lake, IL: Internship	2005
Motorola, Civil Government Industrial Sector, Schaumburg, IL: Internship	2004
Sencon Sensors and Controllers, Bedford Park, IL: Design Engineer Internship	2002
Sencon Sensors and Controllers, Bedford Park, IL: Electronics Technician	2001

AREAS OF SPECIALIZATION:

Cerebrospinal fluid dynamics, Biofluid Mechanics, Biomedical Imaging, Instrumentation and Measurements.

TEACHING ACCOMPLISHMENTS:

Courses Taught at University of Idaho:

University Courses Taught (% contribution to teaching)

BE 441/541	*Instrumentation and Measurements*, Enrollment = 20, University of Idaho (80%)	2018 F
ENGR 335	*Fluid Mechanics,* Enrollment 51, University of Idaho (50%)	2018 S
BE 441/541	*Instrumentation and Measurements*, Enrollment = 12, University of Idaho (50%)	2017 F
BE 404/504	*Medical Imaging Tech. and Applications*, Enrollment = 4, University of Idaho (100%)	2017 S
ISEM 301	*Tech Startup Entrepreneurship*, Enrollment = 26, University of Idaho (80%)	2017 S
BE 404/504	*Neural Engineering*, Enrollment = 4, University of Idaho (100%)	2016 F
BE 404/504	*Medical Imaging Tech. and Applications*, Enrollment = 7, University of Idaho (100%)	2016 S

University Undergraduate Research Courses Taught (100%)

BE 299	*Intro to Neuroengineering Research*, Enrollment = 1, University of Idaho, Moscow, ID	2018 F
BE 499	*Neuroengineering Research*, Enrollment = 2, University of Idaho, Moscow, ID	2018 F
BE 299	*Intro to Neuroengineering Research*, Enrollment = 1, University of Idaho, Moscow, ID	2018 S
BE 499	*Neuroengineering Research*, Enrollment = 4, University of Idaho, Moscow, ID	2018 S
BE 499	*Neuroengineering Research*, Enrollment = 2, University of Idaho, Moscow, ID	2017 F
BE 499	*Neuroengineering Research*, Enrollment = 2, University of Idaho, Moscow, ID	2017 S
BE 499	*Neuroengineering Research*, Enrollment = 2, University of Idaho, Moscow, ID	2016 F
BE 499	*Neuroengineering Research*, Enrollment = 1, University of Idaho, Moscow, ID	2016 S
BIOL 401	*Undergraduate Student Research*, Enrollment = 1, University of Idaho, Moscow, ID	2015 F

WWAMI Teaching (10% FTE all semesters)

WWAMI	*Basic imaging of the chest, radiographs and CT*, Univ. of Washington Medical School	2018 S
WWAMI	*Breast Cancer Imaging*, Univ. of Washington Medical School	2017 F
WWAMI	*Basic imaging of the chest, radiographs and CT*, Univ. of Washington Medical School	2017 F
WWAMI	*Basic imaging of the chest, radiographs and CT*, Univ. of Washington Medical School	2017 S
WWAMI	*Pulmonary chest radiograph interpretation*, Univ. of Washington Medical School	2017 S
WWAMI	*Human Form and Function Module - Imaging*, Univ. of Washington Medical School	2016 F
WWAMI	*Breast Cancer Imaging*, Univ. of Washington Medical School	2016 F
WWAMI	*Ultrasound Imaging Physics and Applications*, Univ. of Washington Medical School	2016 S
WWAMI	*Ultrasound Imaging Spring Break Training Module*, Univ. Washington Medical School	2016 S

Other Teaching Activities at University of Idaho:

Engineering Design Capstone Project Mentorship

BE 479	*Engineering Design,* Project Sponsor "NeuroForce", University of Idaho	2017 F
BE 479	*Engineering Design,* Project Sponsor "NeuroTouch", University of Idaho	2017 S
BE 479	*Engineering Design,* Project Sponsor "CSF system", University of Idaho	2016 SF

Virtual Technology & Design Capstone Project Mentorship

VTD 457	*Capstone Design Studio I,* Project Sponsor "Neuroculus", University of Idaho	2017 F

Course Interactive Learning Field Trips Organized

ENGR 335	*Wind tunnel tour*, University of Idaho	2018 S
ENGR 335	*Open channel flow lab tour*, University of Idaho	2018 S
INBRE	*Onboarding tour*, IRIC Neurophysiological Imaging and Modeling Laboratory	2017 S
ISEM 101	*Lab tour*, IRIC Neurophysiological Imaging and Modeling Laboratory	2017 S
BE 404/504	*Integrated Sports Medicine and Rehabilitative Therapy Clinic*, Moscow, ID	2017 S
BE 404/504	*MR imaging facility tour*, Gritman Medical Center, Moscow, ID	2017 S
BE 404/504	*MR imaging facility tour*, Gritman Medical Center, Moscow, ID	2016 S
BE 404/504	*Neurorehabilitation tour*, St. Luke's Rehabilitation Institute tour, Spokane, WA	2016 F

Materials Developed: (non-scholarship activity)

BBLearn Online Lecture Notes and Videos (20 lectures) for Engineering Fluid Mechanics	2018S
BBLearn Online Lecture Notes and Videos (21 lectures) for Instrumentation and Measurements	2017F
BBLearn Online Lecture Notes and Videos (21 lectures) for Neural Engineering	2016S
BBLearn Online Lecture Notes and Videos (21 lectures) for Medical Imaging Techniques and App.	2015F

Courses Developed:

ISEM 301	*Tech Startup Entrepreneurship*, University of Idaho, Moscow, ID	2017S
BE 404/504	*Neural Engineering*, University of Idaho, Moscow, ID	2016F
BE 404/504	*Medical Imaging Techniques and Applications*, University of Idaho, Moscow, ID	2016S

Non-credit Classes, Workshops, Seminars, Invited Lectures, etc.:

ISEM 301	*Course lecture*, Engineering Grand Challenges, University of Idaho, Moscow, ID	2018S
ISEM 101	*Course lecture*, Engineering Grand Challenges, University of Idaho, Moscow, ID	2017S
BE 142	*Course lecture*, Engineering for Living Systems, University of Idaho, Moscow, ID	2016F
BE 142	*Course lecture*, Engineering for Living Systems, University of Idaho, Moscow, ID	2015F

Teaching Honors and Awards:

UW Medicine, WWAMI Pro Recognition, Award for professionalism in learning, Seattle, WA	2017

Continuing Medical Education (CME) accredited teaching lectures:

Accredited by the Accreditation Council for Continuing Medical Education (ACCME)

1. "Steady streaming: Computational fluid dynamics predicts non-zero time-averaged intrathecal CSF flow" American Society for Neuroradiology (Vancouver, Canada, 6/7, 2018).
2. "Translational research on subarachnoid trabeculae biomechanics" National Skull Base Center (Thousand Oaks, CA, 3/3, 2018).
3. "Engineering-based Methods for Static and Dynamic Assessment of Chiari malformation" XXIX ASAP Conference on Chiari I Malformation, Syringomyelia, and Related Disorders (Uniondale, NY, 6/20-23, 2017).
4. "Cerebellar and Brain Stem Deformation Assessment of Chiari Malformation" American Society of Neuroradiology (Washington D.C., U.S.A., 5/27/2016).
5. "Neurophysiological Imaging and Modeling in Health and Disease" University of Washington, Department of Neurosurgery (Seattle, WA, 12/2/2015).
6. "Cerebrospinal fluid dynamics in the spinal subarachnoid space," Neuroscience Forum, European Continuing Medical Training (Lausanne, Switzerland, 02/7-8, 2014).
7. "Coupled neurohydrodynamic modeling of the cardiovascular and cerebrospinal fluid system: insights gained and challenges that remain," European continuing medical training Neuroscience Forum, (Domaine de Divonne,

Divonne-les-Bains, France, 12/16-17, 2011).

Students Advised at University of Idaho:

Post-doctoral fellows

1	2019	Post-doc
1	2015	Post-doc

Undergraduate advisees

13	2018	Undergraduate
12	2017	Undergraduate
8	2016	Undergraduate
8	2015	Undergraduate

M.S. student advisees (major professor)

1	2019	MS
1	2018	MS
1	2017	MS
1	2016	MS
1	2015	MS

Ph.D. student advisees (major professor)

3	2019	PhD
3	2018	PhD
2	2017	PhD
2	2016	PhD
1	2015	PhD

Undergraduate Research Trainees

H. Esmaeilzadeh	University of Idaho, Computer Science	Fall 2018 – Present	Research Supervisor
A. Sass	University of Idaho, Computer Science	Fall 2015 – Present	Research Supervisor
S. Sater	University of Idaho, Biological Eng.	Spring 2017 – Present	Research Supervisor
E. Marsden	University of Idaho, Biological Eng.	Spring 2018 – Present	Research Supervisor
O. Bangudu	University of Idaho, Biological Eng.	Fall 2018	Research Supervisor
S. Byass	University of Idaho, Biological Eng.	Spring 2018	Research Supervisor
K. McCain	University of Idaho, Computer Science	Smr. 2017 – Spr. 2018	Research Supervisor
A. Brooks	University of Idaho, Biological Eng.	Spring 2018	Research Supervisor
E. Tipton	University of Idaho, Biological Eng.	Spring 2018	Research Supervisor
C. Majors	University of Idaho, Mechanical Eng.	Spring 2017 – Fall 2017	Research Supervisor
B. Aldrimk	University of Idaho, Mechanical Eng.	Spring 2017 – Fall 2017	Research Supervisor
L. Hold	University of Idaho, Biological Eng.	Spring 2017	Research Supervisor
J. Oles	U. of Idaho, Virtual Tech. & Design	Spring 2017 – Fall 2017	Research Co-supervisor
J. Pluid	U. of Idaho, Biological Eng.	Fall 2015 – Sumr. 2016	Research Supervisor
C. Gibbs	University of Idaho, Biological Eng.	Fall 2015 – Sumr. 2016	Research Supervisor
M. Vinicius	University of Idaho, Biological Eng.	Fall 2015 – Spring 2016	Research Supervisor
A. Elliott	University of Idaho, Biology	Fall 2015 – Sumr. 2016	Research Supervisor
V. Gomm	University of Idaho, Electrical Eng.	Summer 2016	Research Supervisor
M. V. da Silva	University of Idaho, Biological Eng.	Fall 2015 – Spring 2016	Research Supervisor
J. Havrilak	University of Akron, Biomedical Eng.	Fall 2014 – Spring 2015	Senior Design Super.
V. Traviso	University of Akron, Biomedical Eng.	Summer 2014	Research Supervisor
M. Dailey	University of Akron, Biomedical Eng.	Fall 2014 – Spring 2015	Senior Design Super.
D. Lemmer	University of Akron, Biomedical Eng.	Summer 2014	Senior Design Super.
L. Kostan	University of Akron, Biomedical Eng.	Summer 2014	Research Supervisor
J. Schlafer	Brown University	Summer 2014	Research Supervisor
V. Traviso	University of Akron, Biomedical Eng.	Summer 2014	Research Supervisor
G. Margida	Grinnell College	Summer 2014	Research Supervisor
R. Kenyon	University of Akron, Biomedical Eng.	Spring 2013	Research Supervisor

M. Wransky	University of Akron, Mathematics	Fall 2013 – Spring 2014	Research Co-Supervisor
D. McQuaide	Iowa State University	Fall 2013 – Sumr. 2014	Research Supervisor
I. Pitteloud	Swiss Fed. Inst. of Tech (EPFL)	Spring 2013	Research Supervisor
M. Majcher	University of Akron, Biomedical Eng.	Fall 2012 – Spring 2013	Research Supervisor
R. Kenyon	University of Akron, Biomedical Eng.	Spring 2013	Research Supervisor
J. Chishko	University of Akron, Biomedical Eng.	Fall 2012	Research Supervisor
J. Lazzara	University of Akron, Biomedical Eng.	Fall 2012	Research Supervisor
S. Metrailler	Swiss Fed. Inst. of Tech (EPFL)	Spring 2011	Research Supervisor
A. DeMuralt	Swiss Fed. Inst. of Tech (EPFL)	Spring 2010	Research Supervisor
G. Muller	Swiss Fed. Inst. of Tech (EPFL)	Spring 2010	Research Supervisor

Engineering Grand Challenge Scholar Trainees

O. Bangudu	University of Idaho, Biological Eng.	Spring 2019 – Present	Grand Scholar Mentor
A. Lunstrum	University of Idaho, Biological Eng.	Spring 2018 – Present	Grand Scholar Mentor
T. Freeman	University of Idaho, Computer Science	Fall 2015 – Present	Grand Scholar Mentor
G. Conley	University of Idaho, Biological Eng.	Fall 2015 – Spring 2018	Grand Scholar Mentor

Medical Student Trainees

J. Romm	U. of Washington, Medical Program	Summer 2018	MSRTP Mentor
B. Lawrence	U. of Washington, Medical Program	Summer 2017	MSRTP Mentor
P. Marty	NE Ohio Medical Univ.	Summer 2014	Research Supervisor

High School Student Trainees

O. Bangudu	University of Idaho	Summer 2018	Research Supervisor
K. McCain	University of Idaho	Summer 2017	Research Supervisor
N. Allen	The University of Akron	Summer 2014	Research Supervisor
D. McQuaide	The University of Akron	Summer 2013	Research Supervisor
M.Lowenkamp	The University of Akron	Summer 2013	Research Supervisor
J. Loth	The University of Akron	Summer 2013	Research Supervisor

Graduate students as major advisor at University of Idaho

G. Burla	Ph.D. candidate, University of Idaho, Biological Eng. (Spring 2019 – Present)
M. Khani	Ph.D. candidate, University of Idaho, Biological Eng. (Spring 2016 – Present)
L. Sass	Ph.D. candidate, University of Idaho, Biological Eng. (Fall 2016 – Present)
J. Rohr	M.S. candidate, University of Idaho, Biological Eng. (Fall 2016 – Present)
S. Mei	M.S. candidate, University of Idaho, M.E. (6/2016 – 12/2016) Thesis: N/A, transferred to other advisor (advised for 6 months).
C. Majors	Ph.D. candidate, University of Idaho, Biological Eng. (Spring 2018) Thesis: N/A, took job in industry (advised for 4 months). Current Position: Engineering Technician, XCraft, Coeur d'Alene, Idaho.

Graduate students co-supervised and served on committee

S. Thyagaraj	Ph.D., University of Akron, Mech. Eng. (Spring 2016) Dissertation: "In Vitro Investigation of CSF Dynamics in Chiari Malformation by 4D MRI" Current Position: Post-doctoral fellow, Case Western Reserve
S. Pahlavian	Ph.D., University of Akron, Mech. Eng. (Spring 2018) Dissertation: Non-invasive assessment of cerebrospinal fluid and brain tissue biomechanics using MRI and CFD Current Position: Laboratory of Functional MRI Technology at University of Southern California
N. Shaffer	Ph.D., University of Akron (Fall 2015) Dissertation: "MRI-Based Computational Modeling of CSF Dynamics in Chiari Malformation" Current Position: Quality Control Engineer, Zimmer, Cleveland, Ohio.
K. Shahim	Ph.D., Swiss Fed. Inst. of Tech (EPFL)(Spring 2011) Dissertation: "Bio Simulation of Brain Ventricle Dilation in Normal Pressure Hydrocephalus" Current Position: Postdoctoral Fellow, Inst. for Surgical Technology and Biomechanics, U. of Bern
S. Pahlavian	M.S., University of Tehran (Fall 2013) Thesis: "Numerical simulation of spinal cord nerve roots impacts on cervical CSF

Current Position: Post-doc, Laboratory of Functional MRI Tech. at University of Southern California

T. Yiallourou — Ph.D., Swiss Fed. Inst. of Tech (EPFL) (Fall 2014) Dissertation: "Subject-Specific CFD modeling and measurement of CSF motion in the cervical spine"
Current Position: Omeros Corporation, Senior Scientist, Seattle, Washington.

A. Picquot — M.S., Swiss Fed. Inst. of Tech (EPFL) / Institut Supérieur de Mécanique (Fall 2010) Thesis: "An in vivo MRI and CFD simulation of CSF hydrodynamics in the third ventricle"
Current Position: Production and Maintenance Managers Assistant at Holcim

Graduate committees served

S. Ashaat — Ph.D., Auckland U. of Tech. (Spring 2015) Dissertation: "Understanding upper airway dynamic characteristics in OSA patients under treatment"
Current Position: Lecturer in Refrigeration and Air Conditioning at Manukau Institute of Technology

4-month MS student projects (project director and committee member)

B. Anthikat — M.S., KTH Royal Inst. of Tech. (Fall 2011) Thesis: "Continuous Positive Airway Pressure Impacts Cerebral Blood Flow and CSF Motion"

E. Coppens — M.S., Swiss Fed. Inst. of Tech (EPFL) (Fall 2010) Thesis: "Assessment of the Impact of Placing An Aortic Graft Upon the Hemodynamics"
Current Position: Ph.D. student at Katholieke Universiteit Leuven, KLIP

E. Farine — M.S., Swiss Fed. Inst. of Tech (EPFL) (Spring 2012) Thesis: "Measurement of Brain Volume Change Due to Acute Modification of ICP"
Current Position: Ph.D. student at Swiss Federal Institute of Technology

A. Chiki — M.S., Swiss Fed. Inst. of Tech (EPFL) (Spring 2012) Thesis: "Lumbar spine cerebrospinal fluid velocity measurements in tethered cord"

A. Hirsch — M.S., Swiss Fed. Inst. of Tech (EPFL) (Fall 2011) Thesis: "Construction of a 3D Model of the Spinal Subarachnoid Space"
Current Position: Ph.D. student at Swiss Federal Institute of Technology

L. Asboth — M.S., Swiss Fed. Inst. of Tech (EPFL) (Spring 2011) Thesis: "Comparison of 4D MRI flow measurements and 3D CFD simulation of CSF"
Current Position: Ph.D. student at Swiss Federal Institute of Technology

C. Meuli — M.S., Swiss Fed. Inst. of Tech (EPFL) (Spring 2011) Thesis: "Pulse Wave Velocity in the Spinal Subarachnoid Space"
Current Position: Ph.D. student at Swiss Federal Institute of Technology

SCHOLARSHIP ACCOMPLISHMENTS:

Publication summary:

- 46 peer-reviewed full-length journal publications [1-44] (+2 recently accepted).
- 3 peer-reviewed publications presently under review (full text available upon request)
- Corresponding author for 23 peer-reviewed full-length journal publications.
- Two invited book chapters in brain biomechanics
- Three review papers in cerebrospinal fluid dynamics
- Google scholar: https://scholar.google.com/citations?user=lcaLpj4AAAAJ&hl=en701
- Citations = 796, h-index = 16, and i10-index = 19 (as of 12/11/2018)

Peer-reviewed full-length journal publications:

Published (full text provided upon request)

1. Khani M, Sass L, Xing T, Sharp MK, Balédent O, Martin B (2018), "*Anthropomorphic Model of Intrathecal Cerebrospinal Fluid Dynamics Within the Spinal Subarachnoid Space: Spinal Cord Nerve Roots Increase Steady-Streaming.*" Journal of Biomechanical Engineering. http://dx.doi.org/10.1115/1.4040401
2. Lawrence BJ, Luciano M, Tew J, Ellenbogen RG, Oshinski JN, Loth F, Culley AP, Martin BA (2018), "*Cardiac-related spinal cord tissue motion at the foramen magnum is elevated in Type I Chiari malformation patients and decreases post-decompression surgery.*" World Neurosurg. https://www.ncbi.nlm.nih.gov/pubmed/29733988

3. Houston JR, Hughes ML, Lien MC, Martin BA, Loth F, Luciano MG, Vorster S, Allen PA (2018), "*An Electrophysiological Study of Cognitive and Emotion Processing in Type I Chiari Malformation*." Cerebellum. https://www.ncbi.nlm.nih.gov/pubmed/29383659
4. Al-Jumaily AM, Ashaat S, Martin B, Pohle-Krauza R, Krauza M, Dan A, Zografakis J (2018), "*A pilot study on the biomechanical assessment of obstructive sleep apnea pre and post bariatric surgery*." Respir Physiol Neurobiol, 250: 1-6. https://www.ncbi.nlm.nih.gov/pubmed/29339193
5. Eppelheimer MS, Houston JR, Bapuraj JR, Labuda R, Loth DM, Braun AM, Allen NJ, Pahlavian SH, Biswas D, Urbizu A, Martin BA, Maher CO, Allen PA, Loth F (2018), "*A Retrospective 2D Morphometric Analysis of Adult Female Chiari Type I Patients with Commonly Reported and Related Conditions*." Frontiers in Neuroanatomy, 12. https://doi.org/10.3389/fnana.2018.00002
7. Sass LR, Khani M, Natividad GC, Tubbs RS, Baledent O, Martin BA (2017), "*A 3D subject-specific model of the spinal subarachnoid space with anatomically realistic ventral and dorsal spinal cord nerve rootlets*." Fluids Barriers CNS, 14: 36. https://www.ncbi.nlm.nih.gov/pubmed/29258534
8. Yildiz S, Thyagaraj S, Jin N, Zhong X, Heidari Pahlavian S, Martin BA, Loth F, Oshinski J, Sabra KG (2017), "*Quantifying the influence of respiration and cardiac pulsations on cerebrospinal fluid dynamics using real-time phase-contrast MRI*." J Magn Reson Imaging, 46: 431-439. https://www.ncbi.nlm.nih.gov/pubmed/28152239
9. Haga PT, Pizzichelli G, Mortensen M, Kuchta M, Pahlavian SH, Sinibaldi E, Martin BA, Mardal KA (2017), "*A numerical investigation of intrathecal isobaric drug dispersion within the cervical subarachnoid space*." PLoS One, 12: e0173680. https://www.ncbi.nlm.nih.gov/pubmed/28296953
10. Khani M, Xing T, Gibbs C, Oshinski JN, Stewart GR, Zeller JR, Martin BA (2017), "*Nonuniform Moving Boundary Method for Computational Fluid Dynamics Simulation of Intrathecal Cerebrospinal Flow Distribution in a Cynomolgus Monkey*." J Biomech Eng, 139. https://www.ncbi.nlm.nih.gov/pubmed/28462417
11. Urbizu A, Martin BA, Moncho D, Rovira A, Poca MA, Sahuquillo J, Macaya A, Espanol MI (2017), "*Machine learning applied to neuroimaging for diagnosis of adult classic Chiari malformation: role of the basion as a key morphometric indicator*." J Neurosurg: 1-13. https://www.ncbi.nlm.nih.gov/pubmed/29053075
12. Urbizu A, Ferre A, Poca MA, Rovira A, Sahuquillo J, Martin BA, Macaya A (2017), "*Cephalometric oropharynx and oral cavity analysis in Chiari malformation Type I: a retrospective case-control study*." J Neurosurg, 126: 626-633. https://www.ncbi.nlm.nih.gov/pubmed/27153161
13. Thyagaraj S, Pahlavian SH, Sass LR, Loth F, Vatani M, Choi JW, Tubbs RS, Giese D, Kroger JR, Bunck AC, Martin BA (2017), "*An MRI-Compatible Hydrodynamic Simulator of Cerebrospinal Fluid Motion in the Cervical Spine*." IEEE Trans Biomed Eng. https://www.ncbi.nlm.nih.gov/pubmed/28961100
14. Khalsa SSS, Geh N, Martin BA, Allen PA, Strahle J, Loth F, Habtzghi D, Urbizu Serrano A, McQuaide D, Garton HJL, Muraszko KM, Maher CO (2017), "*Morphometric and volumetric comparison of 102 children with symptomatic and asymptomatic Chiari malformation Type I*." J Neurosurg Pediatr: 1-7. https://www.ncbi.nlm.nih.gov/pubmed/29125445
15. Houston JR, Eppelheimer MS, Pahlavian SH, Biswas D, Urbizu A, Martin BA, Bapuraj JR, Luciano M, Allen PA, Loth F (2017), "*A morphometric assessment of type I Chiari malformation above the McRae line: A retrospective case-control study in 302 adult female subjects*." J Neuroradiol. https://www.ncbi.nlm.nih.gov/pubmed/28826656
16. Pizzichelli G, Kehlet B, Evju O, Martin BA, Rognes ME, Mardal KA, Sinibaldi E (2017), "*Numerical study of intrathecal drug delivery to a permeable spinal cord: effect of catheter position and angle*." Comput Methods Biomech Biomed Engin: 1-10. https://www.ncbi.nlm.nih.gov/pubmed/29119834
17. Urbizu A, Ferre A, Poca MA, Rovira A, Sahuquillo J, Martin BA, Macaya A (2016), "*Cephalometric oropharynx and oral cavity analysis in Chiari malformation Type I: a retrospective case-control study*." J Neurosurg: 1-8. http://www.ncbi.nlm.nih.gov/pubmed/27153161
18. Martin BA, Yiallourou TI, Pahlavian SH, Thyagaraj S, Bunck AC, Loth F, Sheffer DB, Kroger JR, Stergiopulos N (2016), "*Inter-operator Reliability of Magnetic Resonance Image-Based Computational Fluid Dynamics Prediction of Cerebrospinal Fluid Motion in the Cervical Spine*." Ann Biomed Eng, 44: 1524-1537. https://www.ncbi.nlm.nih.gov/pubmed/26446009
19. Alves T, Ibrahim E, Martin BA, Malyarenko D, Maher C, Muraszko K, Garton HJ, Srinivasan A, Bapuraj RJ (2016), "*Principles, Techniques, and Clinical Applications of Phase Contrast Magnetic Resonance Cerebrospinal Fluid Imaging*." Neurographics, Accepted. http://dx.doi.org/10.3174/ng.3170204
20. Heidari Pahlavian S, Bunck AC, Thyagaraj S, Giese D, Loth F, Hedderich DM, Kroger JR, Martin BA (2016), "*Accuracy of 4D Flow Measurement of Cerebrospinal Fluid Dynamics in the Cervical Spine: An In Vitro Verification Against Numerical Simulation*." Ann Biomed Eng, 44: 3202-3214. https://www.ncbi.nlm.nih.gov/pubmed/27043214

21. Bapuraj JR, Londy FJ, Delavari N, Maher CO, Garton HJ, Martin BA, Muraszko KM, Ibrahim el SH, Quint DJ (2016), "*Cerebrospinal fluid velocity amplitudes within the cerebral aqueduct in healthy children and patients with Chiari I malformation*." J Magn Reson Imaging, 44: 463-470. https://www.ncbi.nlm.nih.gov/pubmed/26788935
22. Yiallourou TI, Daners MS, Kurtcuoglu V, Haba-Rubio J, Heinzer R, Fornari E, Santini F, Sheffer DB, Stergiopulos N, Martin BA (2015), "*Continuous positive airway pressure alters cranial blood flow and cerebrospinal fluid dynamics at the craniovertebral junction*." Interdisciplinary Neurosurgery-Advanced Techniques and Case Management, 2: 152-159. http://www.sciencedirect.com/science/article/pii/S2214751915300050
23. Pahlavian SH, Loth F, Luciano M, Oshinski J, Martin BA (2015), "*Neural Tissue Motion Impacts Cerebrospinal Fluid Dynamics at the Cervical Medullary Junction: A Patient-Specific Moving-Boundary Computational Model*." Ann Biomed Eng, 43: 2911-2923. https://www.ncbi.nlm.nih.gov/pubmed/26108203
24. Heidari Pahlavian S, Bunck AC, Loth F, Shane Tubbs R, Yiallourou T, Kroeger JR, Heindel W, Martin BA (2015), "*Characterization of the discrepancies between four-dimensional phase-contrast magnetic resonance imaging and in-silico simulations of cerebrospinal fluid dynamics*." J Biomech Eng, 137: 051002. https://www.ncbi.nlm.nih.gov/pubmed/25647090
25. Shaffer N, Martin BA, Rocque B, Madura C, Wieben O, Iskandar BJ, Dombrowski S, Luciano M, Oshinski JN, Loth F (2014), "*Cerebrospinal fluid flow impedance is elevated in Type I Chiari malformation*." J Biomech Eng, 136: 021012. https://www.ncbi.nlm.nih.gov/pubmed/24362680
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Recently accepted full-length journal publications (full-text provided upon request)

1. Luciano MG, Batzdorf U, Kula RW, Rocque BG, Maher CO, Heiss J, Martin BA, Bolognese P, Ashley-Koch A, Limbrick D, Poppe DJ, Esposito KM, Odenkirchen J, Conwit R, McNeil E, Nuckolls G, Rubinstein Y, Ury TK, Ala'i S, Feldman R, "*Development of common data elements for use in Chiari Malformation Type I clinical research: a National Institute for Neurological Disorders and Stroke project*." (*Accepted*).
2. Lawrence BJ, Urbizu A, Allen PA, Loth F, Tubbs RS, Bunck A, Kroeger JR, Madura C, Chen JA, Luciano MG, Ellenbogen RG, Oshinski JN, Martin BA*, "*Cerebellar tonsil ectopia measurement in type I Chiari malformation patients show poor inter-operator reliability*," (*Accepted*).

Publications under review (full-text provided upon request)

1. Sharp MK, Carare R, Martin BA, "*Dispersion in porous media in oscillatory flow between flat plates: Applications to intrathecal and perivascular solute transport in the central nervous system*." (*Under Review*).
2. Mortazavi M, Martin BA, Quadri SA, Khan MA, Waqas M, Ramachandran A, Suriya SS, Nguyen HS, Schiele NR, Tubbs RS, "*Subarachnoid Trabeculae: Surgical Anatomy and Significance in Various Neurosurgical Approaches,"* (*Under Review*).
3. Khani M, Lawrence BJ, Sass LR, Gibbs CP, Pluid JJ, Oshinski JN, Stewart GR, Zeller JR, Martin BA, "Characterization of Intrathecal Cerebrospinal Fluid Geometry and Dynamics in Cynomolgus Monkeys (*Macaca fascicularis*) by Magnetic Resonance Imaging." (*Under Review*).

Book chapters:

1. Kurtcuoglu V, Jain K, Martin BA, "Computational Fluid Dynamics for the Assessment of Cerebrospinal Fluid Flow and Its Coupling with Cerebral Blood Flow," Biomechanics of the Brain (Miller K, Editor) Springer-Verlag, 2018 (*accepted*).
2. Martin BA, Pahlavian SH, "Anatomy and Physiology of Cerebrospinal fluid Dynamics," Intrathecal and Convection Enhanced Drug Delivery (Lonser R, Editor) Elsevier, 2018 (*accepted*).
3. Martin BA, Pahlavian SH, "Role of Cerebrospinal Fluid Flow Patterns at the Cranial-Vertebral Junction in Surgery (Tubbs RS, Editor) Springer-Verlag, 2018 (*in preparation*).

Peer-reviewed extended conference proceedings (greater than 2 pages):

4. Loth F, Pahlavian SH, Amini R, Shaffer N, Martin BA, Zhong X, Oshinski J, "Computational Tools to Assess Impedance, Pressure and Strain for Subjects With Chiari Malformation," 5th International Conference on Computational and Mathematical Biomedical Engineering – CMBE2017 (Pittsburgh, PA, USA, 4/10-12, 2017)
5. Martin BA, Yiallourou TI, Stergiopulos N, "Quantitative comparison of 4D MRI flow measurements to 3D CFD simulation of cerebrospinal fluid movement in the spinal subarachnoid space," International Conference on Computational Fluid Dynamics in Medicine and Biology (Dead Sea, Israel, 03/25-30, 2012).
6. Yiallourou TI, Asboth L, Kroeger JR, Maintz D, Bunck AC, Martin BA, Stergiopulos N, "Quantitative comparison of 4D MRI flow measurements to 3D CFD simulation of cerebrospinal fluid movement in the spinal subarachnoid space," 10th International Workshop on Biomedical Engineering (Kos, Greece, 10/5-7, 2011).

7. Yazicioglu Y, Martin BA, Navarro K, Royston TJ, "Transverse vibration of pre-stressed beams: An experimental technique for the determination of dynamic viscoelastic material properties of tissue mimicking materials," 152nd Meeting of the Acoustical Society of America (Paris, France, 5/29-6/4, 2008).

Keynote and grand rounds lectures:

1. "Advanced biomechanical modeling of CSF solute transport: relevance to subarachnoid hemorrhage and intrathecal drug delivery" Duke University, Department of Neurosurgery, Grand Rounds (Durham, NC, 12/18/2018).
2. "Neurophysiological Imaging and Modeling in Health and Disease" University of Washington, Department of Neurosurgery, Grand Rounds (Seattle, WA, 12/2/2015).
3. "Characterization and modeling of Chiari malformation," National Institutes of Health (NIH), National Institutes of Neurological Disorders and Stroke, Grand Rounds (Bethesda, MD, 11/13, 2014).
4. "Progress in Chiari malformation research at the University of Akron," Akron General Hospital Post-grad Research Symposium (Akron, OH, 06/06, 2013).
5. "Syringomyelia biomechanics," NIH – National Institute of Neurological Disorders and Stroke, Grand Rounds (Bethesda, Maryland, 2/5, 2008).

Invited technical lectures (*published as conference abstracts):

1. "New advances in CSF biomechanics: relevance to traumatic brain injury, subarachnoid hemorrhage, and gliomas" California Neuroscience Institute (Thousand Oaks, CA, 3/23, 2019).
2. "Quantification of ophthalmic changes in astronauts" NASA Glenn Research Center (Cleveland, OH, 7/2/2018).
3. "CSF-based drug delivery to the CNS: An engineering perspective" Children's Cancer Therapy Development Institute (Portland, OR, 8/3/2018).
4. "Translational research on subarachnoid trabeculae biomechanics" National Skull Base Center (Thousand Oaks, CA, 3/3, 2018).
5. "Quantitative MRI-based Diagnostics for Chiari Malformation" Chiari and Syringomyelia Foundation, Think Tank (Boston, MA, 10/7, 2017).
6. "Convection Enhanced Rational Intrathecal Delivery Based on CSF Dynamics" Biogen (Boston, MA, 8/14, 2017).
7. "Numerical modeling of intrathecal cerebrospinal fluid dynamics" Idaho NIH IDeA INBRE Conference (Moscow, ID, 8/2, 2017).
8. "Biophysics of Chiari malformation" 13th Symposium of the International Hydrocephalus Imaging Working Group (Kobe, Japan, 9/25-26, 2017).
9. "Engineering-based Methods for Static and Dynamic Assessment of Chiari malformation" American Syringomyelia and Chiari Alliance Project Annual Conference (Long Island, NY, 7/20-23, 2017)*.
10. "MRI-based quantification of CSF dynamics in ALS patients: a prospective case-control study" Inland Northwest Movement Disorder Society, 3rd Annual Meeting (Spokane, WA, 9/7-8, 2017).
11. "Are monkeys like humans? Comparison of intrathecal CSF dynamics across mammalian species" International Cerebrospinal Fluid Dynamics Society (Atlanta, Georgia, 6/19-20/2017)*.
12. "MRI-based biomarkers for characterization of amyotrophic lateral sclerosis" Clinical Translational Research Infrastructure Network, University of Nevada Las Vegas (Las Vegas, NV, 5/16, 2017)*.
13. "MRI Assessment of CSF Dynamics and Geometry in Non-human Primates" International Society for Hydrocephalus and Cerebrospinal Fluid Disorders (ISHCSF) (Cartagena, Colombia, 10/10/2016)*.
14. "Cerebellar and Brain Stem Deformation Assessment of Chiari Malformation" American Society of Neuroradiology (Washington D.C., U.S.A., 5/27/2016)*.
15. "Measurement and Modeling of Intracranial Fluid Dynamics and Morphology" Washington State University (Spokane, WA, 01/11/2016).
16. "Reliability of 4D Phase Contrast MRI for detection of CSF flow velocities" IHIWG / ISHCSFD Conference (Banff, Canada, 9/18, 2015).
17. "How reliable is phase-contrast MRI detection of CSF flow in Chiari malformation?" American Syringomyelia and Chiari Alliance Project Annual Conference (Ann Arbor, MI, 7/22-25, 2015).
18. "Assessment of cephalometric measurement reliability in type 1 Chiari malformation," American Society of Neuroradiology, CSF flow study group (Chicago, IL, 5/1, 2015).
19. "Characterization and modeling of cerebrospinal fluid dynamics in health and disease," Medtronic Neuro Forum Internal Lecture (Minneapolis, MN, 3/6, 2015).

20. "Reliability of CSF flow detection in Chiari malformation: an in vitro assessment of 4D phase-contrast MRI," American Syringomyelia and Chiari Alliance Project (ASAP) Annual Meeting, University of Michigan (Ann Arbor, MI, 7/22-25, 2015).
21. "Biomechanical characterization of Chiari malformation: morphometrics, CSF dynamics, and neuromechanics," Conquer Chiari Research Conference (Akron, OH, 11/8-9, 2014).
22. "In vitro comparison of 4D and 2D PC MRI assessment of CSF dynamics," International Hydrocephalus Imaging Working Group (IHIWG) (Bristol, UK, 9/5-6, 2014).
23. "Measurement and modeling of cerebrospinal fluid dynamics in health and disease," Voyager Therapeutics (Cambridge, MA, 7/9, 2014).
24. "Characterization and modeling of cerebrospinal fluid dynamics in Chiari Malformation," World Congress on Biomechanics, American Society of Mechanical Engineers Summer Bioengineering Conference (Boston, MA, 7/5-11, 2014)*.
25. "Cerebrospinal fluid dynamics in the spinal subarachnoid space," Neuroscience Forum, European Continuing Medical Training (Lausanne, Switzerland, 02/7-8, 2014).
26. "Characterization and modeling of cerebrospinal fluid dynamics: a field rich in complexity with many questions to answer," 7th World Congress on Biomechanics (Boston, Ma, U.S.A., 07/6-11, 2014)*.
27. "Spinal cord nerve roots and denticulate ligaments alter CSF dynamics in the upper cervical spine," 2nd International CSF dynamics symposium (Manhasset, New York, U.S.A., 06/24-25, 2013)*.
28. "Engineering insights into CSF flow dynamics at the craniovertebral junction," 51st Annual Meeting and The Foundation of the American Society of Neuroradiology Symposium, Hydrocephalus and CSF flow group meeting (San Diego, CA, 05/18-23, 2013).
29. "The importance of cerebrospinal fluid dynamics in craniospinal disorders," University of Illinois at Chicago, Department of Biomedical Engineering Lecture Series (Chicago, IL, 05/03, 2013).
30. "Chiari what? Using engineering principles to help understand biomechanics of a rare brain disorder called Chiari malformation," University of Akron, Research for Lunch Lecture Series (Akron, Ohio, 03/13, 2013).
31. "4D MRI applied to the investigation of Chiari & syringomyelia," Conquer Chiari Research Conference (Chicago, IL, 11/8-9, 2012).
32. "Neurohydrodynamics in the cervical spine," American Syringomyelia and Chiari Alliance Project Research Conference, Children's National Medical Center (Washington D.C., 07/18-21, 2012).
33. "4D MRI quantification of CSF velocities with comparison to computational fluid dynamics simulations," American Society of Neuroradiology 50th Annual Meeting, CSF and Hydrocephalus Study Group (New York, 04/26-27, 2012).
34. "Research trends in neurohydrodynamics," Nagoya Institute of Technology symposium on bioengineering, (Nagoya, Japan, 03/08, 2012).
35. "Coupled neurohydrodynamic modeling of the cardiovascular and cerebrospinal fluid system: insights gained and challenges that remain," European continuing medical training Neuroscience Forum, (Domaine de Divonne, Divonne-les-Bains, France, 12/16-17, 2011).
36. "Neurohydrodynamics: an engineering perspective," Department of Neuroradiology at the University Hospital of Münster, (Münster, Germany, 8/25, 2011).
37. "Simulation of CSF in the spinal subarachnoid space and spinal cord blood flow," 1st International Cerebrospinal Fluid Engineering Conference, (Zurich, Switzerland, 7/22-25, 2011)*.
38. "In vitro modeling of syrinx progression," Conquer Chiari Research Conference: New Developments and Controversies (Chicago, IL, 11/12, 2010).
39. "Cerebrospinal fluid biomechanics: an engineering perspective," Service de Neurologie Maladies Cérébro-Vasculaires, Centre Hospitalier Universitaire Vaudois (Lausanne, Switzerland 09/31, 2010).
40. "In vitro modeling of the spinal subarachnoid space," 6th World Congress on Biomechanics (Singapore, 09/1-6, 2010)*.
41. "An engineering analysis of syringomyelia," University of Illinois at Chicago, Department of Radiology, MRI Research Laboratory (Chicago, Illinois, 10/24, 2008).
42. "In vitro syringomyelia hydrodynamics," Ecole Polytechnique Fédérale de Lausanne (Lausanne, Switzerland, 9/16, 2008).

Conference technical presentations with published abstracts:

1. Martin BA, "Steady streaming: computational fluid dynamics predicts non-zero time-averaged intrathecal CSF flow," 56th Annual Meeting of the American Society for Neuroradiology, CSF Flow Group (IHIWG) (Vancouver, CA, 6/6-7, 2018).

2. Lad SP, Sass LR, Khani M, Byass S, McCabe A, Verbick LZ, Baledent O, Martin BA, "An Experimental and Computational Platform for Neurapheresis: Cerebrospinal Fluid Filtration Device and Protocol Optimization," Congress of Neurological Surgeons Annual Meeting (Houston, TX, 10/6-10, 2018).
3. Conley Natividad GC, Sass LR, Baledent O, Lad N, Mortazavi M, Tubbs RS, Martin BA, "3D anatomic model and quantitative assessment of 38 intracranial cerebrospinal fluid cisterns and cortical subarachnoid space," World Congress of Biomechanics (Dublin, Ireland, 7/9-12, 2018).
4. Freeman TS, Sass LR, Khani M, McCain K, Carter GT, Weeks DL, Petersen, Martin BA, "Quantification of Intrathecal Cerebrospinal Fluid Dynamics in Patients with Amyotrophic Lateral Sclerosis and Comparison to Controls," World Congress of Biomechanics (Dublin, Ireland, 7/9-12, 2018).
5. Sass LR, Byass S, Singh D, Arzumand A, Freund J, Anand PJ, Martin BA, "3D Printed In Vitro Platform for Investigation of Cerebrospinal Fluid Solute Transport Within the Intrathecal Spinal Subarachnoid Space," World Congress of Biomechanics (Dublin, Ireland, 7/9-12, 2018).
6. Sharp MK, Martin BA, Carare RO, "Shear-augmented dispersion in porous media in the periarterial and spinal subarachnoid spaces," World Congress of Biomechanics (Dublin, Ireland, 7/9-12, 2018).
7. Lawrence BJ, Ellenbogen RG, Luciano MG, Martin BA, "Elevated spinal cord tissue motion at the foramen magnum is an indicator of symptomatic chiari malformation," Western Medical Research Conference (Carmel, CA, 1/25-27/2018).
8. Ethier CR, Myers JG, Nelson E, Martin BA , Oshinski JN, Samuels B, Feola AJ, "Effects of CSF pressure on the eye: a computational-experimental comparison," NASA Human Research Investigator's Workshop (Galveston, TX, 1/22-25/2018).
9. Rohr JJ, Sass AM, Sater S, Macias B, Oshinski JN, Ethier CR, Stenger M, Martin BA, "MRI-based quantification of optic nerve tortuosity and subarachnoid space 3d geometry: reliability assessment," NASA Human Research Investigator's Workshop (Galveston, TX, 1/22-25/2018).
10. Sass LR, Khani M, Gibbs C, Freeman T, Pluid J, Elliott A, Oshinski JN, Zeller J, Stewart GR, Powell D, Petersen B, Weeks D, Carter G, Martin BA, "Quantitative assessment of intrathecal cerebrospinal fluid dynamics and geometry across large mammalian species," Hydrocephalus 2017 (Kobe, Japan, 10/23-25/2017).
11. Rohr JJ, Sass AM, Sater S, Aldrimk B, Stenger M, Macias B, Ethier CR, Sargsyan A, Martin BA, "Inter-operator Reliability Assessment of Optic Nerve Tortuosity in Long-duration Flight Astronauts," 33rd Annual Meeting of the American Society for Gravitational and Space Research (Seattle, WA, 10/25-28/2017).
12. Sass LR, Conley G, Cleveley B, Khani M, Xing T, Baledent O, Martin BA, "Neurochi: A virtual reality and in vitro model of the CSF system for teaching and research," Hydrocephalus 2017 (Kobe, Japan, 10/23-25/2017).
13. Sharp MK, Martin BA, Carrare R, "Analytic Darcy-Brinkman model for prediction of Shear-augmented dispersion in the BAsement Membranes and spinal subarachnoid space," International Cerebrospinal Fluid Dynamics Society (Atlanta, Georgia, 6/19-20/2017).
14. LR Sass, M Khani, O Baledent, BA Martin, "An in vitro model of intrathecal cerebrospinal fluid dynamics with dorsal and ventral spinal cord nerve rootlets," Summer Bioengineering, Biomechanics and Biotransport (Tucson, AZ, 6/21-24, 2017).
15. Sharp MK, Carrare R, Martin BA, "Shear-Augmented Dispersion Affects Cerebrospinal Fluid Solute Transport in the Subarachnoid Space but not within the Basement Membranes in the Brain," Summer Bioengineering, Biomechanics and Biotransport (Tucson, AZ, 6/21-24, 2017).
16. Khani M, Xing T, Gibbs C, Oshinski J, Stewart GR, Zeller JR, Martin BA, "CFD model and MRI measurement of intrathecal cerebrospinal fluid dynamics in a cynomolgus monkey," PhD Student Paper Finalist, Biomechanics – Fluids, Summer Bioengineering, Biomechanics and Biotransport (Tucson, AZ, 6/21-24, 2017).
17. Nelson ES, Myers JG, Lewandowski B, Feola AJ, Werner C, Raykin J, Martin BA, Samuels B, Ethier CR, "Ocular modeling for VIIP syndrome: how experimental and numerical studies can collaborate," NASA Human Research Program Investigators Workshop (Galveston, TX, 1/24, 2017).
18. Martin BA, Loth F, Luciano MG, "CSF fluid dynamics in Chiari malformation: a MRI study of longitudinal impedance," International Society for Hydrocephalus and CSF Disorders (Cartagena, Colombia, 10/8-11, 2016).
19. Bapuraj JR, Londy FJ, Martin BA, Ibrahim EH, Maher CO, Garton HJ, Muraszko KM, "New Parameters for Assessing CSF flow at the Cerebral Aqueduct and Craniovertebral Junction in Normal Subjects and Pediatric Chiari I malformations," American Society of Neuroradiology (Washington D.C., U.S.A., 4/26-27, 2016).
20. Loth F, Shaffer N, Pahlavian SH, Luciano MG, Oshinski JN, "Quantitative Assessment of the Differences in the Resistance to Spinal CSF Motion in Chiari Malformation," 3rd bi-annual meeting of the International CSF dynamics society (Amiens, France, 7/9-10, 2015).

21. Martin BA, Shaffer N, Oshinski JN, Luciano MG, Loth F, "Neural tissue deformation and cerebrospinal fluid flow impedance are positively correlated at the craniocervical junction," Summer Bioengineering Biotransport and Biomechanics Meeting (Snowbird, UT, USA, 6/17-20, 2015).
22. Majcher MJ, Dailey MR, Lemmer DP, Havrilak JT, Leipzig N, Martin BA, "Design of a 3D bioreactor for simulation of cerebrospinal fluid flow in the third ventricle and aqueduct of sylvius," Summer Bioengineering Biotransport and Biomechanics Meeting (Snowbird, UT, USA, 6/17-20, 2015).
23. Pahlavian SH, Loth F, Luciano MG, Martin BA, "A patient specific computational model to characterize the impact of neural tissue motion on cerebrospinal fluid dynamics at the cervical-medullary junction," Summer Bioengineering Biotransport and Biomechanics Meeting (Snowbird, UT, USA, 6/17-20, 2015).
24. Thyagaraj S, Giese D, Santini F, Fornari E, Bunck AC, Loth F, Martin BA, "Multicenter comparision of 4D phase contrast MRI measurement of cerebrospinal fluid dynamics in the cervical spine," Summer Bioengineering Biotransport and Biomechanics Meeting (Snowbird, UT, USA, 6/17-20, 2015).
25. Al-Jumaily A, Ashaat S, Martin BA, Pohle-Krauza R, Krauza ML, "Bariatric surgery improvements for obstructive sleep apnea patients," Summer Bioengineering Biotransport and Biomechanics Meeting (Snowbird, UT, USA, 6/17-20, 2015).
26. Loth F, Martin BA, Pahlavian S, Shaffer N, Oshinski JN, Luciano MG, "CFD simulation of cerebrospinal fluid motion to assess Chiari malformation severity," International conference on CFD in medicine and biology (Albufeira, Portugal, 9/30-10/4, 2015).
27. Marty P, Urbizu A, Macaya A, Sahuquillo J, Poca MA, Martin BA, "Gender-specific differences in adult type I Chiari malformation morphometrics," 67th Meeting of the American Academy of Neurology (Washington, DC, 4/18-25, 2015).
28. Luciano M, Martin BA, Loth F, "Is Chiari malformation a structure or a movement? Cleveland Clinic-Conquer Chiari Collaboration," Chiari and Syringomyelia Foundation Research Colloquium (Boston, MA, 10/18, 2014).
29. Bapuraj R, Martin BA, "2D PC MRI assessment of Chiari malformation" International Hydrocephalus Imaging Working Group (IHIWG) (Bristol, UK, 9/5-6, 2014).
30. Kroger JR, Thyagaraj S, Giese D, Hedderich D, Morsdorf-Shulte RL, Maintz DC, Yiallourou TI, Bunck AC, Martin BA, "4D-phase-contrast evaluation of cerebrospinal fluid dynamics in a rigid-wall 3D printed in-vitro model of Chiari I Malformation with idealized spinal cord nerve roots," 100th Meeting of the Radiological Society of North America (Chicago, IL, 11/30-12/5, 2014).
31. Pahlavian SH, Bunck AC, Tubbs RS, Yiallourou TI, Loth F, Martin BA, "4D phase-contrast magnetic resonance imaging of cerebrospinal fluid velocities in the cervical spine and quantitative comparison to computational fluid dynamics," Midwest American Society of Biomechanics Regional Meeting (Akron, OH, 3/4-5, 2014).
32. Thyagaraj S, Pahlavian SH, Vatani M, Choi J, Goodin M, Bunck AC, Yiallourou TI, Loth F, Martin BA, "3D printed model for simulation of cerebrospinal fluid motion in the cervical spinal subarachnoid space," Midwest American Society of Biomechanics Regional Meeting (Akron, OH, 3/4-5, 2014).
33. Shaffer N, Martin BA, Dombrowski S, Luciano MG, Tew JM, Loth F, "Investigation of post-surgical changes to cerebrospinal fluid flow impedance in type I Chiari malformation patients," Midwest American Society of Biomechanics Regional Meeting (Akron, OH, 3/4-5, 2014).
34. Alves T, Bapuraj JR, Malyarenko D, Martin BA, Srinivasan A, "Principles, Techniques and Clinical Applications of Phase Contrast MRI Cerebrospinal Fluid Imaging," 52nd Annual Meeting and The Foundation of the ASNR Symposium (Montreal, Canada, 5/17-22).
35. Mortensen M, Mardal KA, Pahlavian SH, Martin BA, "Preliminary study of the impact of spinal cord nerve roots and denticulate ligaments on drug movement in the cervical spinal subarachnoid space," 11th World Congress on Computational Mechanics (WCCM XI), 5th European Conference on Computational Mechanics (ECCM V), 6th European Conference on Computational Fluid Dynamics (ECFD VI) (Barcelona, Spain, 6/20-25, 2014)
36. Yiallourou TI, Luciano M, Loth F, Bunck AC, Stergiopulos N, Martin BA, "Inter-operator dependence of subject specific CFD modeling of cerebrospinal fluid dynamics at the craniocervical junction," International Society for Magnetic Resonance in Medicine (Milan, Italy, 5/10-16, 2014).
37. Martin BA, Shaffer N, Lowenkamp M, Loth F, Tew JM, Luciano MG, "Clinical importance of neural tissue deformation in type I Chiari malformation," American Society of Pediatric Neurosurgeons (Costa Rica, 1/26-31, 2014).
38. Shaffer N, Martin BA, Dombrowski S, Luciano MG, Tew JM, Oshinski JN, Loth F, "Quantitative Assessment of the Differences in Spinal CSF Dynamics in Chiari Malformation," 2nd International CSF dynamics symposium (Manhasset, New York, U.S.A., 6/24-25, 2013).
39. Shaffer N, Martin BA, Rocque B, Madura C, Iskandar B, Wieben O, Dombrowski S, Luciano MG, Oshinski JN, Loth F, "The relation of cerebrospinal fluid flow impedance and cerebellar herniation in type I Chiari

malformation," 1st Place PhD Student Presentation Competition, ASME Summer Bioengineering Conference (Sun River, Oregon, U.S.A., 6/26-29, 2013).

40. Al-Jumaily AM, Ashaat S, Martin BA, Heinzer R, Haba-Rubio J, Stergiopulos N, "Uvula dynamic characteristics," ASME Summer Bioengineering Conference (Sun River, Oregon, U.S.A., 6/26-29, 2013).
41. Bertram CD, Elliott NSJ, Martin BA, Brodbelt AR, "The contribution of engineering modelling to the understanding of syringomyelia pathogenesis: a review," Syringomyelia 2013 (Sydney, Australia, 2/27-3/1, 2013).
42. Bapuraj JR, Londy F, Maher CO, Martin BA, Quint DJ, Sundgren PA, Chenevert TC, Muraszco KA, "Dynamic MRI and quantitative MRI CSF flow studies in Chiari I malformations," Conquer Chiari Research Conference (Chicago, IL, 11/8-9, 2012).
43. Bapuraj JR, Londy F, Maher CO, Martin BA, Quint DJ, Sundgren PA, Chenevert TC, Muraszco KA, "The influence of neck position on CSF velocities at the cranio-cervical junction and the aqueduct of Sylvius in healthy subjects and pre- and post-operative patients with Chiari I malformation," American Society of Neuroradiology 50th Annual Meeting (New York, NY, 4/21-26, 2012).
44. Martin BA, Yiallourou TI, Stergiopulos N, "Quantitative comparison of 4D MRI flow measurements to 3D computational fluid dynamics simulation of cerebrospinal fluid movement in the spinal subarachnoid space," International Conference on Computational Fluid Dynamics in Medicine and Biology (Dead Sea, Israel, 3/25-30, 2012).
45. Yiallourou TI, Odier C, Martin BA, Haba-Rubio J, Heinzer R, Hirt L, Stergiopulos N, "The effect of continuous positive airway pressure on total cerebral blood flow in 23 healthy away volunteers," 10th International Workshop on Biomedical Engineering (Kos, Greece, 10/5-7, 2011).
46. Yiallourou TI, Asboth L, Kroeger JR, Maintz D, Bunck AC, Martin BA, Stergiopulos N, "Quantitative comparison of 4D MRI flow measurements to 3D computational fluid dynamics simulation of cerebrospinal fluid movement in the spinal subarachnoid space," 10th International Workshop on Biomedical Engineering (Kos, Greece, 10/5-7, 2011).
47. Martin BA, Novy J, Balédent O, Reymond P, Stergiopulos N, "Prediction of spinal cord perivascular flow based on a coupled computational simulation of the cardiovascular and cerebrospinal fluid system," International Society for Hydrocephalus and Cerebrospinal Fluid Disorders (Copenhagen, Denmark, 9/3-7, 2011).
48. Shahim K, Drezet JM, Martin BA, Molinari JF, Momjian SH, "Analytical model of normal pressure hydrocephalus," Swiss Federal Institute of Technology – EPFL, Material Science and Engineering EDMX Research Symposium (Lausanne, Switzerland, 3/17, 2011).
49. Martin BA, Reymond P, Balédent O, Novy J, Stergiopulos N, "A coupled simulation of spinal cord blood flow and cerebrospinal fluid motion in the spinal subarachnoid space based on in vivo measurements," ASME Summer Bioengineering Conference (Farmington, Pa, 6/22-25, 2011).
50. Vardoulis O, Coppens E, Martin BA, Reymond P, Stergiopulos N, "Assessment of aortic graft impact on hemodynamics," ASME Summer Bioengineering Conference (Farmington, Pa, 6/22-25, 2011).
51. Picquot A, Santini F, Block J, Fonari E, Martin BA, Stergiopulos N, "A comparison of 4D MRI flow measurements and 3D computational fluid dynamics simulation of cerebrospinal fluid movement in the brain ventricles," International Society for Magnetic Resonance in Medicine Annual Meeting (Montréal, Canada, 5/7-13, 2011).
52. Martin BA, F. Loth, "In vitro hydrodynamic modeling of syringomyelia," International Symposium on Syringomyelia (Berlin, Germany 12/09-11, 2010).
53. Martin BA, P. Reymond, F. Loth, N. Stergiopulos, "A 1-D coupled model of the cardiovascular tree and cerebrospinal fluid system," 6th World Congress on Biomechanics (Singapore, 9/1-6, 2010).
54. Y. Liu, Martin BA, T. J. Royston, "A series of in silico fluid structure interaction simulations of the cerebrospinal fluid pressure wave propagation in the spinal subarachnoid space," ASME 2010 International Mechanical Engineering Congress & Exposition (Vancouver, Canada, 11/12-18, 2010).
55. Martin BA, "Device and method for non-invasive measurement of vascular properties," TechConnect medtech IP submission (Anaheim, CA, June 21-25, 2010).
56. Y. Liu, Martin BA, T. J. Royston, F. Loth, "A fluid structure interaction simulation of the cerebrospinal fluid, spinal cord, and spinal stenosis present in syringomyelia," ASME Summer Bioengineering Conference (Naples, FL, 6/16-19, 2010).
57. Martin BA, S. El-Khoury, F. Loth, "The Influence of cerebrospinal fluid flow frequency and magnitude on subarachnoid space pressure fluctuations in an in vitro syringomyelia model with spinal canal stenosis," Biomedical Engineering Society Annual Meeting (Pittsburgh, Pa, 10/7-10, 2009).

58. Martin BA, F. Loth, T. J. Royston, "The interrelation of cerebrospinal fluid pulse wave velocity and biomechanical properties of the spinal canal," 10th US National Congress on Computational Mechanics, Mechanics of biological Tissues Mini-Symposium (Columbus, Ohio, 7/16-19, 2009).
59. Martin BA, F. Loth, "The influence of coughing on cerebrospinal fluid pressure in an in vitro syringomyelia model with spinal canal stenosis," ASME Summer Bioengineering Conference (Lake Tahoe, CA, 6/17-21, 2009).
60. F. Loth, Martin BA, "Engineering & imaging techniques," American Syringomyelia Alliance Project Annual Conference (Washington D.C., July, 2008).
61. F. Loth, Martin BA, "Engineering & imaging techniques," Chiari Research Conference 2008, State of the Research and New Directions (Chicago, IL, 11/6-7, 2008).
62. Martin BA, Wojciech Kalata, Francis Loth, John N. Oshinski, Michael Jerosch-Herold, "MR measurement of pulse wave velocity in the spinal canal," ASME Summer Bioengineering Conference (Marco Island, FL, 6/25-29, 2008).
63. Martin BA, "Syringomyelia apparatus demonstration," UIC/Conquer Chiari Research Symposium (Chicago, Illinois, 6/2, 2007).
64. W. Kalata, Martin BA, F. Loth, T. J. Royston, J. N. Oshinski, Jerosch-Herold, "Measurements of pulse wave velocity in the spinal canal," Biomedical Engineering Society Annual Meeting (Chicago, Illinois, 10/11-14, 2006).
65. Martin BA, W. Kalata, F. Loth, T.J. Royston, J. N. Oshinski, "An engineering approach to understanding the hydrodynamics of syringomyelia," ASAP Annual National Conference (Cedar Rapids, Iowa, 7/20-23, 2005).
66. T. Spohnholtz, T. J. Royston, Y. Yaziciolgu, Martin BA, F. Loth, H. Bassiouny, "A multimode sonic & ultrasonic diagnostic imaging system with application to peripheral vascular characterization," 149th Meeting of the Acoustical Society of America (Vancouver, Canada, 5/16-20, 2005).
67. W. Kalata, Martin BA, F. Loth, J. N. Oshinski, "Differences in cerebrospinal fluid motion in Chiari malformation patients and healthy volunteers," 3rd Annual Neural Hydrodynamics Symposium (Cleveland, OH, 5/12-14, 2005).
68. Martin BA, W. Kalata, F. Loth, J. N. Oshinski, T. J. Royston, "Experimental syringomyelia hydrodynamics: the importance of pressure phase relation on syrinx pathogenesis," 3rd Annual Neural Hydrodynamics Symposium (Cleveland, OH, 5/12-14, 2005).
69. Martin BA, W. Kalata, F. Loth, T. J. Royston, J. N. Oshinski, "An experimental investigation of the hydrodynamic and biomechanical environment present in syringomyelia," ASME Summer Bioengineering Conference (Vail, CO, 5/22-26, 2005).
70. Martin BA, W. Kalata, J. N. Oshinski, F. Loth, "An engineering perspective on syringomyelia," ASAP Annual National Conference (Key Biscayne, FL, 6/21-24, 2004).
71. Martin BA, W. Kalata, T.J. Royston, J. N. Oshinski, F. Loth, "Experimental study on pressure and hydrodynamic flow within the subarachnoid space," 2nd Symposium of Neural Hydrodynamics (Menlo Park, CA, 5/1, 2004).
72. Martin BA, F. Loth, J. N. Oshinski, "Physical characterization of pressure wave transmission in a fluid filled syrinx," Proceedings of the Neurohydrodynamic Symposium (6/1, 2004).
73. Martin BA, W. Kalata, J. N. Oshinski, F. Loth, "Importance of mechanical forces in the development of syringomyelia for patients with Chiari malformation," ASAP Annual Conference (New York City, NY, 7/1, 2003).
74. Martin BA, W. Kalata, J. N. Oshinski, F. Loth, "Engineering perspective on diseases related to CSF motion," University of Chicago in the Department of Neurosurgery Grand Rounds (Chicago, IL, 6/6, 2003).

Conference posters:

1. Sass LR, Khani M, Romm J, Schmid Daners M, McCain K, Freeman T, Carter G, Weeks D, Petersen B, Aldred J, Wingett D, Martin BA, "MRI-based Quantification of Cerebrospinal Fluid Dynamics in Amyotrophic Lateral Sclerosis Patients and Healthy Controls," WWAMI Medical School Student Research Symposium (Moscow, ID, 11/13, 2018).
2. Theodossiou S, NR Schiele, CL Majors, X Chen, E Tipton, G Murdoch, G Potirniche, B Tanner, S Suriya, M Mortazavi, BA Martin, "Quantification of Ovine Pia Arachnoid Complex Biomechanical Properties and Morphology," Biomedical Engineering Society Annual Meeting (Atlanta, GA, October 17-20, 2018) (*submitted*).
3. Freund J, Singh D, Arzumand A, Sass LR, Byass S, Martin BA, Anand PJ, "Intrathecal Drug Delivery Platform for Gene Therapy: An In Vitro & In Vivo Delivery Study," American society of Gene and Cell Therapy Annual Meeting (Chicago, IL, 5/16-19, 2018).
4. Griffith JL, Eckerman BD, Loflin B, Becker R, Martin BA, Cluff K, "Non-Invasive Detection of Intracranial Pressure Changes by a Novel Radio Frequency Resonant Skin Patch Sensor," 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (Honolulu, HI, USA, July 17-21, 2018).

5. Theodossiou S, Majors C, Chen X, Tipton E, Schiele NR, Murdoch G, Tanner B, Mortazavi M, Potirniche G, Martin BA, "Biomechanical Characterization and Modeling of the Brain Under Traumatic Brain Injury," University of Idaho Center for Modeling Complex Interactions, External Advisory Committee (EAC) Review (Moscow, ID, 5/9/2018).
6. Byass S, Sass LR, Martin BA, "In vitro quantification of intrathecal solute transport: impact of bolus and flush volume," University of Idaho Undergraduate Research Symposium (Moscow, ID, 4/30/2018).
7. Chen X, Theodossiou S, Majors C, Tipton E, Schiele NR, Murdoch G, Tanner B, Mortazavi M, Potirniche G, Martin BA, "Ex vivo quantification of ovine pia arachnoid complex biomechanical properties and morphology," University of Idaho Undergraduate Research Symposium (Moscow, ID, 4/30/2018).
8. Natividad GC, Cleveley B, Oles J, Manwaring D, Magbunduku L, Sass LR , Martin BA, "Neurochi: Virtual Reality Software of the Cerebrospinal Fluid System" University of Idaho Undergraduate Research Symposium (Moscow, ID, 4/30, 2018).
9. Sass AM, Sater S, Rohr JJ, Macias B, Oshinski JN, Ethier CR, Stenger M, Martin BA, "Methods For Quantifying Tortuosity and 3d Geometry Changes Occuring to the Optic Nerve During Long-Duration Spaceflight," University of Idaho Undergraduate Research Symposium (Moscow, ID, 4/30, 2018).
10. Marsden E, Aldrimk B, Lunstrum A, Conley G, Sass LR, Martin BA, "Oscillatory Flow Pump for Simulation of Cerebrospinal Fluid Flow," University of Idaho Undergraduate Research Symposium (Moscow, ID, 4/30, 2018).
11. Sass AM, Rohr JJ, Stenger M, Macias B, Ethier CR, Sargsyan AE, Martin BA, "Automated Method to Quantify 3D Geometric Alterations of the Optic Nerve and Sheath in Astronauts," NASA Human Research Program Investigators' Workshop, The Gateway to Mars (Galveston, TX, 1/22-25, 2018).
12. Rohr JJ, Sass AM, Sater S, Aldrimk B, Stenger M, Macias B, Ethier CR, Sargsyan A, Martin BA, "Inter-operator Reliability Assessment of Optic Nerve Tortuosity in Long-duration Flight Astronauts," 33rd Annual Meeting of the American Society for Gravitational and Space Research (Seattle, WA, 10/25-28/2017).
13. McCain K, Sass L, Khani M, Carter G, Weeks D, Wiest M, Petersen B, Wingett D, Freeman T, Martin BA, "MRI based biomarkers for characterization of ALS," University of Idaho, Idaho INBRE conference (Moscow, ID, 8/2, 2017).
14. Conley G, Cleveley B, Oles J, Sass L, Xing T, Baledent O, Kurtcuoglu V, Martin BA, "Neurochi virtual reality simulator of the cerebrospinal fluid system," University of Idaho, Idaho INBRE conference (Moscow, ID, 8/2, 2017).
15. Sater S, Sass A, Aldrimk B, Rohr J, Stenger M, Macias B, Martin BA, "Reliability assessment of Optic Nerve Trajectory in Long-duration Space Flight Astronauts," University of Idaho, Undergraduate Student Research Symposium (Moscow, ID, 4/24, 2017).
16. Conley G, Cleveley B, Sass L, Xing T, Baledent O, Kurtcuoglu V, Martin BA, "A 3D Anatomic Model of the Intracranial Cerebrospinal Fluid System Based on MRI Measurements and Neurosurgical Literature Review," University of Idaho, Undergraduate Student Research Symposium (Moscow, ID, 4/24, 2017).
17. Majors C, Aldrimk B, Sass L, Martin BA, "Prototype 3D-printed Oscillatory Flow Pump for Simulation of Cerebrospinal Fluid Flow," University of Idaho, Undergraduate Student Research Symposium (Moscow, ID, 4/24, 2017).
18. G. Conley Natividad, B. Cleveley, LR Sass, T Xing, O Baledent, V Kurtcuoglu, BA Martin, "Neuroculus virtual reality simulator of the cerebrospinal fluid system," Undergraduate Student Paper Competition Finalist, Summer Bioengineering, Biomechanics and Biotransport (Tucson, AZ, 6/21-24, 2017).
19. MV DaSilva Ferreira, BA Martin, "MRI-based assessment of cerebrospinal fluid pulse wave velocity in the upper cervical spine," University of Idaho Undergraduate Research Symposium (Moscow, ID, 2016).
20. M. Wransky, D. McQuaide, J. Strahle, C. O. Maher, M. Espanol, F. Loth, BA Martin, "Machine learning and morphometric analysis of asymptomatic and symptomatic Type 1 Chiari malformation patients," World Congress on Biomechanics, American Society of Mechanical Engineers Summer Bioengineering Conference (Boston, MA, 7/5-11, 2014).
21. S. H. Pahlavian, A. C. Bunck, R. S. Tubbs, T. Yiallourou, F. Loth, BA Martin, "Quantitative Comparison of 4D Phase-Contrast Magnetic Resonance Imaging and Subject-Specific Computational Fluid Dynamics Simulation of Cerebrospinal Fluid Velocities in Cervical Spine," World Congress on Biomechanics, American Society of Mechanical Engineers Summer Bioengineering Conference (Boston, MA, 7/5-11, 2014).
22. S. Thyagaraj, S.H. Pahlavian, M. Vatani, J. Choi, M. Goodin, A. Bunck, T. Yiallourou, F. Loth, BA Martin, "3D printed model of the cervical spine for simulation of cerebrospinal fluid motion: comparison of in vitro and computational fluid dynamics simulation results," World Congress on Biomechanics, American Society of Mechanical Engineers Summer Bioengineering Conference (Boston, MA, 7/5-11, 2014).

23. N. Shaffer, BA Martin, S. Dombrowski, M. Luciano, J. Tew, F. Loth, "Investigation of post-surgical changes to cerebrospinal fluid hydrodynamics in type I Chiari malformation patients," World Congress on Biomechanics, American Society of Mechanical Engineers Summer Bioengineering Conference (Boston, MA, 7/5-11, 2014).
24. M. Majcher, N. Shaffer, F. Loth, M. Luciano, J. Oshinski, B. Martin, "Quantification of neural tissue deformation in type 1 Chiari malformation patients pre- and post-spinal decompression surgery and comparison to controls," World Congress on Biomechanics, American Society of Mechanical Engineers Summer Bioengineering Conference (Boston, MA, 7/5-11, 2014).
25. D. Casey, BA Martin, G. Bateman, S. H. Pahlavian, N. Shaffer, K. Smith Jr., F. Loth, "Numerical Simulation of Superior Sagittal Sinus Hemodynamics," World Congress on Biomechanics, American Society of Mechanical Engineers Summer Bioengineering Conference (Boston, MA, 7/5-11, 2014).
26. M. Wransky, M. Espanol, A. Urbizu, F. Loth, BA Martin, "Machine learning for the detection of type 1 Chiari malformation without using tonsillar herniation measurement," Midwest American Society of Biomechanics Regional Meeting (Akron, OH, 3/4-5, 2014).
27. R. Kenyon, S. Thyagaraj, N. Leipzig, F. Loth, BA Martin, " An in vitro hydrodynamic model of the spinal subarachnoid space with arachnoid trabeculae," Midwest American Society of Biomechanics Regional Meeting (Akron, OH, 3/4-5, 2014).
28. M. Majcher, N. Shaffer, F. Loth, M. Luciano, J. Tew, M. Lowenkamp, BA Martin, "Quantification of axial spinal cord displacement in type 1 Chiari malformation," Midwest American Society of Biomechanics Regional Meeting (Akron, OH, 3/4-5, 2014).
29. M. Majcher, N. Shaffer, F. Loth, M. Luciano, J. Oshinski, BA Martin, "Measurement of brain and spinal cord tissue motion in type 1 Chiari malformation by phase contrast magnetic resonance imaging," University of Akron Student Innovation Symposium (Akron, OH, 4/10, 2014).
30. Chen T, Lowenkamp M, Shaffer N, and B Martin. "Syrinx Formation over 1 week in Chiari I Malformation: CSF velocity quantification before and after surgery," AANS/CNS Section on Pediatric Neurological Surgery (Toronto, Canada, 12/2013).
31. M. Wransky, M. Espanol, B. Martin, "MRI-based Classifiers in Chiari Malformation," Midstates Conference for Undergraduate Research in Computer Science and Mathemathics (Delaware, OH, U.S.A., 11/16, 2013).
32. S.H. Pahlavian, T.I. Yiallourou, R. S. Tubbs, A. Bunck, M. Goodin, F. Loth, M. Raisee, Martin BA, "Cerebrospinal fluid dynamics in the cervical spine: importance of fine anatomical structures," ASME Summer Bioengineering Conference (Sun River, Oregon, U.S.A., 6/26-29, 2013).
33. Martin BA, N. Stergiopulos, "Prediction of the impact of craniospinal compliance on the relative timing of arterial and cerebrospinal fluid pulsations and perivascular fluid flow into the spinal cord," ASME Summer Bioengineering Conference (Fajardo, Puerto Rico, 6/20-23, 2011).
34. T. Yiallourou, A. Bunck, J. Kroeger, N. Stergiopulos, Martin BA, "4D MRI flow quantification of cerebrospinal fluid motion in the cervical spine in healthy subjects and Chiari malformation patients: how do the results compare with 3D computational fluid dynamics?," ASME Summer Bioengineering Conference (Fajardo, Puerto Rico, 6/20-23, 2011).
35. B. D. Anthikat-Alpert, T. Yiallourou, J. Haba-Rubio, R. Heinzer, E. Fonari, N. Chevrey, F. Santini, N. Stergiopulos, Martin BA, "Continuous positive airway pressure impacts cerebral blood flow and cerebrospinal fluid motion: a phase contrast MRI study," ASME Summer Bioengineering Conference (Fajardo, Puerto Rico, 6/20-23, 2011).
36. T. I. Yiallourou, C. Odier, Martin BA, J. Haba-Rubio, R. Heinzer, L. Hirt, N. Stergiopulos, "The effect of continuous positive airway pressure on total cerebral blood flow in 23 healthy away volunteers," ASME Summer Bioengineering Conference (Farmington, Pa, 6/22-25, 2011).
37. Martin BA, T. J. Royston, J. N. Oshinski, F. Loth, "Towards non-invasive assessment of the elastic properties of the spinal aqueduct," ASME Summer Bioengineering Conference (Lake Tahoe, CA, 6/17-21, 2009).
38. Martin BA, R. Labuda, T. J. Royston, J. N. Oshinski, B. Iskandar, F. Loth, "Pathological biomechanics of cerebrospinal fluid pressure in syringomyelia: fluid structure interaction of an in vitro coaxial elastic tube system," ASME Summer Bioengineering Conference (Lake Tahoe, CA, 6/17-21, 2009).
39. Martin BA, J. Seil, F. Loth, S. McCormack, T. J. Royston, "Epithelial cell growth on compliant biomaterial (Nusil CF11)," Biomedical Engineering Society Annual Meeting (Chicago, Illinois, 10/11-14, 2006).
40. E. Mason, Martin BA, Y. Yazicioglu, F. Loth, T. J. Royston, I. Nicolaescu, "In vitro and in vivo piezoelectric sensor for measurement of pulse wave velocity," Biomedical Engineering Society Annual Meeting (Chicago, Illinois, 10/11-14, 2006).
41. Martin BA, W. Kalata, F. Loth, J. N. Oshinski, T. J. Royston, "Characterization of pressure wave transmission in a fluid filled syrinx," Biomedical Engineering Society Annual Meeting (Chicago, Illinois, 10/11-14, 2006).

42. T. Spohnholtz, T. J. Royston, Y. Yaziciolgu, Martin BA, F. Loth, H. Bassiouny, "Helping doctors interpret the sound of blood using a multimode sonic and ultrasonic imaging system," 149th Meeting of the Acoustical Society of America, lay language paper (Vancouver, Canada, 5/16-20, 2005).
43. Y. Yazicioglu, T. J. Royston, T. Spohnholtz, Martin BA, F. Loth, H. Bassiouny, "Coupled vibration and sound radiation from a fluid-filled and submerged or embedded vascular tube with internal turbulent flow due to a constriction," 149th Meeting of the Acoustical Society of America (Vancouver, Canada, 5/16-20, 2005).
44. W. Kalata, Martin BA, et. al, "Hydrodynamics of cerebrospinal fluid in spinal canal with Chiari malformation and syringomyelia," Bioengineering Session, American Society of Mechanical Engineers National Conference (Anaheim, CA, 11/13-19, 2004).
45. Martin BA, W. Kalata, J. N. Oshinski, F. Loth, T. J. Royston, "Construction and validation of a complaint model of the cerebrospinal fluid system with fluid filled syrinx," 2004 ASME International Mechanical Engineering Congress & Exposition (Anaheim, CA ,11/13-19, 2004).
46. W. Kalata, Martin BA, F. Loth, T. J. Royston, J. N. Oshinski, "Hydrodynamics of cerebrospinal fluid in spinal canal with Chiari malformation and syringomyelia," Bioengineering Poster Session, American Society of Mechanical Engineers National Conference (Anaheim, CA, 11/13-19, 2004).
47. Y. Yazicioglu, T. J. Royston, T. Spohnholtz, Martin BA, F. Loth, "Coupled vibration of a fluid-filled and submerged vascular tube with internal transitional / turbulent flow due to a constriction," in Proceedings of the 148th Meeting of the Acoustical Society of America, (San Diego, CA, 11/1, 2004).

Patents:

Patent applications under review

1. PCT/EP2010/051320, Martin BA, "Device and method for non-invasive measurement of cerebrovascular properties," (provisional filed 2/3, 2012, Ecolé Polytechnique Fédérale de Lausanne, Switzerland).
2. US 2006/0089557 A1, Liliana Grajales, Martin BA, Ion V. Nicolaescu, Iwona turlik. "Method and apparatus to facilitate heart rate detection," (published 10/27, 2004, Motorola, Inc., Schaumburg, IL).

Invention disclosures

1. Martin BA, Khani M, "Dual-lumen neurapheresis catheter for equal flow at aspiration and return ports," invention disclosure (submitted, 10/24, 2018, University of Idaho, ID).
2. Martin BA, Marsden E, Sass LR, "Method and apparatus for robotically controlled subject-specific magnetic particle drug delivery to the central nervous system via cerebrospinal fluid," invention disclosure (submitted 8/21/2018, University of Idaho, ID).
3. Martin BA, Sass LR, "Intrathecal Micropump," invention disclosure (submitted 6/27, 2018, University of Idaho, ID).
4. Martin BA, Cleveley CB, Sass LR, Conley G, Oles J, Aldrimk B, "Neurochi: Virtual Simulation of the Cerebrospinal Fluid System," invention disclosure (submitted 8/01, 2017, University of Idaho, ID).
5. Martin BA, Maughan M, Gibbs C, Deans B, Souvenir B, Harlow M, Aljawi M, "Biomechanical Indenter Pen," invention disclosure (submitted 4/2017, University of Idaho, ID).
6. Martin BA, Sass L, "Anthropomorphic cerebrospinal fluid system model," invention disclosure (filed 7/7, 2016, University of Idaho, ID).
7. Pahlavian SH, Labuda R, Eppelheimer M, Loth F, Martin BA, Urbizu AS, "Software for Automated Morphometrics of Skull Based Diseases," invention disclosure (filed 12/10, 2015, University of Akron, OH) USPTO 62/265,666.
8. Martin BA, "Subject-specific prediction and optimization of intrathecal (IT) drug and gene therapy (GT) based on 4D phase contrast magnetic resonance imaging and computational modeling," invention disclosure (filed 5/9, 2014, University of Akron, OH).
9. Martin BA, "Device and method for noninvasive alteration of intracranial pressure oscillations via a cardiac triggered continuous positive airway pressure device," invention disclosure (filed 10/12, 2012, University of Akron, OH).
10. Martin BA, "Device and method for non-invasive measurement of cerebrovascular properties," invention disclosure (filed 12/11, 2009, Ecolé Polytechnique Fédérale de Lausanne, Switzerland).
11. Martin BA, "Automated laser aspiration system," invention disclosure (filed 7/15, 2009, Ecolé Polytechnique Fédérale de Lausanne, Switzerland).
12. Martin BA, F. Loth, "Cerebrospinal fluid system model," invention disclosure (filed 3/4, 2009, University of Akron, OH).

13. Martin BA, F. Loth, "System and method for research of patient entered medical information," invention disclosure (filed 3/24, 2009, University of Akron, OH).
14. F. Loth, Martin BA, R. Labuda, J. Oro, J. N. Oshinski, "Device and method for measurement of tension and elastic properties of the spinal cord and filum terminale," invention disclosure (filed 3/2, 2009, University of Akron, OH).
15. T. J. Royston, Spohnholtz, F. Loth, Y. Yazicioglu, Martin BA, "A multimode sonic & ultrasonic diagnostic imaging method," invention disclosure (filed 3/1, 2004, University of Illinois at Chicago, IL).
16. T. J. Royston, Spohnholtz, F. Loth, Martin BA, "New acoustic skin-contact hydrophone sensor array pad for medical diagnosis and monitoring," invention disclosure (filed 3/1, 2004, U. of Illinois at Chicago, IL).

Grants and Contracts Awarded (Active):

1. Parametric investigation of intrathecal drug delivery in humans and nonhuman primates by in vitro and in silico simulations
   Source: Industry (Biogen)
   Funding: $584,000 to Martin BA, 10/01/2018 – 09/30/2020
   Investigators: Martin BA (PI)
   Commitment: 25%
   Goal: Use in vitro and computer modeling to optimize intrathecal drug protocols and devices.

2. Simulations of CSF, Hemodynamics and Ocular Risk (VIIP SCHOLAR)
   Source: NASA, NNX16AT06G
   Funding: $750,000 total, $97,000 to Martin BA (Co-I), 10/01/2016 – 09/30/2019
   Investigators: Ethier R (PI), Martin BA (Co-I, sub-award)
   Commitment: 6%
   Goal: Develop tools to compute CSF fluid shifts in microgravity and the affect on the eye.

3. ASAP Chiari Research Fellow
   Source: American Syringomyelia and Chiari Alliance Project (Foundation)
   Funding: $47,048 to Martin BA, 1/1/2019 – 1/1/2020
   Investigators: Martin BA (PI)
   Commitment: 0%
   Goal: Investigate cardiac-related brain deformation as an indicator of Chiari malformation.

4. Highly Accelerated Simultaneous Multi-Slice Phase Contrast MRI
   Source: NIH, NIMH, 1R44MH112210-01A1
   Funding: $1,287,772 total, $47,529 to Martin BA, 05/01/2016 – 4/30/2019
   Investigators: Feinberg (PI), Martin BA (Co-I, sub-award)
   Commitment: 6%
   Goal: Develop and validate a highly accelerated phase-contrast MRI.

5. Ocular Biomechanics Assessment in Astronauts
   Source: KBR Wyle / NASA Prime Grant No. NNJ15HK11B
   Funding: $91,172 to Martin BA, 08/01/2017 – 9/30/2019
   Investigators: Martin BA (PI, sub-award from parent)
   Commitment: 11%
   Goal: Apply imaging techniques to objectively quantify eye deformation over space flight.

6. An Experimental and Computational Platform for Neuropheresis Device Assessment
   Source: Industry (Minnetronix)
   Funding: $136,411 to Martin BA, 11/01/2016 – 5/13/2019
   Investigators: Martin BA (PI)
   Commitment: 8%
   Goal: Investigate how to optimize filtration of blood from cerebrospinal fluid.

7. Investigating the Impact of Arachnoid Trabeculae on Brain Tissue Stresses in Sports-Related Traumatic Brain Injury (TBI)

Source: NIH Grant No.P20 GM103408 (NIGMS) / Idaho INBRE
Funding: $134,692 to Martin BA, 05/01/2017 – 04/30/2019
Investigators: Bohach (PI), Martin BA (PI, sub-award from parent)
Commitment: 25%
Goal: Measure and model the influence of arachnoid trabeculae on brain cortical tissue stress.

8. An in vitro platform for pharmacokinetic quantification of intrathecal infusion devices
Source: Industry (Alcyone Lifesciences)
Funding: $58,000 to Martin BA, 05/13/2018 – 12/31/2018
Investigators: Martin BA (PI)
Commitment: 4%
Goal: Quantify the impact of intrathecal infusion parameters on solute transport in the spine.

9. Ocular Biomechanics Assessment in Astronauts (Phase 2)
Source: KBR Wyle / NASA Prime Grant No. NNJ15HK11B
Funding: $33,706 to Martin BA, 9/30/2018 – 12/31/2019
Investigators: Martin BA (PI)
Commitment: 8%
Goals: Extend imaging techniques to quantify eye deformation in additional astronauts

10. Engineering Grand Challenges Scholars
Source: University of Idaho (internal)
Funding: $10,996 to scholars, 3/1/2017 – present
Investigators: Martin BA (Mentor for G. Conley, T. Freeman, A. Lundsrum, O. Bangudu)
Commitment: 0%
Goal: Mentor engineering grand challenges scholars students.

Grants and Contracts Awarded (Pending): Dollar amounts indicate Martin spending authority only.

11. Investigating structure and function of the eye
Source: NASA
Funding: $80,000 to Martin BA, 09/01/2018 – 08/31/2023
Investigators: Macias B (PI), Martin BA (co-I)
Commitment: 4%
Goal: Identify if greater ocular alterations occur with increased astronaut flight duration

12. Establishing a Novel Neural Tissue Deformation Biomarker for Type 1 Chiari Malformation
Source: NIH NINDS
Funding: $1,073,068 to Martin BA ($1,879,781 total), 04/01/2019 – 03/31/2023
Investigators: Martin BA (PI)
Commitment: 36% (Yr1), 17% (Yr2-4), 25% (Yr5)
Goal: Identify if greater ocular alterations occur with increased astronaut flight duration

13. Computational Modeling of Cerebrospinal Fluid Drug Delivery
Source: NIH NIGMS
Funding: $466,193 to Martin BA ($10,975,790 total), 02/01/2020 – 01/31/2022
Investigators: Martin BA (PI)
Commitment: 36% (Yr1), 17% (Yr2-4), 25% (Yr5)
Goal: Formulate and validate a computational pipeline for patient-specific CSF drug delivery.

Completed grants at University of Idaho:

14. Hydrodynamic Simulator for Brain Therapeutic Development
Source: Vandal Ideas Project (Internal Competitive Grant, University of Idaho)
Funding: $75,000 to Martin BA, 07/01/2016 – 08/31/2017
Investigators: Martin BA (PI)

Commitment: 2%
Goal: Make in vitro, in silico, & virtual hydrodynamic simulator for brain therapeutic development

15. AI to Transform Clinician Autism Diagnostic Assessments and More
    Source: NIH, SBIR Phase II (Grant No. TBD)
    Funding: N/A, 1/2018-9/2018
    Investigators: Oberleitner R (PI), Martin BA (consultant)
    Commitment: 1%
    Goal: Use artificial intelligence to help quantify autism subtypes based on patient videos.

16. Summer Undergraduate Research Fellowship, University of Idaho (E. Marsden)
    Source: University of Idaho (internal)
    Funding: $5,000 to fellow, 6/2018-8/2018
    Investigators: Martin BA (Mentor for ME student E. Marsden)
    Commitment: 0%
    Goal: Mentor undergraduate research student.

17. Advanced Ocular and Brain MRI of Astronauts Following Long Duration Space Flight
    Source: Idaho Space Grant Consortium, NASA Prime Grant No. NNX15AI04H
    Funding: $25,000 to Martin BA, 05/01/2016 – 04/30/2018
    Investigators: Law J (PI), Martin BA (PI, sub-award from parent)
    Commitment: 11%
    Goal: Develop tools to quantify optic nerve tortuosity and 3D structure.

18. Idaho Space Grant Consortium Graduate Student Fellowship
    Source: Idaho Space Grant Consortium, NASA Prime Grant No. NNX15AI04H
    Funding: $25,000 to Martin BA, 6/2017-5/2018
    Investigators: Martin BA (Mentor for MS Student, J Rohr)
    Commitment: 0%
    Goal: Mentor graduate research student fellow.

19. Idaho Space Grant Consortium Undergraduate Student Fellowship
    Source: Idaho Space Grant Consortium, NASA Prime Grant No. NNX15AI04H
    Funding: $1,500 to fellow, 6/2017-5/2018
    Investigators: Martin BA (Mentor for BE student Austin Sass)
    Commitment: 0%
    Goal: Mentor undergraduate research student.

20. Intrathecal catheter optimization by parametric numerical simulations
    Source: Industry (Alcyone Lifesciences)
    Funding: $11,395 to Martin BA, 03/25/2018 – 05/12/2018
    Investigators: Martin BA (PI)
    Commitment: 1%
    Goal: We optimized an intrathecal catheter design for spinal cord drug delivery.

21. Summer Undergraduate Research Fellowship, University of Idaho (B. Aldrimk)
    Source: University of Idaho (internal)
    Funding: $5,000 to fellow, 6/2017-8/2017
    Investigators: Martin BA (Mentor for ME student Brian Aldrimk)
    Commitment: 0%
    Goal: Mentor undergraduate research student.

22. Visualizing Science
    Source: Vandal Ideas Project (Internal Competitive Grant, University of Idaho)
    Funding: $60,000 to Malchlis and Rowley, 7/2016 – 9/2017
    Investigators: Machlis S (co-PI), Rowley R (co-PI), Martin BA (Co-I)

Commitment: 0%
Goal: Design and build a giant porcelain sculpture of an astronaut eyeball.

23. University of Washington Medical Student Research Training Programs (MSRTP) Fellowship
Source: University of Washington School of Medicine
Funding: $5,000 to fellow, 6/2017-8/2018
Investigators: Martin BA (Mentor for WWAMI student, B. Lawrence)
Commitment: 0%
Goal: Mentor undergraduate research student.

24. Idaho INBRE Summer Undergraduate Research Fellowship (G. Conley)
Source: University of Idaho (internal)
Funding: $6,000 to fellow, 5/10/2017-7/31/2017
Investigators: Martin BA (Mentor for G. Conley)
Commitment: 0%
Goal: Mentor undergraduate research student.

25. Idaho INBRE Summer Undergraduate Research Fellowship (K. McCain)
Source: University of Idaho (internal)
Funding: $6,000 to fellow, 5/10/2017-7/31/2017
Investigators: Martin BA (Mentor for K. McCain)
Commitment: 0%
Goal: Mentor high school research student.

26. MRI-based Biomarkers for Amyotrophic Lateral Sclerosis
Source: 4U54GM104944-04 NIH General Medical Sciences (CTR – Infrastructure Network)
Funding: $68,500 to Martin BA, 07/15/2016 – 07/14/2017
Investigators: Kumar P (PI), Martin BA (PI, sub-award from parent)
Commitment: 20%
Goal: Quantify cerebrospinal fluid space geometry and flow dynamics in ALS patients & controls.

27. Biomechanical Characterization and Modeling of Arachnoid Trabeculae in Traumatic Brain Injury
Source: NIH Grant No.P20 GM103408 (NIGMS) / Idaho INBRE
Funding: $13,357 to Martin BA, 1/1/2017-4/30/2017
Investigators: Bohach K (PI), Martin BA (PI, sub-award from parent)
Commitment: 0%
Goal: Create prototype finite element model of arachnoid trabeculae around the brain.

28. A subject-specific computational simulator of intrathecal drug dispersion in non-human primates
Source: Industry (Voyager Therapeutics)
Funding: $166,309 to Martin BA, 08/01/2015 – 07/31/2016
Investigators: Martin BA (PI)
Commitment: 25%
Goal: We developed methods for and quantified CSF dynamics in non-human primates.

Completed grants prior to arrival at University of Idaho:

29. Multicenter in vitro assessment of 4D PC MRI for quantification of CSF motion
Source: American Syringomyelia and Chiari Alliance Project
Funding: $53,568 to Martin BA, 08/01/2013 – 05/01/2016
Investigators: Martin BA (PI)
Commitment: 0% (required by foundation grant)
Goal: We investigated the reliability of 4D PC MRI to detect CSF flow alterations in Chiari.

30. Identification of MRI parameters and genetic factors for diagnosis of Chiari malformation
Source: Chiari and Syringomyelia Patient Education Foundation
Funding: $22,296 to Martin BA, 03/01/2015 – 02/28/2016

Investigators: Loth F (PI), Martin BA (PI, sub-award from parent)
Commitment: N/A (part of position as director of Conquer Chiari Research Center)
Goal: Investigate genetics underlying morphometric alterations in the brain for Chiari patients.

31. MRI morphometric traits of Type 1 Chiari malformation across age and gender
Source: Chiari and Syringomyelia Patient Education Foundation
Funding: $37,840 to Martin BA, 03/01/2015 – 02/28/2016
Investigators: Loth F (PI), Martin BA (PI, sub-award from parent)
Commitment: N/A (part of position as director of Conquer Chiari Research Center)
Goal: We developed methods to quantify intracranial morphometrics in Chiari patients.

32. A Chiari Malformation MR image database
Source: Chiari and Syringomyelia Patient Education Foundation
Funding: $61,064 to Loth F, 04/2014-03/2016
Investigators: Loth F (PI), Martin BA (Co-I)
Commitment: N/A (part of position as director of Conquer Chiari Research Center)
Goal: Create a patient-powered online database of Chiari patient symptoms and MR imaging.

33. MRI-directed identification of genetic risk factors in Chiari Malformation in men and women
Source: Fundacion Ramon Areces Post-doctoral Fellowship Award
Funding: 36,000 EUR to Urbizu A, 10/2014-10/2016
Investigators: Martin BA (mentor), Urbizu A (post-doc fellow)
Commitment: N/A (part of position as director of Conquer Chiari Research Center)
Goal: Mentor a post-doc to quantify genetic risk factors for Chiari malformation.

34. MRI quantification of brain and nerve damage in Chiari I malformation
Source: Chiari and Syringomyelia Patient Education Foundation
Funding: $142,177 to Allen PA, 02/01/2013 – 12/01/2016
Investigators: Allen PA (co-PI), Martin BA (co-PI, sub-award from parent)
Commitment: N/A (part of position as director of Conquer Chiari Research Center)
Goal: Apply diffusion tensor imaging and electroencephalogram to detect brain damage in Chiari.

35. Transcriptional profiling and μCT assessment of a syringomyelia rat model
Source: Chiari and Syringomyelia Patient Education Foundation
Funding: $97,651 to Leipzig N, 10/2012 – 10/2015
Investigators: Leipzig N (PI), Martin BA (Co-I)
Commitment: N/A (part of position as director of Conquer Chiari Research Center)
Goal: We investigated the reliability of 4D PC MRI to detect CSF flow alterations in Chiari.

36. MRI Based Classification of Chiari Malformation
Source: Chiari and Syringomyelia Patient Education Foundation
Funding: $33,309 to Espanol M, 01/2014-06/2015
Investigators: Espanol M (PI), Martin BA (Co-I)
Commitment: N/A (part of position as director of Conquer Chiari Research Center)
Goal: Quantify brain morphometric alterations in Chiari patient MRI scans.

37. Metabolic and Inflammatory Alterations in Patients with Chiari Malformation
Source: Chiari and Syringomyelia Patient Education Foundation
Funding: $59,053 to Shriver L, 01/2014-06/2015
Investigators: Shriver L (PI), Martin BA (Co-I)
Commitment: N/A (part of position as director of Conquer Chiari Research Center)
Goal: Quantify metabolomics in cerebrospinal fluid samples of Chiari patients.

38. An in vitro assessment of 4D PC MRI quantification of cerebrospinal fluid dynamics
Source: Swiss Nat. Science Foundation (Grant No. IZK0Z2_152766), Int. Short Visit
Funding: $12,228 to Martin BA, 04/2014 – 06/2014

Investigators: Fornari E (PI), Martin BA (Co-I)
Commitment: 100% for 3-month award
Goal: Conduct in vitro MRI experiments to establish the degree of 4D PC MRI reliability.

39. Pressure oscillations: a new lung therapy approach
Source: Marie Curie Actions (Grant No. FP7-PEOPLE-2011-IIF) Int. Incoming Fellowships
Funding: $166,252 to Al-Jumaily, 10/2012-10/2013
Investigators: Stergiopulos (PI), Martin BA (Co-I), Al-Jumaily A (Co-I)
Commitment: N/A (part of position as Research Scientist at EPFL)
Goal: Investigate how high-pressure oscillations and CPAP alter apnea events.

40. Development of a coupled hydrodynamic model of the cardiovascular and cerebrospinal fluid system
Source: Swiss National Science Foundation (Grant No. 205321_132695 / 1)
Funding: 351,976 CHF direct to Stergiopulos, 01/2010-09/2013
Investigators: Stergiopulos N (PI), Martin BA (Co-I)
Commitment: N/A (part of position as Research Scientist at EPFL)
Goal: Develop a coupled systemic vascular and cerebrospinal fluid system model.

41. A model system for teaching neurohydrodynamics
Source: NSF, SBIR Phase I (Grant No. 1214752)
Funding: $149,763 to Radojicic, 1/2012-12/2012
Investigators: Radojicic M (PI), Martin BA (consultant)
Commitment: 4%
Goal: Design a third-ventricle bioreactor.

Honors and Awards:

Distinguished Alumni Award, College of DuPage, Glen Ellyn, IL	2015
SNSF International Short Visit Fellowship Award, Swiss Federal Inst. of Tech. (EPFL), Lausanne	2014
Outstanding researcher award from Conquer Chiari Patient Education Foundation	2013
Keynote Speaker at Akron General Hospital Post-grad Symposium (06/06, 2013), Akron, OH.	2013
NPR radio on my research, WKSU 89.7, "Engineering a Chiari breakthrough," (03/04, 2013)	2013
Selected as entrepreneurial speaker at the medTech IP conference (06/21, 2010), Anaheim, CA	2010

SERVICE:

National review panels:

University of Wisconsin-Milwaukee's Research Growth Initiative, Review Panel	2018 January
NASA, Human Research Program (HRP), Visual Impairment ICP Syndrome	2017 March
NIH, Common Data Elements, Chiari I Malformation, Imaging Diagnostics Panel Member	2017
NIH, Bioengineering, Technology and Surgical Sciences Study Section, Review Panel	2016 June
American Heart Association, Bioengineering Clinical Committee, Review Panel	2016 October
American Heart Association, Bioengineering Clinical Committee, Review Panel	2016 April
NIH NINDS Common Data Elements Committee for Chiari Malformation	2016
American Heart Association, Bioengineering Clinical Committee, Review Panel	2015 March
NASA, Non-Advocate Review Panel Member, Review Panel	2014
Auckland University of Technology (AUT), Strategic Res. Investment Fund, Review Panel	2014

Committee Assignments and Other Service:

University:

Honors Program Committee Member	2018 – present
3rd Year Review Committee for WWAMI medical school, Non-tenure track faculty (1)	2018
3rd Year Review Committee, Assistant Professor evaluation (1)	2018
3rd Year Review Committee, Administrator evaluation (1)	2017
P&T Review Committee, Full Professor evaluation (1)	2016
P&T Review Committee, Assistant Professor evaluation (1)	2016

Attendance at University Faculty Meetings	2015 – present
Graduate Student Fellowship Support Program, Member	2017 – present

College:

College Marshall for 2016 Fall Commencement	2016
Attendance at COE Faculty Meetings	2015 – present

Departmental:

Biological Engineering Department By Law Committee (assistant to R. Qualls)	2016 – present
Biological Engineering Facebook page manager (published 30+ articles)	2016 – present
Meetings with potential BE students (20+ students for 30 minute meetings)	2015 – present
Led Biological Engineering new student enrollment outreach event at Moscow High School	2016
Calling campaign, called 10+ potential BE students	2016F
Calling campaign, called 10+ potential BE students	2017S

Other:

Volunteer Judge for "Engineering Grand Challenges Scholars" event	2018F
Volunteer Judge for "Idaho Pitch" Entrepreneurship event	2018S
Volunteer Judge for "Idaho Pitch" Entrepreneurship event	2017F
Volunteer Judge for "Idaho Pitch" Entrepreneurship event	2017S
Idaho INBRE student poster judge	2017S
Idaho INBRE member and student mentor	2017 – present
Office of Undergraduate Research SURF student mentor	2017 – present
University of Washington / WWAMI MSRTP medical student mentor	2017 – present

Professional and Scholarly Organizations:

Society leadership:

Biomechanics of the CNS, Chair and Organizer, World Congress on Biomech.	2017 – 2018
Biofluids Theme Abstract Chair, Summer Bioengineering, Biomechanics, Biotransport	2017
Executive Board Member, International Society for Hydrocephalus and CSF Disorders	2015 – 2019
Co-leader and Board Member, International Hydrocephalus Imaging Working Group	2011 – present
Executive Board Member, International CSF Dynamics Society	2012 – present
Biofluids Theme Chair, Summer Biomechanics, Bioengineering, Biotransport Conference	2016 – present
Board Member, The Chiari Project Foundation	2017 – present
Board Member, Chiari and Syringomyelia Foundation	2018 – present

Professional society membership:

ASME, American Society of Mechanical Engineers, Biomedical Engineering Division	2004 – Present
BMES, Biomedical Engineering Society	2015 – Present
ASNR, American Society of Neuroradiology	2012 – Present
ISMRM, International Society of Magnetic Resonance Imaging	2014 – Present
ISHCFD, International Society for Hydrocephalus and Cerebrospinal Fluid Disorders	2011 – Present
APS, American Physiological Society	2011 – 2015
ISCBFM, International Society for Cerebral Blood Flow and Metabolism	2009 – 2015
International Spinal Cord Society	2011
American Syringomyelia Alliance Project	2006 – 2007
ASA, Acoustical Society of America	2005
BMES, Biomedical Engineering Society	2006
EWB, Engineers Without Borders U.S.A.	2003 – 200

Journal editor and associate editorship:

Fluids and Barriers of the CNS (Springer Nature), Associate Editor	2018 – Present

Journal reviewer for:

10 papers reviewed in 2018
7 papers reviewed in 2017

9 papers reviewed in 2016
4 papers reviewed in 2015

American Journal of Physiology: Heart and Circulatory Physiology
ASME Journal of Biomechanical Engineering
Acta Neurologica Scandanavica
Developmental Neurorehabilitation
Fluids and Barriers of the CNS
IEEE Transactions on Biomedical Engineering
Medical Engineering and Physics
Nature Communications
Neuroradiology
Neurosurgery
Journal of Biomechanics
Journal of Magnetic Resonance Imaging
Journal of Neurology, Neurosurgery, and Psychiatry
Journal of Neuroscience
PLOS one
Royal Society – Interface Focus
World Neurosurgery

Abstract reviewer for:

World Congress on Biomechanics, Biomechanics of the Central Nervous System	2018
Summer Biomechanics, Bioengineering and Biotransport Meeting (SB3C.com)	2016
Summer Biomechanics, Bioengineering and Biotransport Meeting (SB3C.com)	2015
World Congress on Biomechanics	2014
American Society of Mechanical Engineers, Summer Bioengineering Conference	2012 – 2013

Presentation judge for:

World Congress on Biomechanics, Undergraduate Poster Presentations	2018
Hydrocephalus Society, Young Investigator Award, Oral Presentations	2017
Hydrocephalus Society, Young Investigator Award, Poster Presentations	2017
American Society of Mechanical Engineers, Summer Bioengineering Conference	2010 – 2015

Conferences organized:

1. Hydrocephalus 2018, International Society of Hydrocephalus and CSF Dynamics Disorders (ISHCSFD) Conference (Bologna, Italy 10/17-23, 2018), *International organizing & scientific committee.*
2. Hydrocephalus 2017, International Society of Hydrocephalus and CSF Dynamics Disorders (ISHCSFD) Conference (Kobe, Japan, 10/23-25, 2017), *International organizing & scientific committee.*
3. Hydrocephalus 2016, International Society of Hydrocephalus and CSF Dynamics Disorders (ISHCSFD) Conference (Cartagena, Colombia, 10/8-11, 2016), *International organizing & scientific committee.*
4. "Summer Biomechanics, Biotransport and Bioengineering Conference (SB^3C)," (Snowbird, UT, U.S.A., 6/17-20, 2015), *Member at Large, Conference Organizing Committee*.
5. "2nd CSF International CSF Dynamics Symposium," Feinstein Institute for Medical Research (Long Island, NY, 06/24-25, 2013), *Co-organizer and Conference Chair*.
6. "1st Conquer Chiari Research Center Open House," Engineering Research Center, University of Akron (Akron, OH, 04/27, 2013), *Conference Organizer*.

Symposiums and workshops organized:

1. 16th Symposium of the International Hydrocephalus Imaging Working Group (Bologna, Italy 10/23, 2018), *Co-Organizer*.
2. 57th Meeting of the American Society of Neuroradiology, "CSF Flow Study Group (IHIWG)" (Boston, MA, U.S.A., 05/22-23, 2019), *Co-Organizer*.
3. "Biomechanics of the Central Nervous System," Track: Biofluids and Biotransport, World Congress on Biomechanics (Dublin, Ireland, 07/8-12, 2018), *Session Organizer*.

4. 56th Meeting of the American Society of Neuroradiology, "CSF Flow Study Group (IHIWG)" (Vancouver, Canada, 06/6-7, 2018), *Co-Organizer*.
5. 14th Symposium of the International Hydrocephalus Imaging Working Group (Kobe, Japan, 10/23-25, 2017), *Co-organizer*.
6. 55th Meeting of the American Society of Neuroradiology, "CSF Flow Study Group (IHIWG)" (Long Beach, CA, U.S.A., 04/27-28, 2017), *Co-Organizer*.
7. 12th Symposium of the International Hydrocephalus Imaging Working Group (Cartagena, Colombia, 10/8-11, 2016), *Co-organizer*.
8. 54th Meeting of the American Society of Neuroradiology, "CSF Flow Study Group (IHIWG)" (Washington, D.C., U.S.A., 05/26-27, 2016), *Co-Organizer*.
9. 10th Symposium of the International Hydrocephalus Imaging Working Group (Banff, Canada, 09/17, 2015), *Chair and Co-organizer*.
10. 8th Symposium of the International Hydrocephalus Imaging Working Group (Bristol, UK, 09/5-6, 2014), *Organizer and Co-chair*.
11. "CSF Dynamics Mini-Symposia," World Congress on Biomechanics (Boston, MA, 06/11, 2014), *Organizer and Co-chair*.
12. 52nd Meeting of the American Society of Neuroradiology, ASNR, "Hydrocephalus and CSF Flow Working Group," (Montreal, Canada, 05/22-23, 2014), *Co-organizer*.
13. 51st Meeting of the American Society of Neuroradiology, "Controversies in Hydrocephalus and CSF Flow (IHIWG) Workshop," (San Diego, CA, 05/23-24, 2013), *Co-organizer*.

Conference sessions chaired/co-chaired:

1. "Session 2" Hydrocephalus 2017, International Society for Hydrocephalus and Cerebrospinal Fluid Disorders, (Bologna, Italy 10/20, 2018), *Session Chair*.
2. "Young Investigators - Part 1" Hydrocephalus 2018, International Society for Hydrocephalus and Cerebrospinal Fluid Disorders, (Bologna, Italy 10/20, 2018), *Session Chair*.
3. "CNS solute transport part 2" ASNR CSF Flow Study Group, (Vancouver, Canada, 6/7, 2018), *Session Chair*.
4. "Research in iNPH," Hydrocephalus 2017, International Society for Hydrocephalus and Cerebrospinal Fluid Disorders (Kobe, Japan, 09/23, 2017), *Session Chair*.
5. "Biomechanics of the Central Nervous System," Track: Biofluids and Biotransport, World Congress on Biomechanics (Dublin, Ireland, 07/8-12, 2018), *Session Chair*.
6. "MR Elastography," Hydrocephalus 2015, International Society for Hydrocephalus and Cerebrospinal Fluid Disorders (Banff, Canada, 09/18, 2015), *Session Chair*.
7. "Pathophysiology of type 1 Chiari malformation," American Society of Neuroradiology, CSF flow study group (Chicago, IL, 5/1, 2015), *Session Chair*.
8. "Cerebrospinal fluid MRI diagnostics," International Society of Hydrocephalus and CSF disorders (Bristol, UK, 09/5-8, 2014), *Session Chair*.
9. "Cerebrospinal Fluid Dynamics Symposium," 7th World Congress of Biomechanics (Boston, MA, U.S.A., 06/06-11, 2014), *Session Chair*.
10. "Session D," 1st International CSF Dynamics Symposium, Swiss Federal Institute of Technology (Zurich, Switzerland, 07/08/2011), *Session Chair*.
11. "Session G: Spinal Cord," 2nd International CSF Dynamics Symposium, Feinstein Institute for Medical Research (Manhasset, NY, 06/25/2013), *Session Chair*.

Outreach Service:

Publicity and media coverage of research

1. "Grand Challenge Scholars Program" 5/21/2018 (Youtube and University of Idaho Video Pulication) https://www.youtube.com/watch?time_continue=6&v=LHZTq8ilejY
2. "Grand Challenge Scholars Program Pitch Event Winners" 11/27/2018 (University of Idaho) https://www.uidaho.edu/engr/events/pitch-event/winners
3. "Visualizing Science" 7/19-10/27, 2018 (Exhibit at The Art Museum of Eastern Idaho) http://www.theartmuseum.org/Exhibits.htm
4. "Visualizing Science" 7/19/2018 (Channel 6 news KPVI) https://www.kpvi.com/calendar/visualizing-science/event_fb7896f4-70d7-11e8-9fbc-fb747ced90bc.html
5. "Opening Reception for Visualizing Science at The Art Museum of Eastern Idaho" 7/19/2018 (Idaho Falls, Idaho) http://downtownidahofalls.com/event/opening-reception-visualizing-science-art-museum-eastern-idaho/

6. "Visualizing Science" 7/19/2018 (Idaho Falls Chamber of Commerce, Idaho) http://idahofalls.chambermaster.com/events/details/visualizing-science-2969
7. "Visualizing Science" 7/19/2018 (ABC Channel 8 News, FOX Channel 5 News) http://events.localnews8.com/339287945.html
8. "Alcyone Lifesciences Announces Presentation on Intrathecal Physical Methods of Delivery of Gene Therapeutics at 2018 American Society of Cell and Gene Therapy Conference" 5/15/2018, (Cision PR Newswire, 2018 https://www.prnewswire.com/news-releases/alcyone-lifesciences-announces-presentation-on-intrathecal-physical-methods-of-delivery-of-gene-therapeutics-at-2018-american-society-of-cell-and-gene-therapy-conference-300648284.html).
9. "Quantitative MRI-based Diagnostics for Chiari Malformation" 12/05/2017, (CSF: Chiari & Syringomyelia Foundation, Online Video Publication, 2017 https://www.youtube.com/watch?v=Mot2fi4WwAI).
10. "From Breaking Stereotypes to Learning Biomarkers of Lou Gherig's Disease, Computer Engineering Student Forges Her Own Path" 12/05/2017, (University of Idaho, College of Engineering, 2017 https://www.uidaho.edu/engr/news/features/tavara-freeman).
11. "Inspiring the Art of Science" 12/05/2017, (University of Idaho, Visualizing Science – Publication, http://www.uidaho.edu/research/news/research-reports/2017/art-of-science).
12. "The Beauty of Science" 12/05/2017, (University of Idaho, http://www.uidaho.edu/news/feature-stories/visualizing-science).
13. "Always an Explorer." 12/04/2017, (University of Idaho, College of Engineering, 2017, http://www.uidaho.edu/engr/news/features/claire-majors).
14. "Reverse Engineering the Brain." 10/26/2017, (University of Idaho, College of Engineering, 2017, http://www.uidaho.edu/engr/news/features/tavara-freeman).
15. "Research shows astronauts' vision can get worse in space." 7/6/2017, (KREM channel 2 news, Spokane, WA, http://www.krem.com/news/local/latah-county/research-shows-astronauts-vision-can-get-worse-in-space/454790398).
16. "Blind Spot, Humans have long dreamed of traveling through the far reaches of space – populating other planets and creating societies there. NASA has announced it hopes to send humans to Mars in the 2030. But how do you "boldly go where no one have gone before" if you can't see where you are going?" (University of Idaho, Here We Are Idaho, Alumni Magazine, Spring 2017, https://issuu.com/uidaho/docs/hwhi-2017_spring_56pgs_issuu).
17. "Fit to serve, Fit to Serve: Biological Engineering Student Feeds the Homeless, Fights Wildfires and Prepares for Medical School," (University of Idaho, College of Engineering, 2017, https://www.uidaho.edu/engr/news/features/christina-gibbs).
18. "Are Monkeys Like Humans? Comparison of Intrathecal CSF Dynamics Across Mammalian Species," (Chiari & Syringomyelia Foundation, CSF Dynamics Symposium, Atlanta, GA, 2017 http://csfinfo.org/research/csf-funded-research/csf-hydrodynamics-symposium/2017-hydrodynamics/hydrodynamics-participants/intrathecal-csf-dynamics-mammals/).
19. "Engineering student uses mapping and imaging to reveal unknown," (University of Idaho, Vandals in Focus 2017, student research magazine, https://goo.gl/z1bHlF).
20. Pritchard Art Gallery, "Visualizing Science - Nebulus," Installation by Casey Doyle and Bryn Martin," (Moscow, ID, 2/10/2017 – 4/15/2017, https://www.uidaho.edu/caa/galleries-centers-and-labs/prichard/exhibits/vscience).
21. University of Idaho Video Publicity Feature, "Visualizing Science, Casey Doyle & Bryn Martin," (Moscow, ID, 4/19/2017, https://www.youtube.com/watch?v=pfS707Pw19w).
22. Inland 360.com, "Art: visualizing science channels fact through imagination," (Jennifer K Bauer, Spokane, WA, 3/8/2017, https://goo.gl/2h61dU).
23. Moscow-Pullman Daily News, "UI senior works to cure cancer," (Josh Babcock, Moscow, ID, 5/14, 2016, http://goo.gl/rCdWiC).
24. "In Vivo and In Vitro CSF Flow Studies in Chiari Malformation: An ASAP funded research study," (American Syringomyelia and Chiari Alliance Project, Annual Meeting, Princeton, NJ, 2014 http://asap.org/index.php/disorders/2014-conference-presentations/in-vivo-and-in-vitro-csf-flow-studies-in-cmi/).
25. National Public Radio, WKSU, Exploradio, "Engineering a Chiari breakthrough," (Jeff St. Clair, Kent, OH, 3/4, 2013, http://bit.ly/16JdIut), re-aired several times in 2014.
26. Spinal Cord Nerve Roots and Denticulate Ligaments Alter CSF Dynamics in the Upper Cervical Spine, " (2013 CSF Hydrodynamics Symposium: Dr. Bryn Martin, https://vimeo.com/72195933).

27. Akron Beacon Journal, "UA tackles brain disorder," (Cheryl Powell, Akron, OH, 6/25, 2012, http://bit.ly/ZTdjiv).
28. University of Akron Online Newsroom, "When does a headache need an engineer to fix it?," (6/24, 2012, http://bit.ly/ZKeJxl).
29. Scicasts, "University receives funding for research center to treat patients with Chiari malformation," (6/27, 2012, http://bit.ly/OvrlpE).
30. Chiari and Syringomyelia Foundation, New Researchers Feature, "The influence of coughing on cerebrospinal fluid pressure in an in vitro syringomyelia model with spinal subarachnoid space stenosis," (6/1, 2009, http://bit.ly/13buPpY).
31. Conquer Chiari Foundation, In the Spotlight, "Dr. Bryn Martin, CCRC Director," (7/1, 2012, http://bit.ly/XYZdQ5).

Community Service: (Non-academic unrelated to employment)
Sponsor and donor, Family Promise of the Palouse, Interfaith Hospitality Network for Homeless Families

Honors and Awards: (Received by Students Under Martin Mentorship):
2nd Place Overall, PhD Student Paper Comp, Khani M, Summer Bioengineering Conf. (Tucson, AZ, 6/21-24, 2017).
3rd place "Innovation Showcase" team for invention prototype "Neurotouch" (Moscow, ID, 4/24, 2017).
1st Place Overall, PhD Student Paper Comp, Shaffer N, Summer Bioengineering Conf. (Sun River, OR, 6/26-29, 2013).

PROFESSIONAL DEVELOPMENT:

Teaching:
Ultrasound Hands-on Training Workshop, WWAMI Medical School (Moscow, ID, 1/27, 2017).

Conferences and Workshops Attended:
2018
1. Duke University, Neurosurgery Grand Rounds Lecture (Durham, NC, 12/18, 2018).
2. Hydrocephalus 2018, International Society for Hydrocephalus & CSF Disorders (Bologna, Italy, 10/22, 2018).
3. 16th Symposium of the International Hydrocephalus Imaging Working Group (Bologna, Italy, 10/22, 2018).
4. Children's Cancer Therapy Development Institute, Research Meeting (Portland, OR, 8/3, 2018).
5. NASA Glenn Research Center, Research Meeting (Cleveland, OH, 7/2, 2018).
6. Georgia Institute of Technology, VIIP Scholar Research Meeting (Atlanta, GA, 8/14, 2018).
7. Idaho INBRE Conference (Moscow, ID, 6/23, 2018).
8. Clinical-translational Research Infrastructure Network Annual Conference (Las Vegas, NV, 6/11-12, 2018).
9. 56th Annual Meeting of the American Society for Neuroradiology (Vancouver, CA, 6/6-7, 2018).
10. Neuroscience Symposium, National Skull Base Center (Thousand Oaks, CA, 3/3, 2018).
11. 8th World Congress of Biomechanics (Dublin, Ireland, 7/9-12, 2018).
12. Biomedical Engineering Society Annual Meeting (Atlanta, GA, October 17-20, 2018)
13. Center for Modeling Complex Interactions, External Advisory Committee (EAC) (Moscow, ID, 5/9/2018).
14. University of Idaho Undergraduate Research Symposium (Moscow, ID, 4/30/2018).
15. NASA Human Research Program Investigators' Workshop, Gateway to Mars (Galveston, TX, 1/22-25, 2018).

2017
1. 15th Symposium of the International Hydrocephalus Imaging Working Group (Kobe, Japan, 9/25-26, 2017).
2. American Syringomyelia and Chiari Alliance Project Annual Conference (Long Island, NY, 7/20-23, 2017).
3. Inland Northwest Movement Disorder Society, 3rd Annual Meeting (Spokane, WA, 9/7-8, 2017).
4. International Cerebrospinal Fluid Dynamics Society (Atlanta, Georgia, 6/19-20/2017).
5. International Society for Hydrocephalus and CSF Disorders Annual Meeting (Kobe, Japan, 10/23-25/2017).
6. 33rd Annual Meeting of the American Society for Gravitational and Space Res. (Seattle, WA, 10/25-28/2017).
7. International Cerebrospinal Fluid Dynamics Society (Atlanta, Georgia, 6/19-20/2017).
8. University of Idaho, Idaho INBRE conference (Moscow, ID, 8/2, 2017).
9. INBRE Regional Conference (Jackson Hole, WY, 10/20, 2017)
10. Summer Bioengineering, Biomechanics and Biotransport (Tucson, AZ, 6/21-24, 2017).

2016

1. 54th Annual Meeting of the American Society of Neuroradiology (Washington D.C., U.S.A., 5/27/2016).
2. WSU Sleep and Performance Research Center Lecture (Spokane, WA, 1/11, 2016).
3. Palouse Biomechanics Symposium (Harvard, ID, 1/25, 2016).
4. University of Idaho Undergraduate Research Symposium (Moscow, ID, 2016).

2015

1. University of Washington, Department of Neurosurgery, Grand Rounds (Seattle, WA, 12/2/2015).
2. International Society for Hydrocephalus and CSF Disorders Annual Meeting (Banff, Canada, 9/18, 2015).
3. 53rd Annual Meeting of the American Society of Neuroradiology (Chicago, IL, 5/1, 2015).
4. Medtronic Neuro Forum (Minneapolis, MN, 3/6, 2015).
5. American Syringomyelia and Chiari Alliance Project Ann. Meeting, U. of Mich. (Ann Arbor, MI, 7/22-25, 2015).
6. Summer Bioengineering Biotransport and Biomechanics Meeting (Snowbird, UT, USA, 6/17-20, 2015).

2014

1. Conquer Chiari Research Conference (Akron, OH, 11/8-9, 2014).
2. International Society for Hydrocephalus and CSF Disorders Annual Meeting (Bristol, UK, 9/5-6, 2014).
3. Voyager Therapeutics Neuroscience Lecture (Cambridge, MA, 7/9, 2014).
4. 7th World Congress on Biomechanics, ASME, Summer Bioengineering Conference (Boston, MA, 7/5-11, 2014).
5. Neuroscience Forum, European Continuing Medical Training (Lausanne, Switzerland, 02/7-8, 2014).
6. Chiari and Syringomyelia Foundation Research Colloquium (Boston, MA, 10/18, 2014).
7. Midwest American Society of Biomechanics Regional Meeting (Akron, OH, 3/4-5, 2014).
8. University of Akron Student Innovation Symposium (Akron, OH, 4/10, 2014).

2013

1. Akron General Hospital Post-grad Research Symposium (Akron, OH, 06/06, 2013).
2. 2nd International CSF dynamics symposium (Manhasset, New York, U.S.A., 06/24-25, 2013).
3. 51st Annual Meeting of the American Society of Neuroradiology Symposium, (San Diego, CA, 05/18-23, 2013).
4. University of Illinois at Chicago, Dept. of Biomedical Engineering Lecture Series (Chicago, IL, 05/03, 2013).
5. University of Akron, Research for Lunch Lecture Series (Akron, Ohio, 03/13, 2013).
6. 2nd International CSF dynamics Symposium (Manhasset, New York, U.S.A., 6/24-25, 2013).
7. ASME Summer Bioengineering Conference (Sun River, Oregon, U.S.A., 6/26-29, 2013).

2012

1. Conquer Chiari Research Conference (Chicago, IL, 11/8-9, 2012).
2. ASAP Research Conference, Children's National Medical Center (Washington D.C., 07/18-21, 2012).
3. 50th Annual Meeting and The Foundation of the ASNR Symposium (Montreal, Canada, 5/17-22, 2012).
4. Nagoya Institute of Technology symposium on bioengineering, (Nagoya, Japan, 03/08, 2012).
5. Conquer Chiari Research Conference (Chicago, IL, 11/8-9, 2012).
6. International Conference on CFD in Medicine and Biology (Dead Sea, Israel, 3/25-30, 2012).
7. ASME Summer Bioengineering Conference (Fajardo, Puerto Rico, 6/20-23, 2012).

2011

1. European Neuroscience Forum, (Domaine de Divonne, Divonne-les-Bains, France, 12/16-17, 2011).
2. Department of Neuroradiology at the University Hospital of Münster, (Münster, Germany, 8/25, 2011).
3. 1st International Cerebrospinal Fluid Engineering Conference, (Zurich, Switzerland, 7/22-25, 2011)*.
4. International Soc. for Hydrocephalus and Cerebrospinal Fluid Disorders (Copenhagen, Denmark, 9/3-7, 2011).
5. EPFL, Material Science and Engineering EDMX Research Symposium (Lausanne, Switzerland, 3/17, 2011).
6. International Society for Magnetic Resonance in Medicine Annual Meeting (Montréal, Canada, 5/7-13, 2011).
7. ASME Summer Bioengineering Conference (Farmington, Pa, 6/22-25, 2011).

2010

1. Conquer Chiari Research Conference: New Developments and Controversies (Chicago, IL, 11/12, 2010).
2. Service de Neurologie Maladies Cérébro-Vasculaires, CHUV (Lausanne, Switzerland 09/31, 2010).
3. 6th World Congress on Biomechanics (Singapore, 09/1-6, 2010).
4. International Symposium on Syringomyelia (Berlin, Germany 12/09-11, 2010).

5. ASME 2010 International Mechanical Engineering Congress & Exposition (Vancouver, Canada, 11/12-18, 2010).
6. TechConnect medtech IP submission (Anaheim, CA, June 21-25, 2010).
7. ASME Summer Bioengineering Conference (Naples, FL, 6/16-19, 2010).

2009

1. Biomedical Engineering Society Annual Meeting (Pittsburgh, Pa, 10/7-10, 2009).
2. 10th US National Congress on Computational Mechanics, (Columbus, Ohio, 7/16-19, 2009).
3. ASME Summer Bioengineering Conference (Lake Tahoe, CA, 6/17-21, 2009).

2008

1. University of Illinois at Chicago, Department of Radiology, MRI Research Lab. (Chicago, Illinois, 10/24, 2008).
2. Ecole Polytechnique Fédérale de Lausanne (Lausanne, Switzerland, 9/16, 2008).
3. American Syringomyelia Alliance Project Annual Conference (Washington D.C., July, 2008).
4. Chiari Research Conference 2008, State of the Research and New Directions (Chicago, IL, 11/6-7, 2008).
5. ASME Summer Bioengineering Conference (Marco Island, FL, 6/25-29, 2008).

2007

1. UIC/Conquer Chiari Research Symposium (Chicago, Illinois, 6/2, 2007).

2006

1. Biomedical Engineering Society Annual Meeting (Chicago, Illinois, 10/11-14, 2006).

2005

1. ASAP Annual National Conference (Cedar Rapids, Iowa, 7/20-23, 2005).
2. 149th Meeting of the Acoustical Society of America (Vancouver, Canada, 5/16-20, 2005).
3. 3rd Annual Neural Hydrodynamics Symposium (Cleveland, OH, 5/12-14, 2005).
4. ASME Summer Bioengineering Conference (Vail, CO, 5/22-26, 2005).

2004

1. ASAP Annual National Conference (Key Biscayne, FL, 6/21-24, 2004).
2. 2004 ASME International Mechanical Engineering Congress & Exposition (Anaheim, CA ,11/13-19, 2004).

2003

1. ASAP Annual Conference (New York City, NY, 7/1, 2003).

Outreach:

Presentation	"Reverse Engineering the Brain" Idaho INBRE Summer Undergraduate Fellows	2017
Lab tour	"Neurophysiological Imaging and Modeling Laboratory" Eng. Grand Challenges	2017
Outreach	Led Biological Engineering new student enrollment outreach event at Moscow High School	2016

Administration/Management:

None.