

Department of Neurological Surgery Newsletter

S U M M E R - 2 0 1 9

Letter from the Department Chair

As we transition from spring to the summer of 2019, I think it would be helpful to reflect on a few of the great things that have transpired since our last newsletter. The Department of Neurological Surgery has continued to grow. We have welcomed **Dr. Justin Slavin** (spine), **Dr. Celina Crisman** (tumor and general) and **Dr. John Berry-Candelario** (spine) to the Department, as well as several advanced practitioners (**Sarah Chou, PA; Justin Lepore DNP; Megan Kennelly, DNP**). UMass Memorial is working with the Departments of Neurological Surgery and Orthopedic Surgery to expand our integrated Spine Center. We are excited that our first resident in Neurological Surgery, **Rita Daci**, has arrived, and the resident training program is in full swing. In addition, several new research projects have been funded, including a project to study the neural correlates of human decision-making and a multi-center project aimed at determining the utility of brain oxygenation monitoring in head trauma. This remains an exciting time, and we are thrilled to have you as a part of our community.



Sincerely,

Mark D. Johnson, MD, PhD
Maroun Semaan Professor in Neurological Surgery
Chair, Department of Neurological Surgery

In This Issue

Neurological Surgery Residency Program: Welcome Intern Rrita Daci

Second Annual Neurological Surgery Retreat

Society of Neurological Surgeons 2019 Annual Meeting

Mark Johnson, MD, PhD, elected Vice President of AACNS

AANS UMass Student Chapter

Farid Hamzei-Sichani, MD, PhD - BARI: Bilateral Academic Research Initiative

Spotlight: Sarah Chou, PA

Faculty Research Interests

Welcome New Staff

Congratulations

Farid Hamzei-Sichani, MD, PhD, Speaks About Parkinson's Disease

Farid Hamzei-Sichani, MD, PhD, Assistant Professor of Neurological Surgery, recently spoke with Western Mass News reporter, Brittany Murphy, about the effects of Parkinson's disease and the possible link to being a firefighter. Western Mass News reported about the toxins first responders face that cause deadly diseases such as Parkinson's disease and cancer.

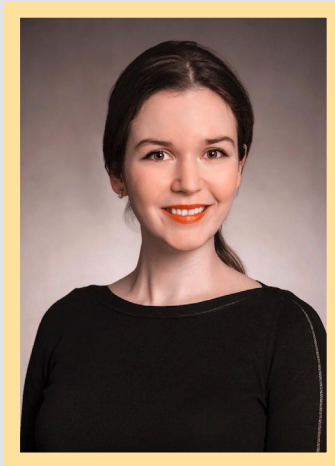
*Interested in supporting research and education in the
Department of Neurological Surgery?*

*Donate to the Neurological Surgery Research
and Education Fund.*

Contact Maria Leitao-Pina:
Maria.LeitaoPina@umassmed.edu or 508-856-1513

Welcome Rrita Daci, MD, Neurological Surgery Resident

It is with great pleasure that we announce the selection of our first resident in Neurological Surgery, **Rrita Daci**. Rrita was born in Kosovo and immigrated to the United States when she was a child. Although she grew up in Edgewater, New Jersey and is a U.S. citizen, she has remained fluent in Albanian and volunteered in the neonatal ICU in Kosovo in 2012. Rrita attended college at Albany College of Pharmacy and Health Sciences where she graduated Summa Cum Laude with a degree in Pharmaceutical Sciences and Pharmacology in 2015. She matriculated at Cooper Medical School of Rowan University in 2015 and graduated this year after a stellar academic performance. While at Cooper Medical School, she con-



ducted research on a variety of topics, including epilepsy, brain tumors and nanomedicine. She won several research awards, including First Place in Medical Student Research and Second Place in Basic Science Research at Cooper University Hospital. She also served as the

President of the American Red Cross chapter at Cooper Medical School. Her hobbies include impressionist and mural painting as well as digital and film photography, and she was editor and chief of the literary magazine at Albany College. We are excited to have her join the Department of Neurological Surgery at the University of Massachusetts Medical School as our first resident, helping to set a high standard for residents to come.

Mark D. Johnson, MD, PhD

For more information about the Neurological Surgery Residency Program: <https://www.umassmed.edu/neurosurgery/residency/>

2nd Annual Neurological Surgery Retreat

Save the date: September 6-8, 2019

UMMS/UMMHC and Seacrest Beach Resort, Falmouth, MA



Below are some highlights of the retreat which will begin Friday at the UMMS/UMMHC University Campus and then be continued, Saturday at the Seacrest Beach Resort

Provider and Caregiver Engagement Results and Discussion for Improvement

Kathleen LeBlanc, Associate Vice President, Human Resources, UMMMG

Patient Experience, Patient Satisfaction and Standards of Respect

Allison Lemay, Associate Vice President, Patient and Family Experience & Strategic Projects, UMMMC

The Bernard Stone Lecture Guest Speaker will Speak about Advancing Patient Experience at UMMHC

Richard Siegrist, Chair, Board of Trustees, UMass Memorial Health Care

Research Update Faculty

Society of Neurological Surgeons 2019 Annual Meeting in Seattle, Washington

Mark Johnson, MD, PhD, Residency Program Director and Chair, and **Yijin Yang**, Residency Program Coordinator, attended the Society of Neurological Surgeons 2019 Annual Meeting in Seattle, Washington this past May. This year's program explored the theme of "Training in the 21st Century," with presentations focused on various aspects of neurosurgical training—from medical student education, through the residency and fellowship experience.



Mark Johnson, MD, PhD, Selected American Academy of Neurological Surgery, Vice President

Congratulations to **Dr. Mark Johnson**, Department Chair, for being selected 2018-2019 Vice President of the American Academy of Neurological Surgery (AAcNS). As one of the premier neurosurgical organizations in North America "focused on promoting, sponsoring, and mentoring laboratory, translational, and clinical research in the neurological sciences", the Academy's mission is to "foster scientific discovery and innovative research seeking to better the lives of patients suffering from neurological and surgical disorders."



AANS UMass Student Chapter

by Oghomwen E. Igiesuorobo

The University of Massachusetts Medical School (UMASS) student chapter of the American Association of Neurological Surgeons (AANS), is a new student-led group formed by Daniel Munger, MD (alumni, Class of 2018) currently in the neurological surgery residency at Oregon Health & Science University. It was continued by elected officers **Oghomwen E. Igiesuorobo**, **Pawan Mathew**, and **Christopher Lee**.

AANS aims to promote the highest quality of patient care and advances the specialty of neurological surgery.

The medical student chapter of AANS at UMASS will advance and increase the interest of medical students in neurosurgery. Working with the UMASS Neurosurgery Department, our goal is to help medical students access opportunities for research, shadowing, mentorship, networking, advice on residency, and conferences.

The chapter's first meeting took place on September 24th, 2018. We had about 24 students in attendance and it was also a networking event to meet with the faculty members at UMASS. Ever since, we hold bimonthly journal clubs led by a faculty member to discuss articles with recent discoveries in the field. We are excited about our first incoming resident **Rita Daci, MD**, as she will serve as our resident advisor and be able to share her experiences as she advances during residency.

Mark Johnson, MD, PhD (our faculty sponsor) and the Neurosurgery Department continue to support our chapter, encourage new ideas that will enhance students' knowledge, and increase their zeal to pursue a career in neurological surgery.



AANS UMass Student Chapter elected officers, Left to right **Pawan Mathew** (Vice President), **Oghomwen E. Igiesuorobo** (President), **Christopher Lee** (Secretary)

Farid Hamzei-Sichani, Assistant Professor of Neurological Surgery

BARI: Bilateral Academic Research Initiative

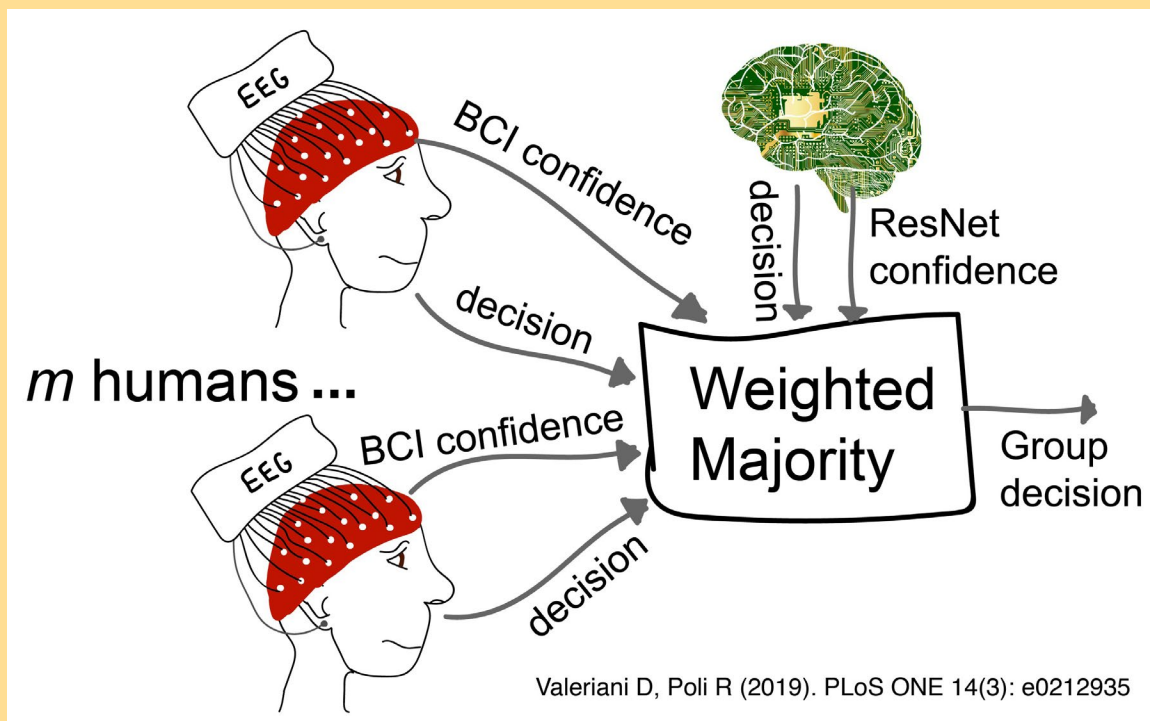
International partnerships for high-impact science

This project aims at developing a novel architecture for complex group decision making that integrates, in an unprecedented way, the strengths of human and AI team members, while compensating for their respective weaknesses.

Our architecture leverages three core AI elements to extend the capabilities of human decision makers: virtual humans, virtual personal assistants and virtual team assistants. Virtual humans are artificial agents based on advanced AI and machine-learning techniques effectively behaving like equal team members to the humans. They can make their own decisions in the task at hand, and, like humans, evaluate and communicate their degree of confidence in those decisions, provide explanations for their decisions if asked, learn to trust and become trusted, and understand when their performance is degrading and they need to abstain. Virtual personal assistants are artificial agents that incorporate Brain-Computer Interface (BCI) technology, advanced neuroscience and neural engineering to collect neural, physiological, and behavioral information from a human decision maker. They use this input to estimate the probability of each decision being correct (objective confidence) and recognise states (e.g., error-related potentials in the brain) that indicate mistakes

and changes of mind by the human operator as well as negative reactions to other team members' decisions. Finally, the virtual team assistant is an artificial agent that monitors behaviors, performance and mutual trust of all team members as well as verbal and non-verbal communication in humans to optimally integrate their decisions into team decisions, while constantly guiding the social interaction within the team for the purpose of optimizing performance and teamwork (e.g., building mutual trust).

To address the challenges posed by the project we have assembled a multidisciplinary team with expertise in AI, machine learning, neural engineering, computer science, neuroscience and cognitive psychology. We take a fully integrated approach by combining rare state-of-the-art experimental capabilities with novel computational modeling and AI technology. Complementary behavioral and multimodal neuroimaging research (EEG, fMRI and ECoG) will collect data to study and model key elements of decision making, including decision confidence, trust, performance feedback, attention and emotions, and will guide the development of BCIs, AI trust models, and humanized forms of machine learning capable of expressing confidence and providing explanations.



Neurological Surgery Spotlight: Sarah Chou, PA



What was your job prior to UMass Memorial Health Care?

I worked as an Embryologist in NYC where I helped couples conceive and brought beautiful, healthy babies into the world!

What are three traits that define you? I am motivated, diligent and a people person.

Favorite pastimes: Singing, traveling, hiking, spending time with family & friends. I also enjoy working on DIY projects and actually opened up an Etsy shop prior to PA school where I made keychains and necklaces from polymer clay. They were a big hit!

If you weren't in your current profession, what would you be? I would love to be a professional musician. Singing has always been a big passion of mine and I have been doing it since elementary school. In high school, I sang in All-County Chorus and was selected to be part of an a capella group and Chamber Chorus.

What are your proudest accomplishments? Graduating from an accelerated 2-year PA program and being inducted into Alpha Eta National Allied Health Honor Society.

What is your favorite thing about working at UMass Memorial? What drew me to this hospital was that during my clinical rotation at UMass, all of the providers I worked with demonstrated such a strong commitment to patient care. I loved the team dynamics and how everyone was treated with respect.

I am happiest when... I am snacking, trying out new restaurants, attending Yelp Elite events - basically anything that involves food! I also love to travel and enjoy the great outdoors.

If you could learn to do anything, what would it be? Boxing is something I've always wanted to learn. It looks pretty fun and would be a great workout too!

If you could meet anyone, living or dead, who would it be and why? Keanu Reeves! He's so cool but also a nerd at heart, just like me.

Department of Neurological Surgery Faculty Research Interests



Mark D. Johnson, MD, PhD

Research Interests: Cell Biology of Brain Tumors, Genetics of Adult Hydrocephalus



Sabareesh Natarajan, MD, MS

Research Interests: Endovascular Approaches and the Blood Brain Barrier



Oguz I. Cataltepe, MD, FACS

Research Interests: Gene Therapy for Tay-Sach's disease



Justin A. Slavin, MD

Research Interests: Outcomes in Minimally Invasive Spine Surgery



Farid Hamzei-Sichani, MD, PhD

Research Interests: Neurobiology, Epilepsy



Hongwei Yang, MD, PhD

Research Interests: Cell Biology of Brain Tumors, Genetics of Adult Hydrocephalus



Richard P. Moser, MD

Research Interests: Gene Therapy for Huntington's disease



Rona Carroll, PhD

Research Interests: Cell Biology of Brain Tumors, Genetics of Adult Hydrocephalus

More about our faculty: <https://www.umassmed.edu/neurosurgery/about/department-of-neurosurgery-faculty/>

Department Updates



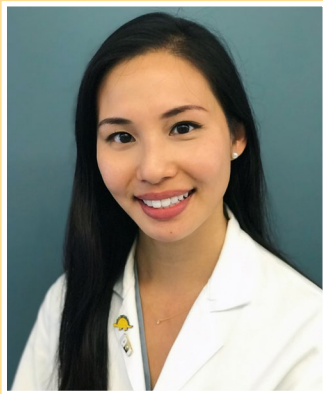
Our New Attending

Justin A. Slavin, MD, Assistant Professor of Neurological Surgery specializing in complex and minimally invasive spine surgery.

Dr. Slavin provides a broad spectrum of surgical and non-surgical treatments specializing in spine disorders and injuries.

He is a graduate of the University of Maryland School of Medicine, and completed his neurosurgical residency at University of Maryland. Dr. Slavin completed a fellowship in Spinal Neurosurgery at Brigham and Women's Hospital at Harvard Medical School in Boston, Massachusetts.

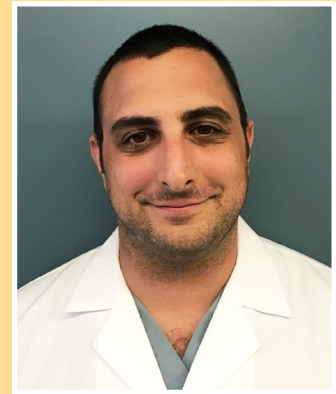
Welcome New Staff



Sarah Chou, PA-C, Neurosurgery Physician Assistant, MCPHS University. Former Embryologist at Reproductive Medicine Associates of New York (RMANY).



Megan Kennelly, DNP, obtained her DNP in 2019 from UMass Graduate School of Nursing. Megan worked formerly at Milford Regional Medical Center as an ER nurse.



Justin Lepore, DNP, received his DNP from UMass Lowell in 2019. In the past 3 years he was an NP in endocrinology at PrimaCARE. Received his FNP from the University of Cincinnati.



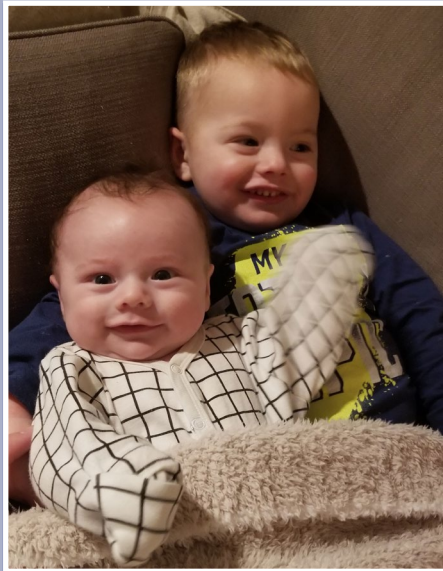
Irina Mechikow, MD, MHA, Clinical Research Coordinator. Framingham State University, MHA. Lviv Medical University, Ukraine, MD. Formerly from UMass NeuroICU Department.



Yijin Yang, BS, Neurological Surgery Residency Coordinator. Graduated from Georgetown University. Fulbright Scholar. Former English Teaching Assistant in Brazil.

Cassandra Wamester
(Not pictured)
Executive Secretary/Admin. Former Office Manager for Fournier Irrigation.

Welcome!



It's a another boy for Joe

Joseph Vazquez, NP and his wife Shannon had a baby boy on November 2, 2018. James Philip Vazquez, pictured with his older brother Joey Jr., loves eating, napping and his big brother!



Covino new arrival

Peter Covino, MSN, FNP and his wife Sarah welcomed a baby girl on March 26, 2019. Alice Ann Covino, pictured above with her father Peter and brother Calvin Xavier, weighed 7 lbs, 5 oz. at birth.



Congratulations DNP Graduates

Megan Kennelly, DNP graduated from the doctor of nursing practice (DNP) program at UMass Medical School and has been an NP student ambassador for the Massachusetts Coalition of Nurse Practitioners (MCNP) this past year as part of her leadership practicum. Congratulations, Megan! (Left photo) **Megan Kennelly, DNP** with **Mark Johnson, MD, PhD**, Chair of Neurological Surgery.

Justin Lepore, DNP graduated from the doctor of nursing practice (DNP) program at UMass Lowell. He received the Dean's Award from the Zuckerberg College of Health Sciences for highest GPA. Congratulations, Justin! (Right photo) **Justin Lepore, DNP**.