Icahn School of Medicine at Mount Sinai

THE NEUROSURGERY RESIDENCY PROGRAM *at Mount Sinai*

2024-2025

CONTACTS

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Raj K. Shrivastava, MD

Christopher P. Kellner, MD

Peter F. Morgenstern, MD

We are happy to welcome you to NewYork City!

We are proud to introduce you to the outstanding Neurosurgery Residency Program at the Icahn School of Medicine at Mount Sinai! Ours is the largest neurosurgery program in New York City, with a comprehensive breadth of subspecialty cases and research. Our faculty consists of internationally regarded clinicians and scientists. While we have a proven track record in training exceptional academic leaders, we continually strive to improve our curriculum. We are looking for applicants who likewise hope to excel and continually advance their abilities.

For over 75 years, residents have been vital members of our dynamic health care team, providing compassionate patient care while advancing medicine through unrivaled education, research, and outreach in the many diverse communities we serve. We are privileged to offer our residents robust operative volume in every aspect of modern neurosurgery. Our goal is to help you explore and develop your career, while giving you tools to face our field's rapidly evolving challenges. We will work to support your development and maximize your potential every step of the way. That's our commitment to you.

Sincerely,

Raj K. Shrivastava, MD
Professor and Vice Chair for Education
Director, Neurosurgery Residency Program
Department of Neurosurgery
Mount Sinai Health System

Christopher P. Kellner, MD
Associate Professor of Neurosurgery
Associate Director, Neurosurgery Residency Program
Department of Neurosurgery
Mount Sinai Health System

Peter F. Morgenstern, MD
Assistant Professor of Neurosurgery
Associate Director, Neurosurgery Residency Program
Department of Neurosurgery
Mount Sinai Health System

Need interview tips for Mount Sinai? Hear from our residents who went through the process (and matched)!

Use the camera on your mobile device and scan this QR code to hear the residents and provide insight and advice on the interview process.

No. 1

NIH funding for Neurosurgery in New York State, according the Blue Ridge Institute for Medical Research

499

Journal publications for 2023-24

The Department of Neurosurgery

Founded in 1852 as the first Jewish hospital in the United States, the Mount Sinai Health System is now the largest non-sectarian, nonprofit hospital in New York City with eight hospital campuses. The neurosurgery program in Mount Sinai was established in 1914 by Charles A. Elsberg, MD, and stands as a single, health system-wide department. The Neurosurgery Residency Program, established in 1946, has become a nationally recognized leader in neurosurgical training.

Mount Sinai Neurosurgery

1852	Hospital founded
1914	Neurosurgery service established
1932	Neurosurgery department established
1946	Neurosurgery residency training program established

Service Lines and Divisions

Cerebrovascular Disorders & Stroke
Skull Base & Cranial Base Surgery
Neuromodulation
(Movement & Psychiatric Disorders)
Pituitary Tumors
Benign Brain Tumors
Adult & Pediatric Epilepsy
Surgical Neuro-Oncology
Spinal Disorders
Neurotrauma
Neurocritical Care
Pain Management
Cranial Reconstruction
Peripheral Nerve
Pediatric Neurosurgery
Pediatric Cerebrovascular Disorders
General Neurosurgery
Biomedical Design & Engineering

Procedures and Treatments

Open Neurosurgical Procedures **3,400+**
Endovascular Procedures **2,200+**
Strokes Treated **300+**

Neurosurgery Operating Rooms

Operating Rooms per Day **11-13**
The Mount Sinai Hospital **5 - 6**
Mount Sinai West **2-3**
Mount Sinai Morningside **1**
Mount Sinai Brooklyn **1**
Mount Sinai South Nassau **1**
NYC Health + Hospitals/Elmhurst **1**

Endovascular Operating Rooms

Operating Rooms per Day **6**
The Mount Sinai Hospital **4**
Mount Sinai West **2**
NYC Health + Hospitals/Elmhurst **1**
Mount Sinai Queens **1**
Mount Sinai Brooklyn **1**
Mount Sinai South Nassau **1**

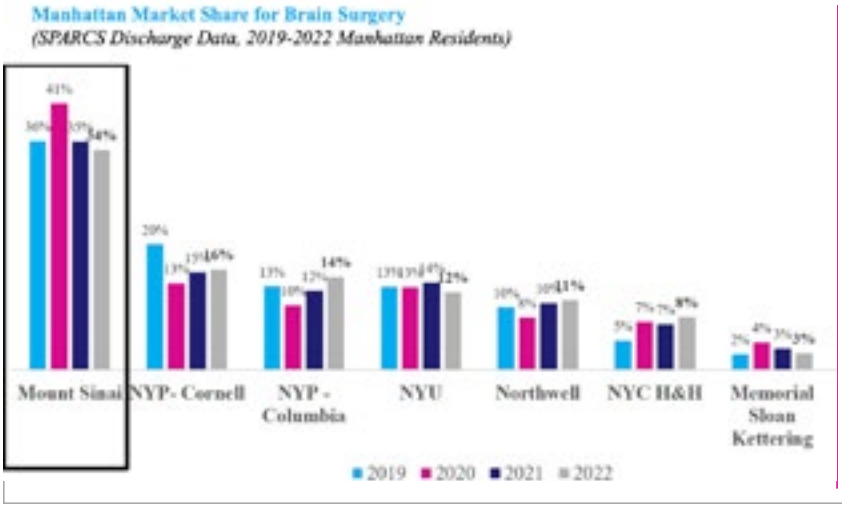
Neurosurgery Faculty

Academic and Clinical Faculty **50**
Academic Faculty **2**
Voluntary Faculty **8**
BioDesign Faculty **3**
Scientists and Researchers **5**

Neurosurgery Trainees

Neurosurgery Residents **14**
Pre-Residency Fellows **5**
Fellows **10**

MOUNT SINAI PERFORMS THE MOST BRAIN SURGERIES IN MANHATTAN



MOUNT SINAI NEUROSURGERY IS AWESOME

Mount Sinai neurosurgeons perform the highest volume of brain surgeries in Manhattan.
Source: NYS Department of Health, SPARCS, 2022

Mount Sinai neurosurgeons perform more stroke surgeries than any other team in the United States.
Source: Acuity MD

Patients who have undergone stroke surgery at Mount Sinai have a 25 percent better chance of returning to independence, as measured by independence at three months.
Source: National Comprehensive Stroke Center and StrokeNet Benchmarks, The American Heart and Stroke Association: Get with the Guidelines Database

Welcome from the System Chair

Joshua B. Bederson, MD

The Department of Neurosurgery at the Mount Sinai Health System is, first and foremost, a residency training program. It is my highest priority to develop the next generation of this nation's top neurosurgeons, and everything we do in the department is synergistic with that goal.

Over the past several years, the department has seen unprecedented growth, making us one of the largest programs in the country. Our 16 clinical service lines focus on even the rarest neurosurgery conditions into Centers of Excellence.

We have recruited some of the nation's leading neurosurgeons who are engaging, innovative, experienced, and committed to exceptional outcomes for their patients. We are globally recognized for our pioneering approaches and breakthroughs in treatments rooted in a supportive, team-oriented environment that encourages diverse viewpoints and collaboration.

Our faculty run high-volume, research-driven clinical programs and prioritize the training and mentoring of our bright residents, encouraging all to perform at their highest level. Ultimately, our goal is to lead you towards a superb academic neurosurgery career. Thank you so much for coming to learn about the people here and our program.

Sincerely,

Joshua B. Bederson, MD
System Chair
The Leonard I. Malis, MD / Corinne and Joseph Graber Professor
Department of Neurosurgery
Mount Sinai Health System

CHIEF NEUROSURGERY RESIDENT PHYSICIANS

Rui Fend, MD, MS
Chief Neurosurgery Resident PGY-7

Undergrad
University of Toronto

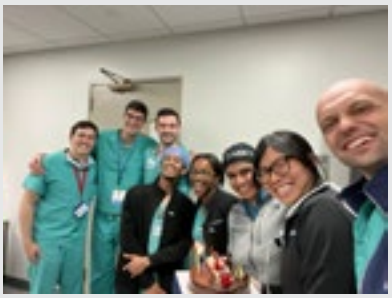
Master of Science
University College London

Medical Degree
Ichan School of Medicine at Mount SInai

Next Stop
Skull Base Fellowship
Jefferson University

I feel extremely lucky to have the best skull base training possible during residency. Mount Sinai's breadth and volume in neurosurgical cases are truly incredible, coming from taking care of the greatest and most diverse city in the world. Dr. Shrivastava and Dr. Bederson's mentorship gave me unparalleled operative training geared toward developing me into a well-rounded and versatile skull base neurosurgeon. Close collaborations with the Friedman Brain Institute, BioMedical Engineering and Imaging Institute, and Sinai BioDesign also provides the residents with limitless opportunities in research. I cannot imagine a better place to do my neurosurgical training!

Use the camera on your mobile device and scan this QR code to watch Rui's video biography and hear in his own words about his residency experience.




Trevor Hardigan, MD, PhD
Chief Neurosurgery Resident PGY-7

Undergrad
Colby College

Medical Degree / Doctor of Philosophy
Medical College of Georgia at Augusta University

Next Stop
Neuroendovascular Fellowship
Icahn School of Medicine at Mount Sinai

"Mount Sinai is a large, comprehensive academic medical health system with a prominent and exceptional neurosurgical department, and I knew it would allow me to gain well-rounded surgical and academic training alongside renowned faculty. It offers a favorable environment for residents in a world-class city. I saw that the Mount Sinai residency program encourages residents to individualize their education and build their own niche within the field of neurosurgery. "

Use the camera on your mobile device and scan this QR code to watch Trevor's video biography and hear in his own words about his residency experience.


Born and raised in Laguna Beach, CA, Ansley's path to neurosurgery was formed from her two passions; art and neuroscience.

Originally from Syracuse, NY, Dan spent the last 8 years studying in CA, first at USC for undergrad then completing medical school at UCSF.

Born in Vietnam, Chi moved to the US with her family and grew up in NC. Prior to starting her residency, she earned an MSc at Oxford.

Due to cultural and religious restrictions, Halima is the first woman in her family to pursue education beyond high school.

Born in Japan and raised in New York, Emily studied political science in college but realized she wanted to pursue a career in medicine after working at a VA hospital.

NEUROSURGERY RESIDENT PHYSICIANS

Abhiraj D. Bhimani, MD | PGY-6
@abhirajbhimani @abhiraj.bhimani

Undergrad
Loyola University of Chicago

Medical Degree
University of Illinois at Chicago
College of Medicine

Alexander J. Schüpper, MD | PGY-6
@neurofitnessmd

Undergrad
Johns Hopkins University

Medical Degree
University of California, San Diego
School of Medicine

Halima Tabani, MD | PGY-5
@hali_tab @halimatn

Medical Degree
Aga Khan University Hospital

Skull Base Research Fellowship
University of California, San Francisco
School of Medicine

Cerebrovascular Research Fellowship
University of California, San Francisco
School of Medicine

Neurosurgery Pre-Residency Fellowship
Icahn School of Medicine at Mount Sinai

Matthew Carr, MD | PGY-5
@MatthewCarrMD @matthewcarrmd

Undergrad
University of Maryland

Medical Degree
Virginia Commonwealth University
School of Medicine

Brandon Philbrick, MD | PGY-4
@BDPhilbrick @brandonphilbrick

Undergrad
Georgia Institute of Technology

Medical Degree
Emory University School of Medicine

Emily K. Chapman, MD | PGY-3
@kojima_emily @emilykojima

Undergrad
Williams College

Medical Degree
Icahn School of Medicine at Mount Sinai

Chi Le, MD, MSc | PGY-3

Undergrad
Emory University

Masters of Science
University of Oxford

Medical Degree
Vanderbilt University School of Medicine

Ansley Unterberger, MD | PGY-2
@ansleyunterberger

Undergrad
Emory University

Medical Degree
University of California, Los Angeles
David Geffen School of Medicine

Daniel Cummins, MD | PGY-2

Undergrad
University of Southern California

Medical Degree
University of California, San Francisco

Maikerly Reyes, MD | PGY-1

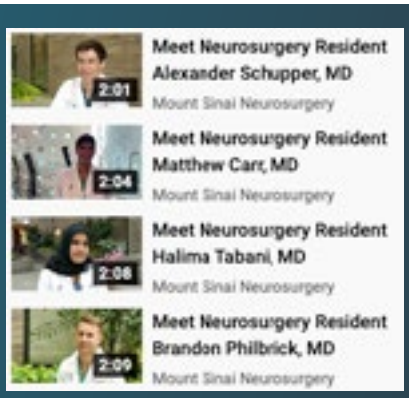
Undergrad
Brown University

Medical Degree
Sidney Kimmel Medical College
Thomas Jefferson University

Zlad Rifi, MD | PGY-1

Undergrad
University of California, Berkeley

Medical Degree
University of California, Los Angeles
David Geffen School of Medicine



There's only so much you can learn about us from reading!

We encourage you to check out our department and personal social media channels to hear from the neurosurgery residents themselves!

Use the camera on your mobile device and scan this QR code to watch videos about our residents and the residency program.

Resident Spotlight

TREVOR HARDIGAN, MD, PHD

Class of 2025

"Mount Sinai is a world class institution, and our amazing faculty provide a fantastic operative and academic experience for the resident program. I think both the resident as well as departmental culture are incredibly supportive; one of the things that impressed me most while exploring programs was how Dr. Bederson and Dr. Mocco truly support the advancement of resident careers and pursuit of their own personal academic interests."

RECIPIENT OF THE 2022-23 NREF FELLOWSHIP GRANT AWARD

Resident Publications

Our residents are actively involved in clinical and basic science, as well as socio-economic. Many have several high impact first-author publications.

Celebrating 75 Years of Neurosurgery Residency Training...

We published a paper to highlight achievements in surgical growth, outcomes, research, recruitment, technology, and diversity in Mount Sinai's residency training

READ HERE

Journal of Neurosurgery

Seventy-Five Years of Neurosurgery Residency Training at The Mount Sinai Hospital

Carr MT, Zimering JH, Beroza JM, Melillo A, Kellner CP, Mocco J, Post KD, Bederson JB, Shrivastava RK (2022)

Selective Representation of High-Impact Publications

Journal of Neurosurgery

5-Aminolevulinic Acid for Enhanced Surgical Visualization of High-Grade Gliomas: A Prospective, Multicenter Study
Schüpper AJ, et al (2021)

Regulator of G Protein Signaling 4 (RGS4) Gene Expression is Upregulated in the Superficial Spinal Dorsal Horn and in Dorsal Root Ganglion Neurons in a Murine Model of Neuropathic Pain
Zimering JH, et al (2022)

Breaking Boundaries through Doctors Reaching Minority Men Exploring Neuroscience: A Mentorship Model to Foster a Pipeline for Underrepresented Minorities
McNeill IT, Carrasquilla A, Barthélemy EJ, Bederson JB, Butts GC, Germano IM, et al (2022)

Contemporary Intraoperative Visualization for GBM with Use of Exoscope, 5-ALA Fluorescence-Guided Surgery and Tractography
Schüpper AJ, Hadjipanayis GH. et al (2021)

World Neurosurgery

Comparison of Surgical Outcomes of Microdiskectomy Procedures by Patient Admission Status
Chapman EK, Gilligan JT, Yuk FJ, Zimering JH, Schüpper AJ, Caridi JM, et al (2021)

The Predictive Role of Intraoperative Visual Evoked Potentials in Visual Improvement After Endoscopic Pituitary Tumor Resection in Large and Complex Tumors: Description and Validation of a Method
Feng R, Bederson JB, Shrivastava RK, et al (2019)

The Impact of Obstructive Sleep Apnea on Clinical, Perioperative, and Cost Outcomes in Patients Who Underwent Posterior Cervical Discectomy and Fusion: A Single Center Retrospective Analysis from 2008 to 2016
Carrasquilla A, Nistal D, Caridi JM (2019)

Clinical Trials in Spinal Tumors: A Two-Decade Review
Chapman EK, Yuk FJ, Schüpper AJ, et al (2022)

Women Neurosurgeons in Academic and Other Leadership Positions in the United States
Feng R, Germano IM, et al (2021)

Augmented Reality in Spine Surgery
Schüpper AJ, Steinberger J, Gologorsky Y (2021)

Da Vinci meets Globus Excelcius GPS: A Totally Robotic Minimally Invasive Anterior and Posterior Lumbar Fusion
Yuk FL, Carr MT, Schüpper AJ, Steinberger et al (2023)

Third Ventricular Subependymomoas: Clinical Features and Outcomes over Two Decades
Carr MT, Germano IM, et al (2023)

External Ventricular Drain Placement Teleproctoring using a Novel Camera-Projector Navigation System: A Proof-of-Concept Study
Philbrick BD, et al (2023)

The Effect of Multiple Scopus Profiles on the Perceived Academic Productivity of Neurosurgeons in the United States
Schupper AJ, Carr MT, Ghatan S, Choudhri, TF, et al (2023)

External Ventricular Drain Training in Medical Students Improves Procedural Accuracy and Atitudes Toward Virtual Reality
Schupper AJ, Hardigan T, Philbrick BD, et al (2023)

Neurochemistry International

Contralesional Angiotensin Type 2 Receptor Activation Contributes to Recovery in Experimental Stroke
Hardigan T, et al (2021)

Journal of Neuroinventional Surgery

Time from Image Acquisition to Endovascular Team Notification: A New Target for Enhancing Acute Stroke Workflow
Yaeger KA, Ladner TR, Hardigan T, Shoirah H, Mocco J, Fifi JT, et al (2021)

Dome Laminotomies at Adjacent Segments in Cervical Laminoplasty
Zimering JH, Margetis K (2021)

Journal of Hypertension

Blood Pressure Management through Application-Based Telehealth Platforms: A Systematic Review and Meta-Analysis
Bhimani AD, Putrino D, Dangayach N, Mocco J, Kellner CP, et al (2022)

Journal of Neurosurgery Science

Social Media in Neurosurgery During COVID-19: An Evaluation of the Role of Neurosurgery Cocktail Platform
Le C, et al (2022)

The Journal of Neurological Surgery Part B: Skull Base

Size Matters: Rethinking of the Sizing Classification of Pituitary Adenomas Based on the Rates of Surgery: A Multi-institutional Retrospective Study of 29,651 Patients
Bhimani AD, Schüpper AJ, Hadjipanayis CG, et al (2020)

British Journal of Neurosurgery

Post-Operative Vision Loss: Analysis of 587 Patients Undergoing Endoscopic Surgery for Pituitary Macroadenoma
Oermann EK, Feng R, Ladner TR, Post KD, Bederson JB, Shrivastava RK, et al (2022)

Our Enrichment Experience

Each neurosurgery resident participates in at least one academic "enrichment" year. Whether within or outside of Mount Sinai, this tailored experience allows residents to explore and develop their unique interests with protected time, freedom, and support.

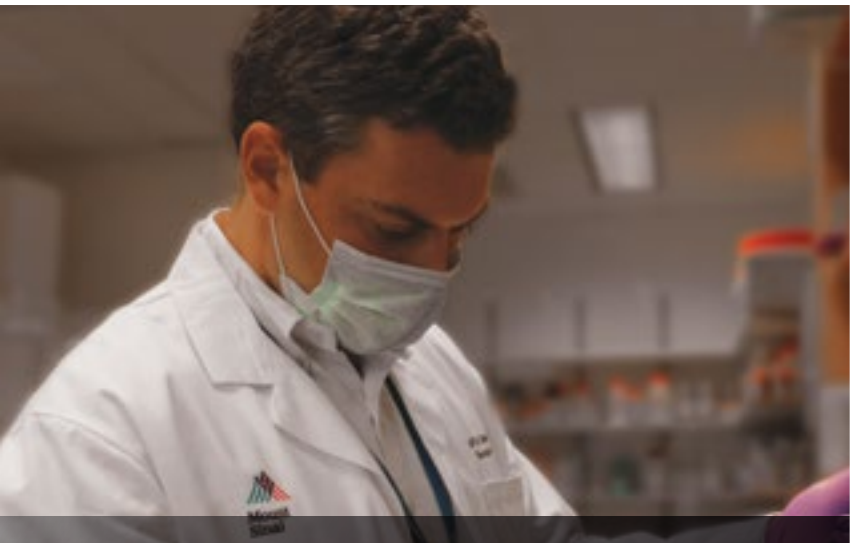
Imagination Allows Infinite Opportunities

- Technology and innovation
- Biomedical design
- Device development
- Artificial intelligence
- Enfolded fellowships
- Clinical research
- Basic research
- Industry internships
- Policy internships
- Political internships
- Graduate programs
  - Public health
  - Global health
  - Business
  - Administration
  - Health science
  - Clinical science

Designing and Patenting Cerebrovascular Medical Technology

Kurt A. Yaeger, MD | Class of 2022

During his elective time, Kurt split the year completing both a fellowship in neuroendovasuar surgery and a fellowship in medical device development with Mount Sinai BioDesign. As an endovascular fellow, he performed 450 endovascular cases (both diagnostic angiograms and advanced treatment procedures) and served as the on-call endovascular fellow for the Mount Sinai Health System. During his biodesign fellowship, Kurt assisted in the development of a novel detachable balloon microcatheter for the treatment of cerebrovascular pathology requiring distal embolization, resulting in the submission of two patents and collaboration with manufacturers to develop a prototype. Additionally, he engaged industry partners to commercialize this invention.



Researching Chronic Radicular Pain Mechanisms

Jeffrey H. Zimering, MD | Class of 2024

Jeff spent his research year in the neuroscience lab of Venetia Zachariou, PhD, at the Friedman Brain Institute. In collaboration with Konstantinos Margetis, PhD, MD, and other neurosurgery faculty, Jeff studied the pathophysiologic mechanisms underlying chronic radicular pain and investigated signature gene transcription changes in human and mouse dorsal root ganglion neurons in response to nerve injury. By using advanced tools to visualize in-situ mRNA in groups of candidate genes, he gained an improved understanding of the mechanism of action of currently-approved drugs for neuropathic pain and to stimulate the development of novel agents.

Impacting the World with Global Neurosurgery and Public Health

Ernest J. Barthélemy, MD, MA, MPH | Class of 2021

Ernest dedicated his neurosurgery research year to improving neurosurgery in Haiti by splitting the year between Harvard Medical School in Boston and hospitals in Haiti. While in Boston, he studied at the Harvard T.H. Chan School of Public Health where he obtained a masters in public health and conducted research as a Paul Farmer Global Surgery Fellow on social and economic disparities in Haiti. While in Haiti, Ernest worked closely with politicians, healthcare workers, non-governmental organizations, and others to strengthen its local health system.

Neurosurgery Research and Milestones

Our faculty and research team support innovative and bold-thinking residents who are involved in high-quality research that will change the face of neurosurgery and medicine. We encourage residents to be curious and pose questions, and then take steps to investigate the answers.

At Mount Sinai, we encourage residents to identify faculty mentors who can help guide them through their research projects. Several neurosurgery faculty members head up NIH-funded laboratories that are constantly pushing out pioneering research and running clinical trials.

Top Rankings for Mount Sinai in National Institutes of Health Funding

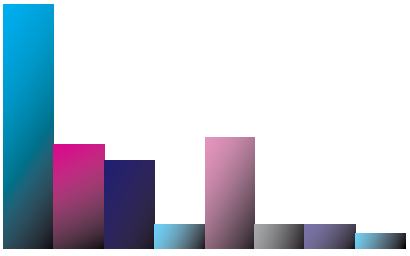
No. 2 Neurosciences ($32.6M in 2023)
No. 17 Neurosurgery ($3.6M in 2023)

No. 1
U.S. NIH Funding for Neurosurgery in New York State
Blue Ridge Institute for Medical Research

271
Current, Active Neurosurgery-Led Trials

Neurosurgery Clinical Trials Since 2014

$37M Funding
2,700+ Patients Enrolled
140+ Contracted Trials
15 Large Multicenter Tiral Coordinating Centers through the Academic Research Organization
3 Active IDEs/INDs held by faculty



Active Neurosurgery Clinical Trials and Studies Open for Accrual

- Cerebrovascular Disorders: 130
- Brain Tumors: 36
- Neurocritical Care: 34
- Neuromodulation: 6
- Spine: 30
- Epilepsy: 9
- Simulation: 5
- Pediatric Cerebrovascular Disorders: 3

Mount Sinai Neurosurgery Historic Milestones

- First hospital in the world to perform a microneurosurgical operation.
- First hospital in the United States to perform the GPi Deep Brain Stimulation for dystonia.
- First hospital in the United States to perform gene delivery in the mouse brain by embryonic stem cell derived astrocytes.
- First hospital in the world to use real-time, augmented reality imaging overlaid on the brain through an eyepiece, allowing surgeons to see images of a patient's original CT scans or MRIs superimposed on the patient's brain during microscopic surgery.
- First hospital in New York City to use Gliolan (5-ALA) for fluorescence-guided surgery in brain tumor surgery.
- First hospital to implant a NeuroPace responsive neurostimulator for uncontrolled epilepsy in a child.
- First hospital in the world to complete a prospective randomized trial demonstrating the value of aspiration thrombectomy in treating patients suffering acute stroke from large vessel occlusion.
- First health system with a program dedicated to directing all ICH patients to one dedicated hospital for treatment and research.
- First hospital to study artificial intelligence for detecting acute neurologic events and demonstrating its direct clinical application.
- First hospital in the United States to perform the first endovascular human brain-computer interface.
- First hospital in the world to adopt several "machine-vision" systems for open spine and brain surgery and deploy them across multiple hospitals within a health system.
- First hospital to perform a fully robotic anterior and posterior (circumferential spinal fusion surgery.
- First hospital in the tri-state area to perform Vagus Nerve Stimulation surgery for stroke rehabilitation.
- First hospital to use A.I. insights into the complex workings of DBS for treatment resistant depression.

The Lab of Helen S. Mayberg, MD
Cross-disciplinary collaborative translational research of neurologists, neurosurgeons, and psychiatrists with experts from neuroscience, imaging, engineering, bioinformatics, neuro-engineering, and computational neuroscience, with the goal of developing new circuitbased strategies and state-of-the-art individualized treatments for patients with advanced neuropsychiatric disorders.

The Lab of Dolores Hambardzumyan, PhD, MBA
Focusing on brain tumor microenvironment and its impact on tumor response to therapy, the lab developed methods for immune profiling of brain tumors, including development of novel markers to distinguish and lineage-trace various populations of tumor-associated macrophages. The lab demonstrated that genetic driver mutations can define the composition and function of the tumor microenvironment and can modify tumor response to therapy.

Faculty Spotlight

HONGYAN "JENNY" ZOU, MD, PHD

NIHR01 Funded Neurosurgeon and Neuroscientist

FEATURED IN NATURE NEUROSCIENCE

Microglia and Macrophages Promote Corralling, Wound Compaction and Recovery After Spinal Cord Injury via Plexin-B2

Director of the Axon Growth & Neuronal Regeneration Laboratory, Dr. Zou is investigating signaling pathways and epigenetic mechanisms of axon regeneration and neuroimmunity for neural repair in CNS injury. Her lab combines mouse genetics, animal models, 3D organoid cultures, and genome-wide approaches to study neurodevelopment and neural stem cell biology under physiological and pathological conditions. Dr. Zou has also teamed up with biomechanical engineers and tumor biologists to study fundamental biology of tumor dormancy and tumor microenvironment in order to tackle glioblastoma.

Use the camera on your mobile device and scan this QR code to read the full publication in *Nature Neuroscience*.

Active Research Funding

Neha S. Dangayach, MD, MSCR
- NIH/StrokeNet U01 (through 2025)
- Society of Critical Care Medicine (through 2025)
- Society of Critical Care Medicine (through 2026)

Reade A. De Leacy, MD
- SNIS Foundation (through 2024)

Roland Friedel, PhD
- NIH/NINDS R21 (through 2024)
- NIH/NIA RF1 (through 2025)
- NIH/NINDS R01 (through 2026)

Saadi Ghatan, MD
- NIH/NeuroPace UH3 (through 2026)
- NIH (through 2026)

Dolores Hambardzumyan, PhD, MBA
- NIH/NCI R01 (through 2027)
- NIH/NINDS R01 (through 2029)
- NIH/NINDS R01 (through 2029)
- NCI (through 2028)

Christopher P. Kellner, MD
- NIH/NIA R01 (through 2025)

Brian H. Kopell, MD
- NIH/NIA R01 (through 2025)
- NIH/NIMH R01 (through 2025)
- NIH/NIMH R01 (through 2026

Sharam Majidi, MD
- SNIS (through 2024)

Helen S. Mayberg, MD
- Wellcome Leap Foundation (through 2024)

J Mocco, MD, MS
- UT Health Sciences (through 2025)
- NIH/NINDS R01 (through 2028)
- PCORI (through 2028)

Peter F. Morgenstern, MD
- NIH/Johns Hopkins U01 (through 2026)

Raj K. Shrivastava, MD
- NASBS (through 2024)

Raymund L. Yong, MD
- NIH/NINDS R03 (through 2023)

Hongyan "Jenny" Zou, MD, PhD
- NYS dept of health (through 2025)
- NYS Dept of health (through 2028)
- NIH/NINDS R01 (thorugh 2028)
- NIH/NINDS R01 (thorugh 2028)
- Craig H. Nielsen (through 2024)

RESEARCH DIVISIONS AND LABS

Mount Sinai BioDesign
AISINAI
Neurosurgery Simulation Core
Axon Growth & Neuronal Regeneration Lab
Cerebrovascular Lab
Hambardzumyan Lab
Mayberg Lab

CENTERS OF EXCELLENCE

Cerebrovascular Center
Center for Neuromodulation
Nash Family Center for Advanced Circuit Therapeutics
Skull Base Surgery Center
Pituitary Care & Research Center
Malignant Brain Tumor Program
Intracerebral Hemorrhage Program
Epilepsy Surgery Program

Resident Research and Awards

No. 1
NIH funding for Neurosurgery in New York State, according to the Blue Ridge Institute for Medical Research

No. 17
NIH funding for Neurosurgery in the nation, according to the Blue Ridge Institute for Medical Research

499
Journal publications for 2023-24

Our research team provides residents with assistance for everything; including submission, data acquisition and analysis, funding requests, and compliance while offering weekly virtual office hours to support them along the way.

Grants

▶ **Neurosurgery Research and Education Foundation (NREF) Grant Award**
Trevor Hardigan, MD, PhD, Class of 2025
The 2022-23 Academy of Neurological Surgeons Research Fellowship Grant through the Neurosurgery Research & Education Foundation (NREF) for his research on the role of IL-3 in post-stroke inflammation.

▶ **Advanced Neuroimaging Research Program Pilot Grant**
Rui Feng, MD, MS, Class of 2025
The Advanced Neuroimaging Research Program Pilot Grant supporting her research on complex imaging of facial nerves in skull base surgical planning and resection of vestibular schwannomas.

▶ **NIH**
Rui Feng, MD, MS, Class of 2025
Pose Tracking of Patient Video Data in the NSICU: A Preliminary Analysis

▶ **Andrew McDonough B+ Foundation Grant**
Alexander Schüpper, MD, Class of 2026
Dr. Schüpper has been awarded the Andrew McDounough B+ Foundation award for the Childhood Cancer Research Grant. He was awarded a two year grant for his research project "Preclinical evaluation of BRD Inhibitors to Treat Posterior Fossa A Ependymoma" in the laboratory of Oren Becher, MD for $150,000.

Awards

▶ **Stereotactic and Functional Neurosurgery Resident Clinical Award**
Brandon Philbrick, MD, Class of 2028
Received the 2022 CNS Stereotactic and Functional Neurosurgery Resident Clinical Award for his abstract "Intracranial Magnetic Resonance Guided Laser Interstitial Thermal Therapy for Epilepsy: A Single Institution's Experience of 226 Cases."

▶ **Zeiss Brain Tumor Award**
Alexander Schüpper, MD, Class of 2026
The recipient of the 2021 Zeiss Brain Tumor Award for his abstract "5-Aminolevulinic Acid for Enhanced Surgical Visualization of High-Grade Gliomas: A Prospective, Multicenter Study," published in *Journal of Neurosurgery*. It is the first-ever multicenter 5-ALA studies in the United States.

▶ **K12 Pipeline Accelerator (KPAC)**
Chi Li, MD, Class of 2028
The Neurosurgeon Reasearch Career Development Program (NRCDP) of the National Institute of Neurological Disorders and Stroke (NINDS) at the National Insitutes of Health (NIH) is a faculty training program that supports the research and develops the scientific careers of junior neurosurgeon investigators across the country through K12 funding.

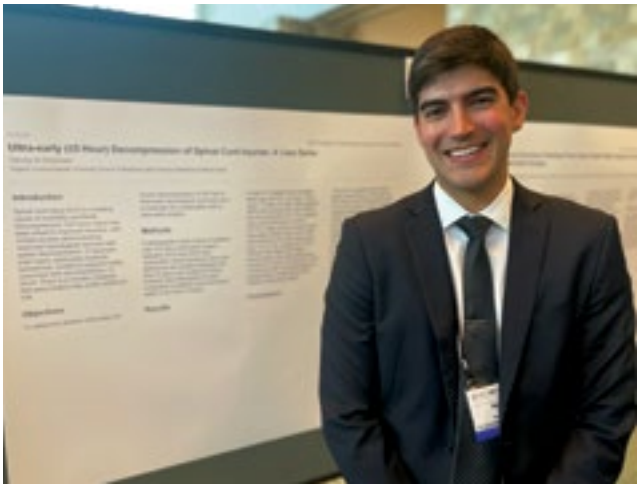
It was a Mount Sinai Neurosurgery Resident...

Who conducted the first study to utilize Artificial Intelligence for detecting a wide range of acute neurologic events and to demonstrate a direct clinical application

While Eric K. Oermann, MD (Class of 2020) was a resident at Mount Sinai, he was recognized as a leader in innovation for laying the framework in applying deep learning and computer vision techniques. He was recognized as a finalist for 2018 Congress of Neurological Surgeon's Innovator of the Year for his research in artificial intelligence, in *Forbes Magazine*'s 30 Under 30 in Health Care, and was the very first Verily (Google Life Sciences) Clinical Fellow.

His research was in developing an artificial intelligence platform designed to identify a broad range of acute neurological illnesses, such as stroke, hemorrhage, and hydrocephalus, was shown to identify disease in CT scans in 1.2 seconds, faster than human diagnosis, and published in the journal, *Nature Medicine*.

Trevor accepts the Third Place award Residency Program Abstract Competition.



Biomedical Engineering and Medical Device Design

Our residents have the unique opportunity to explore medical device design through Mount Sinai BioDesign, an incubator within the Department of Neurosurgery, that takes ideas and concepts and transforms them into actual medical tools and devices to use in clinical practice.

Mount Sinai BioDesign is the center of rapid medical device innovation within the Mount Sinai Health System, with a mission to systematically transform the expertise and insights of physicians and surgeons into commercializable products. Mount Sinai BioDesign is a multidisciplinary institute and incubator for the innovation, design, and translation of novel medical technologies. Working with both internal and external innovators, Mount Sinai BioDesign removes and reduces the hurdles of translating medical devices from concept to adoption.

In 2015, Joshua B. Bederson, MD, the Leonard I. Malis, MD/Corinne and Joseph Graber Professor and Chair of Neurosurgery at Mount Sinai Health System, founded the Neurosurgery Simulation Core with Anthony B. Costa, PhD. In 2018, the group developed further to form Mount Sinai BioDesign, and has continually overseen the expansion of its scope and capabilities while optimizing its structured approach to clinical technology innovation. The core team is led by Scientific Director Benjamin I. Rapoport, MD, PhD, and Associate Director Turner S. Baker, PhD. Team members include 6 professional engineers and project managers, 4 PhD students, and numerous physician entrepreneurs.

Mount Sinai BioDesign enables physicians and surgeons to translate the medical needs of their patients into commercially valuable, technology-based solutions. Our process helps clinicians refine the need, design, and iteratively prototype prospective devices, while protecting intellectual property. The team specializes in minimally invasive surgical technologies and has developed devices for open and endovascular neurosurgery and other disciplines. Successful technologies are licensed directly to industry and manufacturing partners or launched as new startups with partnering entrepreneurs.

Industry Partnerships

Mount Sinai BioDesign's strong affiliations with industry facilitate testing, validation, and adoption of products in our portfolios. The team leverages our vast network of clinicians and key opinion leaders to efficiently identify clinical champions, build dedicated translational teams, and gather action-oriented feedback. Our established processes ease the process of creating companies and improve outcomes of academic return on investment for commercial partners.

New York Brain Computer Interface (NYBCI) Symposium

This year marked the inaugural NYBCI Symposium co-hosted by Mount Sinai BioDesign and the Department of Neurosurgery at the New York Academy of Medicine. Presentations spanned key discussions in breakthrough methods, commercial strategy, ethics, and research initiatives. The two BCI sponsors of the event, Synchron and Precision Neuroscience, offered dual visions of what an "interface" can be across numerous sessions. Speakers represented numerous programs from Mount Sinai's network of interdisciplinary departments for brain health, suggesting that the world's leading neurotech innovation ecosystem might be developing at New York City's biggest hospital system.

It's a Mount Sinai Neurosurgeon...

Leading the way with innovation

Uniquely trained as a neurosurgeon, engineer, and scientist, Benjamin Rapoport, MD, PhD, serves as the Scientific Director of Mount Sinai BioDesign. He has extensive scientific training, receiving Master's degrees in Physics from Harvard University and Mathematics from Oxford University, a PhD in Electrical Engineering and Computer Science from the Massachusetts Institute of Technology and has a track record of technology translation in the areas of digital health, including serving as co-founder of Simbionics (acquired by Apple), and of neurotechnology, including serving as a co-founding member of Neuralink. Dr. Rapoport has authored over 30 peer-reviewed scientific publications and obtained 10 patents, many of which are related to brain-computer interfaces and other innovations in medical technology.

Benjamin Rapoport, MD, PhD, reviews a protoype with Mount Sinai BioDesign engineers.

NEW YORK BCI SYMPOSIUM FORBES ARTICLE

Read the recently published Forbes article "The Future of Brain-Computer Interface Emerges at Mount Sinai"

$11.6 Million Grant for The Comprehensive Center For Surgical Innovation

Mount Sinai BioDesign continues to grow and was recently awarded an $11.6 million grant from the New York Economic Development Council to launch the Comprehensive Center for Surgical Innovation. This new center will expand the prototyping and manufacturing capabilities and establish dedicated space for product testing and training in simulated OR environments.

Neurosurgery Resident Involvement

With Mount Sinai BioDesign, residents interested in medical device development are encouraged to solve problems and innovate ideas. From start to completion, Mount Sinai residents are involved in every step of the process from idea generation, to using the prototyping and design resources available, to patenting products.

Available Resources

- A dedicated facility—equipped with advanced design software, 3D printing, and custom anatomical phantom models—is staffed with professional engineers to assist in transforming concepts into prototypes
- Means to produce end-use models and products at scale
- Facilitating the application and commercialization of discoveries and the development of research partnerships with Mount Sinai Innovation Partners
- Refined processes and expertise efficiently expedite the rate of translation, streamlining prototyping and commercial strategy development, and ultimately bringing successful medical devices to market
- Assistance to turn ideas into disclosures, patents, technology startups, and direct licenses
- Support services are available to recruit federal and private grant funding, develop commercial plans, recruit established entrepreneurs, and connect with industry leaders

Mount Sinai BioDesign Fellowship

For innovative and entrepreneurial neurosurgery residents, Mount Sinai Neurosurgery offers a unique opportunity to become a part of Mount Sinai BioDesign. During their elective time they may work alongside our experienced professional engineers, project managers, and key opinion leaders, where they can actively develop innovations or serve as key participants in existing product development. BioDesign participants can expect hands-on experience in prototyping, intellectual property development, commercialization strategy, and startup operations.

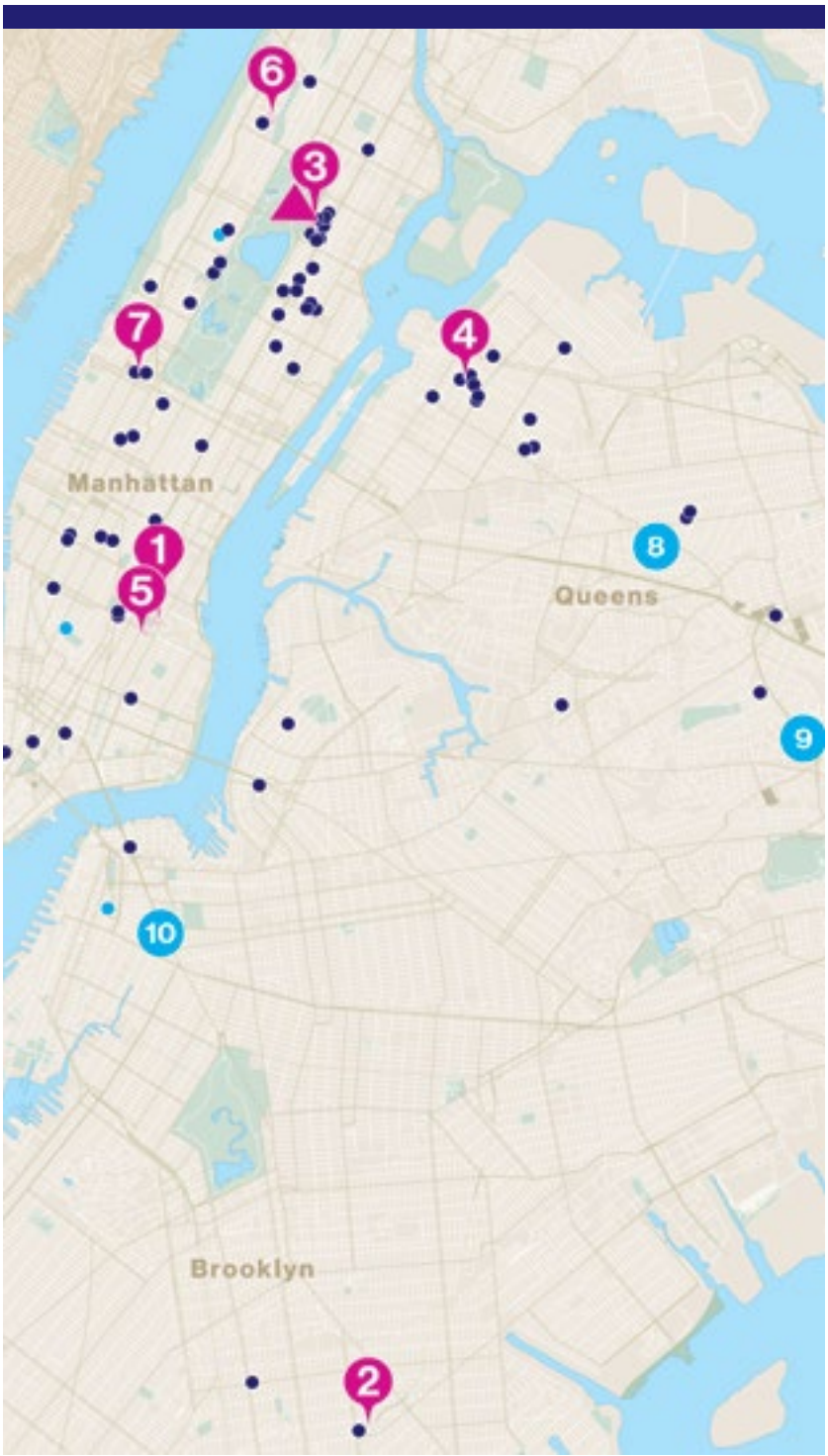
Targeted Healthcare InnoVation Fellowship (THRIVE)

Co-founded and managed through a collaboration between Mount Sinai BioDesign, CondulTS, Mount Sinai Innovation Partners and the Icahn School of Medicine at Mount Sinai, this opportunity for medtech innovation across disciplines brings students, faculty, and technologists together to ideate around problems in health care. For the first semester the cohort participates a curriculum of the BioDesign process, needs finding workshops, and business development. Culminating with project teams focusing on digital and device solutions to address some of health care's most pressing problems.

High Clinical Volume and Early Operative Exposure

With more than 5,300 neurosurgical procedures per year, Mount Sinai's neurosurgery program offers one of the largest neurosurgical caseloads in New York. This allows our residents to receive a significant neurosurgery operative experience.

Encompassing the Icahn School of Medicine at Mount Sinai and seven hospital campuses in the New York metropolitan area, as well as a large, regional ambulatory footprint, Mount Sinai is acclaimed internationally for its excellence in research, patient care, and education across a range of specialties. The large-scale ambulatory network and a range of inpatient and outpatient services—from community-based facilities to tertiary and quaternary care—provides an extensive referral base for neurosurgical care.



Neurosurgery Presence Located in Mount Sinai Academic Centers Throughout New York City

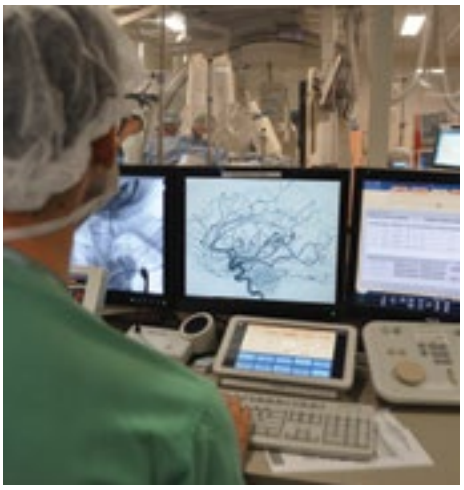
Mount Sinai Health System

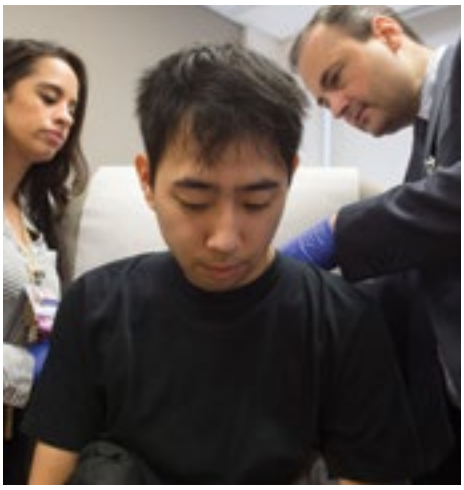
- ❶ Mount Sinai Beth Israel
- ❷ Mount Sinai Brooklyn
- ❸ The Mount Sinai Hospital
- ❹ Mount Sinai Queens
- ❺ New York Eye and Ear Infirmary of Mount Sinai
- ❻ Mount Sinai Morningside
- ❼ Mount Sinai West
- ❼ Mount Sinai South Nassau
- ▲ Icahn School of Medicine at Mount Sinai
- ● Ambulatory Practice Sites
- ● Urgent Care Centers

Department of Neurosurgery Member Hospitals

- ⑧ NYC Health + Hospitals/Elmhurst
- ⑨ NYC Health + Hospitals/Queens
- ⑩ The Brooklyn Hospital

Alex and Kurt (Class of 2022) discuss a patient case with Dr. Bederson in the Neurosurgery Planning Suite.





Our Residency Rotation Schedule

FIRST YEAR PGY-1	*Intern* Elmhurst Hospital Center The Mount Sinai Hospital	*Three Months Research Elective* *Six Months Clinical Neurosurgery and Neurotrauma* *Elmhurst Hospital Center* *Three Months Neurosurgical Intensive Care Unit* *The Mount Sinai Hospital*
SECOND YEAR PGY-2	*Junior Resident* The Mount Sinai Hospital	*Twelve Months Junior Resident* *The Mount Sinai Hospital* *****Limited Call Responsibilities (Other than Weekends)*****
THIRD YEAR PGY-3	*Junior Resident* The Mount Sinai Hospital	*Twelve Months* *The Mount Sinai Hospital* *****Limited Call Responsibilities (Other than Weekends)*****
FOURTH YEAR PGY-4	*Enrichment Elective*	*Twelve Months Elective and Research Time* *Academic research vs focused clinical experience* *****PROTECTED TIME*****
FIFTH YEAR PGY-5	*Chief Resident Elective* Mount Sinai West	*Twelve Months Epilepsy, Endovascular Surgery, Pediatrics, and Radiosurgery* *Mount Sinai West*
SIXTH YEAR PGY-6	*Senior Resident* The Mount Sinai Hospital *Chief Resident* Elmhurst Hospital Center	*Six Months Senior Resident* *The Mount Sinai Hospital* *Six Months Chief Resident* *Elmhurst Hospital Center*
SEVENTH YEAR PGY-7	*Chief Resident* The Mount Sinai Hospital *Fellowship/Elective*	*Twelve Months Chief Resident* *The Mount Sinai Hospital* *Six Months Transition to Practice Fellowship/Elective*

Faculty Spotlight

JEREMY M. STEINBERGER, MD

Director, Minimally Invasive Spine Surgery

MOUNT SINAI NEUROSURGERY RESIDENT ALUMNI CLASS OF 2018

Dr. Steinberger graduated from the Mount Sinai Neurosurgery Residency Program in 2018. After completing a one-year orthopedic spine fellowship at Hospital for Special Surgery in 2019, he joined the Mount Sinai Neurosurgery faculty. With the support of Dr. Steinberger, Mount Sinai was the first to adopt several "machine-vision" systems and deploy them across multiple hospitals within a health system. Machine-vision creates an augmented reality for surgeons to verify anatomical landmarks for accuracy and navigate a precise surgical trajectory.

Use the camera on your mobile device and scan this QR code to watch Dr. Steinberger show how Mount Sinai's new "machine-vision" improves surgical accuracy for brain and spine surgery in real-time. It's fast, accurate, and radiation-free.

Resident Spotlight

CHI LE, MD
Class of 2029

Use the camera on your mobile device and scan this QR code to watch Chi's video biography and hear in his own words about his residency experience.

Accepted into the K12 Pipeline Accelerator 2024

This NIH-sponsored, two-day event is aimed at inspiring and developing the next generation of neurosurgeon-scientists. The focus is to enhance the pool of women and those underrepresented in medicine to become successful neurosurgeon-scientists and to promote diversity of research in all neurosurgical subspecialties including trauma, spine, pediatrics, and pain.

Your Family First Program

At Mount Sinai, we understand that training to become a neurosurgeon is a long commitment that occurs during the peak years of your life. Residents date, get married, go through pregnancies, raise children, and deal with inevitable family issues. Family comes first.

A Nation-Leading Paid Family Leave Policy

We support residents who are facing the physical and emotional needs, including parturition and parent-child bonding. New York has the nation's strongest and most comprehensive Paid Family Leave policy so working families, including our neurosurgery residents, would not have to choose between caring for their loved ones and risking their surgical training and economic security.

If you are eligible and have a qualifying event, you can take up to twelve weeks of job-protected, paid time off to:

- Bond with a newly born, adopted, or fostered child
- Care for a family member with a serious health condition
- Assist loved ones when a spouse, domestic partner, child or parent is deployed abroad on active military service

Use the camera on your mobile device and scan this QR code to learn more about Paid Family Leave.

Family and Your Health Comes First

Being pregnant puts stress on the body and having a child doesn't mean that your responsibilities end as a parent. Our program director and associate program director engage in monthly wellness check-ins with residents and invite conversations regarding family life, to dismantle stigma regarding parental leave.

- 24-hour calls are prohibited during the third trimester for pregnant residents
- Mount Sinai offers childcare discounts
- Protections and benefits of non-birthing and non-primary caregiver parents

It was a Mount Sinai Neurosurgery Resident...

Who was pregnant with twins during residency

Soriaya Motivala, MD (Class of 2014) became pregnant with twins while she was a neurosurgery resident at Mount Sinai. Trainees overcome many obstacles to become the best neurosurgeons and should not have to sacrifice their health or feel judged to grow their family. We welcome new lives into their family, who in turn, become a part of our family.

Diversity, Equity, and Inclusion

We believe that our department plays a critical role in the promotion and support of all people regardless of gender, race, ethnicity, sexual orientation, and/or religious beliefs. We are committed to building an inclusive and innovative environment. We want all our faculty, trainees, and staff to feel valued, supported, and able to reach their full potential. This will help us provide equitable and inclusive care for all our patients.

No. 1

Mount Sinai's Department of Neurosurgery was the first who tracked nationwide the numbers of groups Underrepresented in Medicine (URiM) within our workforce providing the first national benchmarks.

No. 5

Nation for comprehensive efforts to ensure diversity, equity, and inclusion in its workforce and leadership in the 2022 DiversityInc's Top Hospitals and Health Systems.

The Department of Neurosurgery is actively involved in fostering a diverse internal culture through various long-term activities. Collaborating with leadership and personnel across our health system sites, we spearhead institutional, national, and international diversity initiatives. Notably, Mount Sinai are pioneered in tracking Underrepresented in Medicine (URiM) groups nationwide, setting the initial national benchmarks. Additionally, we conduct a quarterly Diversity, Equity, and Inclusion Journal Club, facilitating open discussions on peer-reviewed literature for our faculty, trainees, and staff.

Representation of URiM Trainees

While we still have much work to do, since the Diversity, Equity, and Inclusion Vice Chair position was created within the health system in 2020, our number of women residents has doubled; currently, 35 percent of our residents are women, compared to 18 percent nationally. Similarly, 14 percent of our trainees are URiM, significantly more than the national average of 9 percent.

Fostering and Mentorship Pipeline of URiM Students

We collaborate with the Center for Excellence in Youth Education and other national organization to foster and mentor a pipeline of URiM high school students and introduce them to medicine and neurosurgery. We invest significantly in a visiting electives program for URiM students. These initiatives have enabled the department to expand the number of URiM trainees. Once URiM medical students join our residency program, we provide robust and thoughtful mentorship and professional networking to support them throughout their training.

Resident Spotlight

HALIMA TABANI, MD
Class of 2027

Use the camera on your mobile device and scan this QR code to watch Halima's video biography and hear in her own words about her residency experience.

Halima has a very different story to tell. She is the first female in her family to study beyond a high school education. Born and raised in Pakistan, she achieved a medical degree, pursued several research fellowships in the United States. She is one of the very few females from Pakistan pursuing neurosurgery and one of the only hijabi international graduates pursuing neurosurgery in the United States.

Halima completed a two-year pre-residency fellowship with Mount Sinai's Department of Neurosurgery and has specific goals to not only be an academic cerebrovascular neurosurgeon involved in research and resident education, but also ensure the promotion of neurosurgery in low resource countries throughout the world.

Faculty Spotlight

ISABELLE M. GERMANO, MD, MBA

Professor and Vice-Chair for Faculty Affairs & DEI
Director, CAST Neurosurgical Oncology Fellowship Program

A renowned brain tumor surgeon and pioneer in the field of radiosurgery, Dr. Germano is Vice Chair for Diversity, Equity, and Inclusion, Director of the Comprehensive Brain Tumor Program at Mount Sinai, and Co-Director of the Radiosurgery Program. Throughout her career, Dr. Germano published over 200 peer-reviewed articles focusing on neuro-oncology and, more recently, neurosurgery education. She serves as faculty for the Society of Neurological Surgeons (SNS) PGY-1 Boot Camp that all interns attend within the first few months of residency. She is the first woman Chair of the AANS/CNS Section on Tumors (2022-2024), the largest world-wide organization of neurosurgeon focusing on brain and spine tumors since the organization was founded 40 years ago. She is the first physician from Mount Sinai and the first woman to hold this office.

Use the camera on your mobile device and scan this QR code to watch the "DR. MMEN: Stories of a Neurosurgeon" featuring Dr. Germano, Alejandro, Noah, and neurosurgery resident alumni Ian T. McNeill, MD (Class of 2020) and Ernest J. Barthélemy, MD, MA, MPH (Class of 2021).

Undoing Racism Workshop

Finally, we are committed to training our current faculty, residents, and staff to foster an open and welcoming environment. We work with the nonprofit organization People's Institute for Survival and Beyond to bring the continuing medical education-accredited Undoing Racism Workshop to our hospital campuses. We encourage our department members to participate in on-line unconscious bias training sessions to further each member's understanding of their own hidden prejudices. We constantly work to improve our communications and ensure that we remain a culturally sensitive and patient-centric department.

NEW FACULTY SPOTLIGHT

Stephen Miranda, MD, MS
Assistant Professor of Neurosurgery
Director. Peripheral Nerve
Icahn School of Medicine at Mount Sinai

Dr. Miranda completed his neurosurgical residency at the Hospital of the University of Pennsylvania, including a fellowship in peripheral nerve surgery under Dr. Eric Zager's mentorship. He specializes in the surgical treatment of various nerve disorders, including nerve entrapment, pain, tumors, and trauma such as brachial plexus and extremity injuries.

He holds a Master of Science in Health Policy Research from the Perelman School of Medicine at the University of Pennsylvania, and his research has focused on access, cost, and quality of spine surgery, with an emphasis on cost-effectiveness and patient-centered outcomes like return-to-work. His current work explores how wearable technologies and artificial intelligence can accelerate recovery after spine surgery.

DEPARTMENT OF NEUROSURGERY'S ANTI-RACISM AND ANTI-DISCRIMINATION STATEMENT

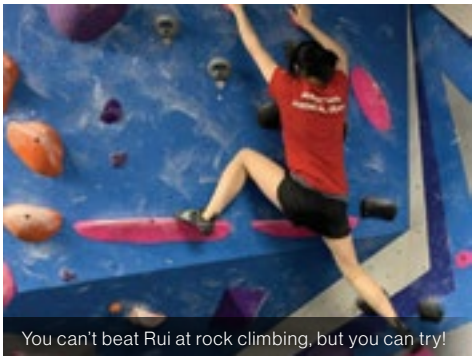
The Department of Neurosurgery acknowledges that racism is a threat to the health and well-being of our patients and profession.

Across the Mount Sinai Health System and Icahn School of Medicine at Mount Sinai, we commit to:

- Acknowledging that racism is a public health crisis, and identifying areas of disparate care within each of our hospitals
- Assisting in creating an anti-racist health system that provides equal access and delivers equitable care to our patients
- Committing to identifying and dismantling policies and practices that result in disparate clinical outcomes by race and ethnicity
- Delivering equitable care to all patients by including, listening, and applying the wisdom and experience from the communities we serve
- Educating ourselves and our colleagues on racism and bias about gender identity, sexual orientation, and religious beliefs in order to counter the racism and discrimination that has thwarted the progress of medicine
- Increasing representation of women, Black, Indigenous, people of color, Latinx, and other minorities among our neurosurgery faculty, trainee and leadership ranks and actively work to advance their careers
- Listening and committing to continuous self-improvement and introspection, accepting feedback from all, while understanding that the work starts from within
- Promoting an environment for all providers and staff to practice medicine with dignity and mutual respect

Resident Life in New York City

Our residents live and train in one of the greatest cities in the world, just across the street from Central Park. We make it our priority to provide residents with the activities, benefits, and resources needed to succeed. Additionally, when you have free time, there are many exciting things to do in the city that never sleeps.



You can't beat Rui at rock climbing, but you can try!

Ansley is an outstanding artist.

Financial Benefits

- Pair of surgical loupes
- Annual travel fund for presenting research at and attending scholarly meetings
- Annual resident book fund
- Annual resident research grant
- Subsidized apartments in hospital-owned buildings
- Monthly commute reimbursement (for unlimited MetroCard)
- Free shuttle service between the Mount Sinai Health System campuses
- Complementary Uber ride-share for late night travel
- Monthly meal tickets for hospital cafeteria
- Free meals for on-call residents
- Competitive salary to offset New York City living expenses
- Excellent health benefits

Training Benefits

- Operate almost every day during Junior years
- Limited weekday call responsibilities during Junior years
- Early chief experience at PGY-4/5 level
- Dedicated protected academic day every Wednesday

Resident Housing

- Mount Sinai provided housing options for incoming families, incoming couples, and incoming singles
- Housing options available throughout New York City, including residents in Brooklyn

Our residents explain why they feel Mount Sinai couldn't have been a better place for neurosurgery residency training:

- "During my experience of doing different rotations, I knew that Mount Sinai was the place for me, just how the comradely among the residents and how they are supportive to each other."
- "I found an environment at Mount Sinai in which the leadership of the program is focused on evolving the programs and improving resident experience."

Use the camera on your mobile device and scan this QR code to hear why residents chose to train at Mount Sinai.

Alex running in the New York City Marathon.

Brandon at the 2023 US Open in Queens.

Hear it from the Residents

Our diverse group of neurosurgery residents come from all over the United States and the world. Each one of us has a unique story and qualities making us strong members of our team. We come together creating a comfortable, supportive, and fun culture for one other - A supportive atmosphere created for each other through this amazing but challenging seven-year training experience.

	Clinical Interest	My Favorite New York City Activity	General Interests	Did You Know?
RUI FENG China & Canada	•**Skull Base Surgery** • **Tumors**	Going to Broadway shows, comedy clubs, and other random events	•Science fiction • Rock climbing	"I can finish a 1,000-piece jigsaw puzzle within 6-8 hours in one sitting without abreak!!!"
TREVOR HARDIGAN Savannah, Georgia	• **Cerebrovascular Surgery** • **Cerebral Vasospasm**	Going to Levain Bakery and eating their cookies	• TBrazilian Jiu Jitsu • Rowing crew	"If you think I look familiar, it's because I have a twin who's also a neurosurgery resident at Duke!"
ALEX SCHÜPPER Villanova, Pennsylvania	• **Fluorescence-Guided Surgery** • **Gliomas**	Eating at new brunch places on the street with my friends	Crossfit • Baseball	"I'm obsessed with all Philly sports. Phillies, Eagles, 76ers, Flyers, etc. All day, every day!"
ABHI BHIMANI Glendale Heights, Illinois	• **Exosomes** • **Bioinformatics**	Going for a daily run along the reservoir in Central Park	Meditation • Running	"I'm a vegetarian and have a cache of menus from vegetarian and vegan restaurants."
HALIMA TABANI Pakistan & California	**Cerebrovascular Surgery** • **Skull Base Surgery**	Walking in Central Park and trying out new restaurants with friends	• Painting • Traveling	"I have an abundance of frequent flyer milers as I travel to California every alternative weekend."
MATT CARR Silver Spring, Maryland	• **Spinal Surgery** • **Neuro-Oncology**	Eating H&H Bagels, the type of "New York bagels" you always hear about	• Golf • Dogs (Pugs!!!)	"I'm tall... like *really* tall. I sometimes need to stoop while operating."
BRANDON PHILBRICK South Burlington, Vermont	• **Skull Base Surgery** • **Medical Device Design**	Walking around all of the iconic neighborhoods and parks	• Podcasts • Stock market	"I can watch hours and hours of TikTok videos... they're so addicting!"
EMILY CHAPMAN Japan & New York	• **Cerebrovascular Surgery** • **Clinical Trials**	Going to jazz clubs and visiting the Metropolitan Museum of Art	• Soccer • Cooking	"I'm an avid backpacker and have backpacked 80 miles through Chilean Patagonia."
CHI LE Vietnam	• **Neuro-Oncology** • **Cerebrovascular Surgery**	Going to museums and having picnics in Central Park	• Pottery • Reading	"I'm really into learning about modern art. My favorite artist is Claude Monet."
ANSLEY UNTERBERGER Laguna Beach, CA	• **Neuro-Oncology** • **Skull Base Surgery**	Going to art exhibitions and drag shows	• Drawing/Painting • Cats	"I have an uncanny ability to memorize song lyrics and movie quotes. Try me!
DAN CUMMINS Syracuse, NY	• **Functional Surgery** • **Cerebrovascular Surgery**	Going to see live music and exploring new neighborhoods	• Comedy Shows • Running	"I eat hummus almost every day."
MAIKERLY REYES Bronx, NY	• **Skull Base, Tumor** • **Neuro-oncology**	Biking, shopping for vinyl , exploring new restaurants , live music	• Music • Songwriting	"I went to LaGuardia performing arts and took AP environmental with Timothee Chalamet."
ZIAD RIFI Tripoli, Lebanon	• **Neuromodulation** • **Chronic Pain & Disease**	Searching for the best bakeries	• Cats • Anime	" I speak 3 languages - English, French, and Arabic."

Resident Spotlight

ALEX SCHÜPPER, MD

Class of 2026

Use the camera on your mobile device and scan this QR code to watch Alex's video bio and hear in his own words why he chose Mount Sinai.

"In choosing a neurosurgery residency program, Mount Sinai checked all the boxes. The institution had what I was looking for and the faculty and residents were welcoming. The program features an incredibly busy clinical service, a great operative experience throughout all seven years of residency, innumerable research opportunities, lays the groundwork for a strong training foundation, and gives flexibility in curriculum to tailor our residency to how we want to grow as neurosurgeons."

RECIPIENT AWARDS AND A $150,000 RESEARCH GRANT, AND WON THE 2023 & 2024 CNS 5K RACE

Resident Education

Neurosurgery Academic Day

To foster and empower resident research activity, Mount Sinai Neurosurgery allocates programmed educational time on a weekly basis. Academic Day consists of grand rounds, planned didactics, and elective time dedicated to activities conducive of furthering the residents' academic careers, including board studying, research pursuits, and grant writing.

Directed Research Mentorship

Preparing for NIH funding opportunities, PGY-1 through PGY-4 neurosurgery residents participate in an all day didactic and research program that fosters collaborative studies in both translational and clinical departments. This research setting promotes collaboration and provides the opportunity to not only learn from and work alongside Neurosurgery Faculty, but also for residents to chart their own, personal course.

Neurosurgery Grand Rounds

Held virtually, Neurosurgery Grand Rounds focuses on continuing medical education and resident education. Formal lectures are presented by faculty, visiting professors, residents, and students, with the ultimate goal of improving the quality of care in Mount Sinai Health System's Department of Neurosurgery and reviewing neurosurgical cases. Topics include neurosurgery, neurology, neuropathology, neuroradiology, spine, neurocritical care, neuro-oncology, Self-Assessment in Neurological Surgery (SANS) Lectures, M&M, Q&A, basic and translational research, and special lecture series.

Faculty-Led Didactic Curriculum

Our newly implemented didactic curriculum includes two to four sessions weekly encompassing the core subject areas in neurosurgery, as well as topics that are critical to starting a successful neurosurgical career. These include surgical anatomy, each neurosurgical sub-specialty, neurology, neuropathology, neuroradiology, infectious disease, the business of neurosurgery, innovation in medicine, grant writing, designing a research study, and many more. Additionally, two annual mock oral board exam sessions are designed to prepare our graduates for the rigors of the exam.

Formal Written/Oral Board Simulation Course

Mount Sinai Neurosurgery Residents perform mock examinations with faculty members as examiners. This regular simulation develops skills at responding accurately and completely on the spot, which is a core skill in residency and beyond.

Visiting Professors Lecture Series

Throughout the year, the Mount Sinai Health System Department of Neurosurgery hosts nationally and internationally recognized physicians and figures in the neurosurgery field to present a lecture on an area of their interest. Visiting professor days include a one-hour lecture followed by dedicated time between the visiting professor and the residents to review cases, discuss clinical and research topics, and engage in career mentorship.

Annual Memorial Lectures

- Ved P. Sachdev, MD, Memorial Lecture
- Sidney A. Hollin, MD, Memorial Lecture
- Leonard I. Malis, MD, Memorial Lecture
- Jeannette & Bernard S. Post, MD, Memorial Lecture

Neurosurgery Research Day

Neurosurgery Research Day is an annual event that includes selected presentations of original and breakthrough research conducted by faculty, residents, fellows, and medical students. The first Research Day was held in June, 1996, and originally titled "Basic Science Research Day." The Research Day program now includes the annual Ved P. Sachdev, MD, Memorial Lecture.

Boards and Conferences

Multidisciplinary Cerebrovascular Board

Cerebrovascular Board is held weekly with cerebrovascular and endovascular attendings, residents, fellows, and researchers to discuss cases for the Cerebrovascular Center.

Multidisciplinary Neuro-Oncology Tumor Board

Neuro-Oncology Tumor Board is held bi-weekly with neurosurgeons, neuro-oncologists, neuropathologists, radiation oncologists, neuro-radiologists, neuro-ophthalmology, neurosurgery residents, fellows, and researchers to discuss cases brain and spine tumor cases for the Neurosurgery Oncology and Neuro-oncology Program across the Mount Sinai Health System. The conference also serves as Mount Sinai's Cancer Registry for neurosurgery.

Multidisciplinary Pituitary Conference

The Multidisciplinary Pituitary Conference is a clinical conference where pituitary and neuroendocrine cases are presented and discussed in a multi-disciplinary setting with input from our endocrine, neurosurgery, and neuroradiology colleagues (among others). This interesting and educational discussion facilitates a collaboration throughout the Mount Sinai Health System on pituitary cases.

Multidsiciplinary Spine Tumor Board

Multidisciplinary Spine Tumor Board is held bi-weekly with spine neurosurgeons, orthopedic surgeons, radiation oncologists, neuroradiologists, medical oncologists, neuropathologists, nurse practitioners and fellows to discuss complex spine tumor cases.

Neuroradiology Conference

Neuroradiology Conference is held weekly with neurosurgeons, neuroradiologists, neurosurgery residents, neuroradiology fellows, and researchers to discuss cases.

Multidisciplinary Skull Base Conference

The Multidisciplinary Skull Base Conference is held monthly with neurosurgeons, otolaryngologists, radiation oncologists, neuro-ophthalmologists, and neuroradiologists where complex skull base cases are presented for discussion and surgical planning.

Lecture Series

Mount Sinai BioDesign Science Series

Mount Sinai BioDesign is a multidisciplinary hub for innovation, creation, and fabrication of novel medical technologies. Using the academic principles of biodesign, the program enables visionary physicians and surgeons with extensive clinical experience to communicate and translate medical problems and inefficiencies from concept into material solution. The Mount Sinai BioDesign Science Series Seminar allows for the sharing of ideas and research projects through informal presentations that are relevant to the Mount BioDesign process. These lectures are interactive and include multidisciplinary invited speakers who are experts in topic areas or innovations in bioengineering.

Neurocritical Care Lecture Series

To cover all United Council for Neurologic Subspecialties (UCNS) recommended neurocritical care core topics, the Neurocritical Care Core Lecture series is updated every year by our senior neurocritical care fellows. This lecture series includes reviews and updates of evidence-based neurocritical care clinical protocols, morbidity-mortality conferences, system-wide neurocritical care case conferences and lectures by our core and interdisciplinary faculty.

Healthcare Economics Lecture Series

A healthcare economics curriculum was designed by neurosurgery MBA faculty in collaboration with the residents to cover fundamental aspects, including the driving forces of the healthcare market, changes in healthcare delivery, metrics and indicators, strategies to decrease healthcare cost, social determinants of health, and fundamentals of medical malpractice.

Journal Clubs

Neurosurgery Journal Club

Neurosurgery Journal Club is scheduled once monthly and allows Mount Sinai's neurosurgery residents to discuss recently published neurosurgery articles and their merits. The club is directed by a neurosurgery attending faculty member with a specific specialty interest and expertise.

Diversity, Equity, and Inclusion Journal Club

Designed for all Mount Sinai's neurosurgery faculty and staff to review and discuss published articles on diversity, equity, and inclusion topics. During each session 3-4 articles are presented and then opened for discussion.

Our Resident Alumni

We continue to build a legacy and advance the field. For over 75 years, our Neurosurgery Residency Program has established a legacy of transforming its driven and visionary resident interns into superior and compassionate clinical neurosurgeons, pioneers in advancing the field, and exceptional leaders in academia.

Many alumni have hosted events at their homes during society meetings and conventions and invited current and past faculty members, alumni, and residents.

There are over 120 neurosurgery resident alumni at Mount Sinai, with most establishing themselves into faculty positions at academic departments and private practices. We are proud to update and engage them by regularly scheduling networking events throughout the year, newsletters, and quarterly meetings with our Alumni Advisory Board.

The Director of Neurosurgery, Ira S. Cohen, MD, established the formal residency program in Neurosurgery in 1946. He appointed two residents before his retirement; the first resident was Aaron J. Beller, MD, who later became the Chair of the Department of Neurosurgery at Hadassah Hospital in Israel. The second appointed was Leonard I. Malis, MD, who later became Chair of the Department of Neurosurgery at The Mount Sinai Hospital.

When Leo Davidoff, MD, became Director of Neurosurgery in 1956, the AMA approved The Mount Sinai Hospital for a three-year residency training program. In 1958, he expanded the training to four years. In the early 1960s, the addition of the City Hospital Center at Elmhurst, with its busy trauma service, expanded the exposure of the residents' clinical experience.

Our Graduates, First Year Out of Residency

Alejandro Carrasquilla, MD
Neuro-oncology Fellowship
Moffitt Cancer Center, Tampa, FL

Jeffrey Zimering, MD
Spine Fellowship, Northwell Health

Travis R. Ladner, MD
Neurosurgical Associates of Los Angeles

Frank K. Yuk, MD
Orthopedic Spine Fellowship
Hospital for Special Surgery

Kurt A. Yaeger, MD
Neuroendovascular Surgery Fellowship
Icahn School of Medicine at Mount Sinai

Jeffrey T. Gilligan, MD
Elite Brain & Spine of Connecticut

Ernest J. Barthélemy, MD, MA, MPH
Neurotrauma Fellowship
University of California, San Francisco

Robert J. Rothrock, MD
Director of Spinal Oncology
Department of Neurosurgery
Baptist Health South Florida

Ian T. McNeill, MD, MS
Spine Surgery Fellowship
University of California, San Francisco

Eric K. Oermann, MD
Assistant Professor of Neurosurgery
NYU Langone Health

Margaret E. Pain, MD
Pediatric Neurosurgery Fellowship
Stanford University School of Medicine

Jonathan J. Rasouli, MD
Spine Surgery Fellowship
Cleveland Clinic

Jeremy M. Steinberger, MD
Spine Surgery Fellowship
Hospital for Special Surgery

Christopher A. Sarkiss, MD
Neurosurgical Oncology Fellowship
University of Miami

Justin R. Mascitelli, MD
Cerebrovascular Surgery Fellowship
Barrow Neurological Institute

Asha M. Iyer, MD, PhD
Spine Surgery Fellowship
Stanford Medical Center

Branko Skovrlj, MD
North Jersey Spine Group

Farid Hamzei-Sichani, MD, PhD
Functional Surgery Fellowship
University of Toronto

Hekmat K. Zarzour, MD
Assistant Professor of Neurosurgery
Thomas Jefferson University Hospitals

2024 Alejandro Carrasquilla, MD
2024 Jeffrey Zimering, MD
2023 Travis R. Ladner, MD
2023 Frank K. Yuk, MD
2022 Kurt A. Yaeger, MD
2022 Jeffrey T. Gilligan, MD
2021 Ernest J. Barthélemy, MD, MA, MPH
2021 Robert J. Rothrock, MD
2020 Eric K. Oermann, MD
2020 Ian T. McNeill, MD, MS
2019 Jonathan J. Rasouli, MD
2019 Margaret E. Pain, MD
2018 Jeremy M. Steinberger, MD
2018 Christopher A. Sarkiss, MD
2017 Asha M. Iyer, MD, PhD
2017 Justin R. Mascitelli, MD
2016 Branko Skovrlj, MD
2016 Farid Hamzei-Sichani, MD, PhD
2016 Hekmat K. Zarzour, MD
2015 Sharona Ben-Haim, MD
2014 Fedor E. Panov, MD
2014 Soriaya Motivala, MD
2013 Yakov Gologorsky, MD
2013 Emanuela Binello, MD, PhD, ScD
2012 Zachariah M. George, MD
2012 Kenneth De Los Reyes, MD
2012 Erin E. Biro, MD
2011 Abilash Haridas, MD
2010 Scott Meyer, MD
2010 Harshpal Singh, MD
2009 Arien J. Smith, MD
2009 Ronit Gilad, MD
2008 Alexander F. Post, MD
2008 Harlan Bruner, MD
2007 Brian J. Snyder, MD
2007 Paul S. Saphier, MD
2006 Chirag D. Gandhi, MD
2006 Ronald Benveniste, MD, PhD
2005 Chun S. Chen, MD
2005 Simone Betchen, MD
2004 Daniel Walzman, MD
2003 Kevin C. Yao, MD

2003 Raj K. Shrivastava, MD
2002 Caleb Lippman, MD
2002 Harel Deutsch, MD
2002 David Chang, MD, PhD
2001 Amit Y. Schwartz, MD
2001 Naresh P. Patel, MD
2000 Arthur L. Jenkins III, MD
1999 Michael W. Groff, MD
1999 Marc S. Arginteanu, MD
1998 Sumit Das, MD
1998 Michael Brisman, MD
1997 John Shiau, MD
1997 David H. Segal, MD
1997 Joseph Queenan, MD
1997 Joan F. O'Shea, MD
1996 Jamie Sue Ullman, MD
1995 Alleyne B. Fraser, MD
1994 Jeffrey S. Oppenheim, MD
1994 Jay More, MD
1994 Mark Bruce Eisenberg, MD
1993 Richard C. Strauss, MD
1992 Michael J. Harrison, MD
1991 Kathryn Ruth Ko, MD, MFA
1991 Jordan Carel Grabel, MD
1991 Andrew S. Glass, MD
1990 Perry B. Hoeltzell, MD, PhD
1990 Rosemaria A. Gennuso, MD
1989 Frank M. Moore, MD
1989 James R. Adamson, MD
1988 Scott W. Strenger, MD, MMM, CPE
1988 Bruce R. Rosenblum, MD, PC
1987 Stephanie Rifkinson-Mann, MD
1987 Peter Henry Hollis, MD
1987 Raphael Davis, MD
1986 Michael C. Overby, MD
1986 Allen Bernard Kantrowitz, MD
1985 Bruce G. Witkind, MD
1984 Daniele Rigamonti, MD, FAHA
1983 Melvin Prostkoff, MD
1983 Mitchell Edward Levine, MD
1982 Hamilton C. Goulart, MD
1982 Fernando Delasotta, MD, FACS

1981 Richard Radna, MD
1980 Mark S. Klein, MD
1980 Luiz De Araujo, MD
1979 Allen Rothman, MD
1979 William L. Klempner, MD
1979 Allan J. Drapkin, MD
1978 Robert A. Brodner, MD
1977 Rosario "Russ" A. Zappulla, MD, PhD
1976 Jaime G. Wancier, MD
1975 Joseph Mormino, MD
1975 Marc A. Letellier, MD
1974 Pedro R. Dominguez, MD
1974 Alonso V. Correa, MD
1973 Jae M. Noh, MD
1973 Ved P. Sachdev, MD
1973 Rafael O. Quinonez, MD
1973 Hiroshi Nakagawa, MD
1973 Hang S. Byun, MD
1972 Jerome B. Kaufman, MD
1971 James B. Sarno, MD
1971 Manuel Cacdac, MD
1970 Martin H. Savitz, MD
1969 Michael H. Sukoff, MD
1969 Gerald Sherman Freifeld, MD
1968 Robert E. Decker, MD
1968 Richard L. Cohen, MD
1967 Wen-Chen Wei, MD
1967 Songsant Panichavatana, MD
1967 Antonio Marti, MD
1967 Omar Espinosa, MD
1964 William M. Cohn, MD
1963 Melpakkam D. Kasy, MD
1961 Alcides C. Pomina, MD
1961 Sidney A. Hollin, MD
1959 Christos A. Papatheodorou, MD
1953 M. Bernard Winkler, MD
1953 Yun Peng Huang, MD
1952 A. Hyman Kirshenbaum, MD
1951 Paul Teng, MD
1951 Bernard J. Sussman
1950 Leonard I. Malis, MD
1950 Aaron J. Beller, MD

"At Mount Sinai, I trained with some of the leaders in the field of each subspecialty within neurosurgery.

My mentors here pushed the boundaries of operative neurosurgery, particularly in the incorporation of cutting-edge technologies."

Sharona Ben-Haim, MD
Class of 2015

"I look back very fondly on my neurosurgical training at Mount Sinai.

I constantly draw on my neurosurgical and endovascular experiences at Mount Sinai to guide patient management and surgical decision making. I am still in touch with numerous faculty members and residents as we pursue multicenter research endeavors."

Justin R. Mascitelli, MD
Class of 2017

"My residency at Mount Sinai provided me an outstanding foundation for my career in academic neurosurgery.

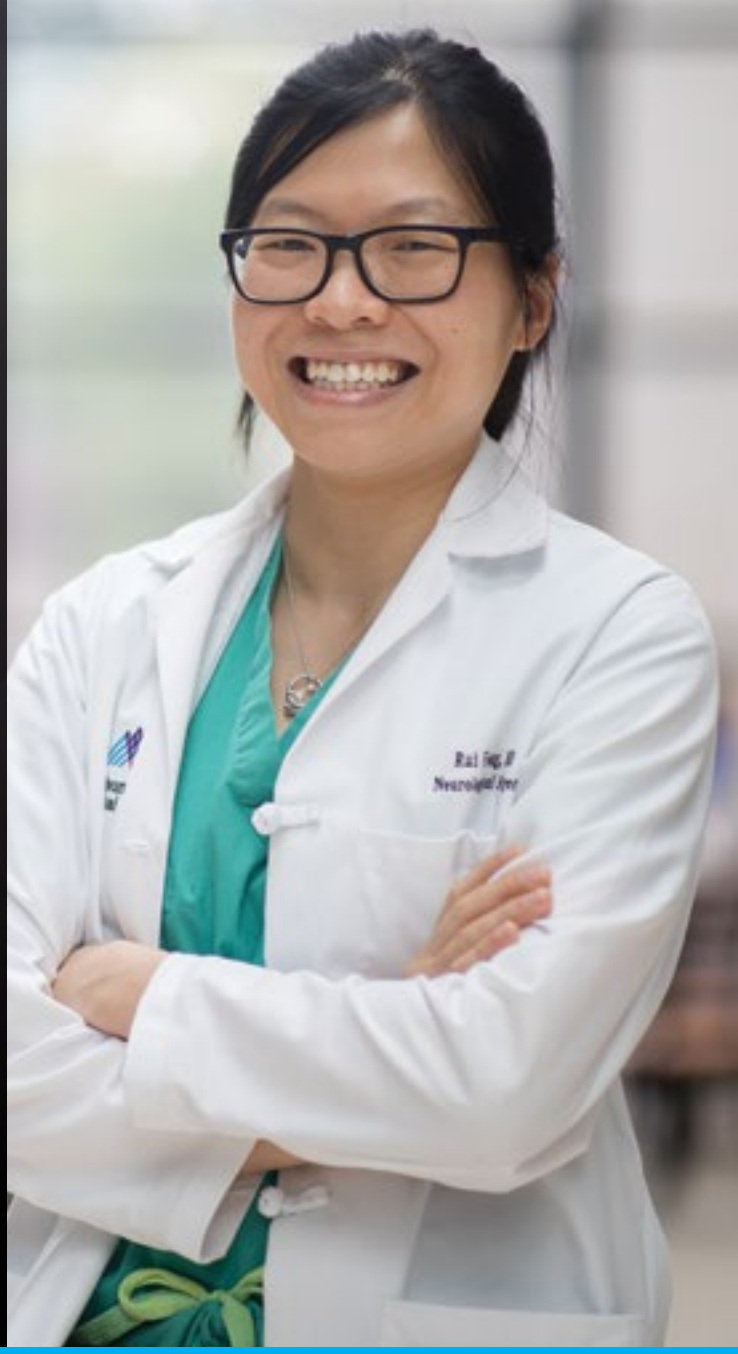
Throughout my training I was so fortunate to have faculty dedicated to my education and growth who I work to emulate to this day in how they cared for their patients, perfected their technical skills, and advanced our field through high-quality research."

Chirag D. Gandhi, MD
Class of 2006

Resident Spotlight

RUI FENG, MD, MS

Class of 2025



Rui was born in Yunnan, China and moved to Toronto with her family when she was ten. She attended University of Toronto for undergrad, obtained a master's degree in clinical neuroscience from University College London in the UK, and then came to New York for medical school, where she attended the Icahn School of Medicine at Mount Sinai. As a neurosurgery resident, she currently has a clinical interest in skull base surgery.

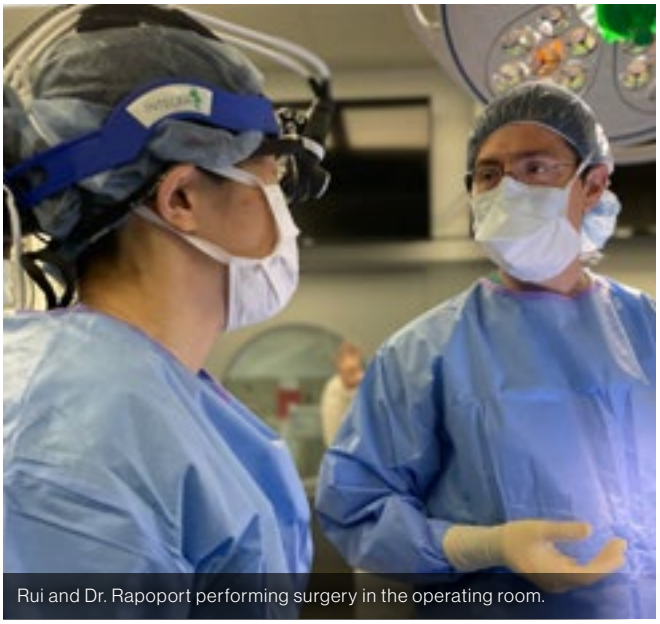
Rui knew she wanted to pursue a career in the field after she took her first neuroscience class in college.

"Finding out that I actually matched at Mount Sinai was one of the most exciting moments in my life," she adds. "I found out that I'm actually going to become a neurosurgeon! It really was a dream come true to match at my favorite program, my home program, the Icahn School of Medicine at Mount Sinai. I've literally been dreaming about this opportunity forever."

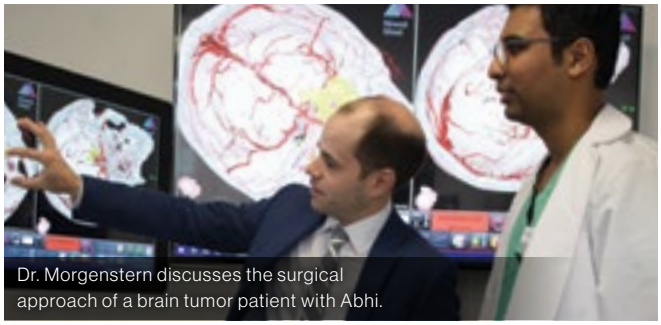
Outside of work, Rui enjoys rock climbing and reading, particularly science fiction and fantasy novels.

RECIPIENT OF TWO RESEARCH GRANTS

Use the camera on your mobile device and scan this QR code to watch Rui's video biography and hear in her own words about her residency experience, and why she is pursuing a career in neurosurgery.



Rui and Dr. Rapoport performing surgery in the operating room.



Dr. Morgenstern discusses the surgical approach of a brain tumor patient with Abhi.

Trevor, Dr. Hickman, Dr. Salgado-Lopez, Ansley, and Dr. Kapinos in a neurotrauma discussion at Elmhurst.


I Won't
ADULT
TODAY


NSICU

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It's a Mount Sinai Neurosurgeon...

Who is researching the teaching quality in neurosurgery and quantitating outcomes over time

Raymund Yong, MD led a prospective cohort study, published in the *Journal of Neurosurgery* (2021), in which a modified version of the System for Evaluation of Teaching Qualities (SETQ) instrument was administered to Mount Sinai neurosurgery trainees regularly every six months. The subscale score dynamics were analyzed to identify the strongest correlates of faculty teaching performance improvement.

Compared to the three years prior, the three years following SETQ implementation saw significant increases in written board examination and ACGME resident survey scores compared to the national mean and implementation of SETQ was associated with significant improvements in faculty teaching performance as judged by trainees over a four-year period, and guided curricular changes in the authors' training program that resulted in improved educational outcomes.

Use the camera on your mobile device and scan this QR code to read more about Dr. Yong's research in assessing faculty teaching performance and their longer-term impact on improvement and educational outcomes in the *Journal of Neurosurgery*.

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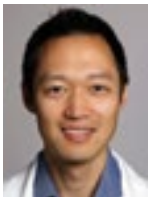

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Alfred Steinberger, MD

Yakov Gologorsky, MD
NEUROSURGERYRESIDENT ALUMNI CLASS OF 2013

Thomas T. Lee, MD

Frank M. Moore, MD
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Arthur L. Jenkins III, MD
NEUROSURGERY RESIDENT ALUMNI CLASS OF 2000

Kevin C. Yao, MD
NEUROSURGERY RESIDENT ALUMNI CLASS OF 2003

Arien J. Smith, MD
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Mount Sinai Neurosurgery is committed to mentoring our residents, so they become:

- Compassionate Clinicians
- Visionary Innovators
- Enthusiastic Teachers
- Skilled Surgeons
- Courageous Leaders

The Future Neurosurgeons Who'll Impact the World.

Mount Sinai

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