



Washington University School of Medicine

# NEUROSURGERY Residency Program



Washington  
University in St. Louis  
SCHOOL OF MEDICINE

“

“Every faculty member had a vested interest in my success and did their absolute best to give me all the right tools, in the operating room and out, to be a great neurosurgeon.”



Amy Lee, MD, FAANS, Pediatric Division Chief, Associate Professor of Neurological Surgery at the University of Washington, Seattle Children's Hospital.

Lee completed her neurosurgery residency at Washington University School of Medicine/Barnes-Jewish Hospital and her fellowship at St. Louis Children's Hospital.

Chair Gregory J. Zipfel, MD (*below*)





## Outstanding Training

Recognized as one of the best in the world, the Washington University Neurosurgery Residency training program prepares residents for exceptional careers as neurosurgeons and neurosurgeon-scientists.

Supported by one of the top hospitals in the U.S., substantial research funding, some of the most creative minds in academic medicine, and the latest technologies, our residents learn how to study and solve neurosurgical problems at the very highest level. All of this takes place at the top-ranked Washington University School of Medicine as it embarks on its \$1 billion 10-year growth plan.

Our culture of excellence is founded in our unique approach: a program intentionally designed to give residents one-on-one mentorship from world-class faculty members. This personal level of training prepares residents for long, successful, and fulfilling careers in academic and clinical medicine.

TOP

**10**

residency program as rated by  
Doximity / U.S. News & World Report

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**4,600+**

neurosurgical cases per year

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**9**

RO1s among eight faculty: most  
RO1-funded neurosurgeons in the U.S.

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**24**

months for residents to  
pursue dedicated research

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**60%**

of graduates go into academics  
including 8 Chairs/Division Chiefs and  
6 Professors in the last 20 years





## Dedicated to creating world-class surgeons

Our residents are exposed to high clinical volume and thorough immersion in every subspecialty including pediatrics. They learn directly from our 21 faculty members who are all experts in their respective fields.



surgical dissection experiences comprise the weekly didactic structure of the program.

### STATE-OF-THE-ART FACILITIES

In St. Louis, our residents train at one of the country’s largest medical centers, which includes Barnes-Jewish Hospital, Alvin J. Siteman Cancer Center, and St. Louis Children’s Hospital. The center serves a diverse region of more than 3 million people and draws patients from all 50 states and more than 80 countries.

### CONTINUITY OF TRAINING

Our program gives residents continuity in each subspecialty in order to build their confidence, gain trust from the attending physicians, and ultimately, gain autonomy. Our junior and senior residents spend 3-month long rotations working with the same four or five attendings within a subspecialty. This continuity instills a deep understanding of the disease processes encountered by neurosurgeons across subspecialties.

A new state-of-the-art neurosurgery and neurology intensive care unit including an in-unit CT scanner opened in August 2019, which increased neurocritical bed capacity at Barnes-Jewish Hospital from 20 to 44. In addition, a \$620 million neuroscience research building is scheduled to open in 2022, which will dramatically expand neurosurgery research laboratory space including creation of a multidisciplinary Brain Tumor Research Center. Finally, a new inpatient bed tower designed to markedly expand the neurosurgery and neurology bed platform is scheduled to open in 2023.

### RESIDENT CURRICULUM

Resident education is one of the centerpieces of the department. Surgical case conferences, grand rounds, a longitudinally designed curriculum conference, journal club, and

### IRELAND ROTATION

Our residents are given the opportunity to expand their surgical skills during a six-month



“When you talk to graduates of this program, they say when you graduate you realize you got exactly the right training.”



Chief Resident Bhuvic Patel, MD

international elective at Beaumont Hospital in Dublin, Ireland. This rotation represents a critical point in training, when residents are able to increase their surgical independence and experience. The rotation also provides residents with exposure to a nationalized health care system that consolidates specialty medical care into designated care centers like Beaumont, which cares for neurosurgical patients from more than 90% of the country. The experience is also personally enriching, as Ireland is a jumping off point to visit the many wonderful destinations throughout Europe.



“The research community is extensive and highly collaborative. We have so many successful surgeon-scientists in our department, and they truly enjoy serving as mentors and guides as you plan your research time and your career following residency.”

PGY6 Resident  
Anna Huguenard, MD



**4,602**

SURGICAL CASES PER YEAR

**949**

Neuro-oncology

**368**

Functional

**1,307**

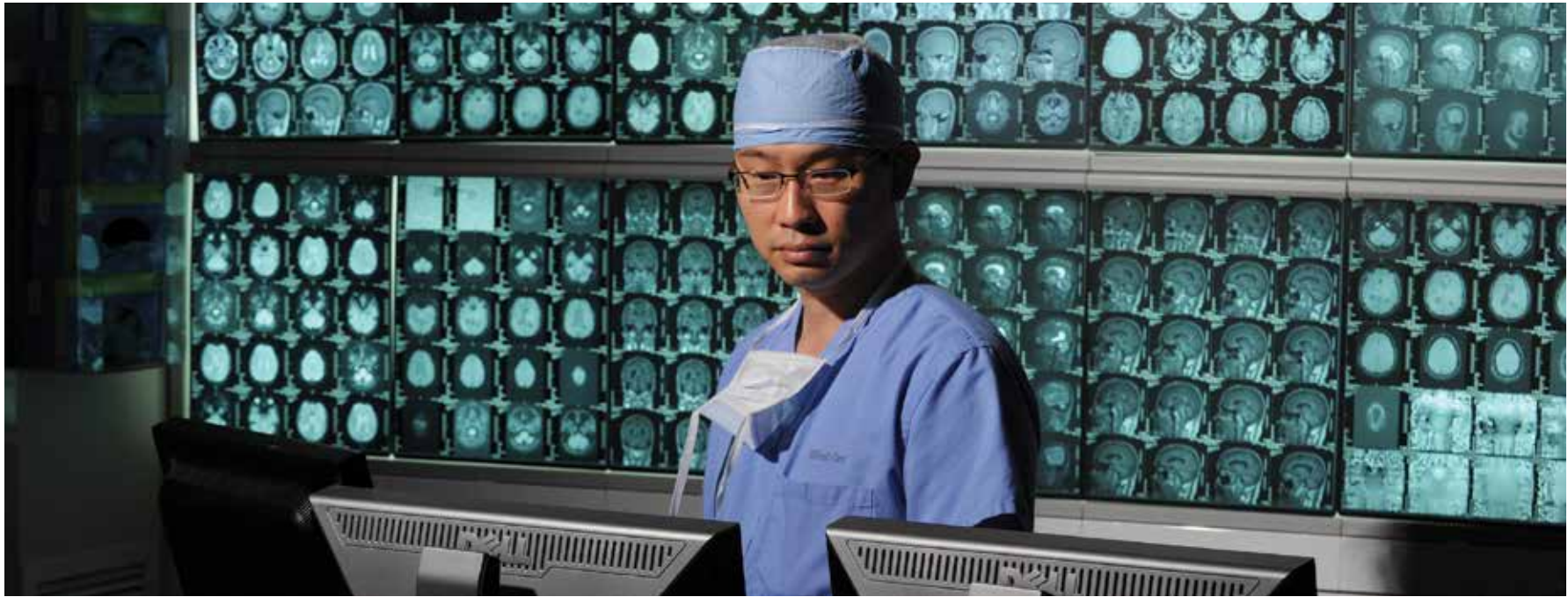
Spine

**534**

Vascular

**961**

Pediatric



## Commitment to world-class research

Washington University School of Medicine has one of the most comprehensive research programs in the country.

Neurosurgery residents are provided expansive opportunities for basic science, clinical, and translational work across the major

subspecialties of neurosurgery and related diseases. Dedicated research programs led by faculty in the Department of Neurosurgery include brain tumor immunotherapy, brain tumor stem cells, brain-computer interface, neural plasticity, neural networks, Chiari and syringomyelia, neonatal intraventricular hemorrhage/hydrocephalus, subarachnoid hemorrhage, vascular dementia, spinal cord injury, peripheral nerve injury and neuroprosthetics, neurogenetics, and Huntington's disease. Our faculty and residents are integrated into

many of the key research areas at the medical school, including neuroscience, immunology, cancer biology, developmental biology, genetics, and engineering.

### **UP TO 24 MONTHS PROTECTED RESEARCH TIME**

Residents identify a mentor inside or outside the Department of Neurosurgery and develop a proposal for a research project that is pursued for up to 24 months during PGY5 and PGY6 years of training. Residents can



choose from a broad range of research topics in laboratories throughout the world-class research environment at Washington University. To aid in the development of their research projects, residents present their research plans to a prestigious committee of physician-scientists known as the Neuroscience Research Mentorship Group. These mentorship meetings are held on a quarterly basis and are attended by residents who are preparing for their research years and those that are in the midst of the research programs. Clinical responsibilities are extremely limited during this period of dedicated research to allow residents to focus on their academic productivity.

#### RESIDENT RESEARCH FUNDING AND AWARDS

Residents are often awarded independent funding and fellowships including awards from the NIH, NREF, and other foundations. Residents also have the opportunity to participate in the department's prestigious R25 Resident Research Education Program Grant funded by the NIH. A neurosurgery research mentorship group meets quarterly to support resident efforts to develop projects and obtain funding.

#### MOST PRODUCTIVE

Our residency is a top-10 training program in average H-index ranking of our residents,

making it one of the most productive in the country. Recent graduates have had high-quality publications in some of the most elite scientific journals including *Science*, *Nature Medicine*, *New England Journal of Medicine*, *JAMA*, *Stroke*, and *Journal of Neuroscience* and the highest impact neurosurgical journals including *Journal of Neurosurgery* and *Neurosurgery*.



# \$16.8 million

in research awards in 2020-2021

# R25

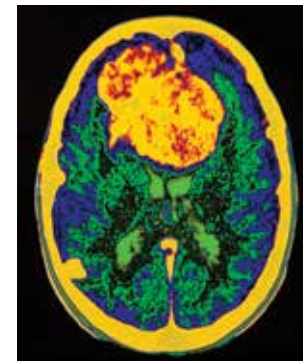
prestigious training grant to support neurosurgery resident research

# 12

federally funded laboratories

# #9

neurosurgery research department in the country based on NIH funding



## Faculty

Our faculty hold or have held 18 national leadership roles in important academic and clinical societies and serve as members or chair on seven journal editorial boards. They are leaders in innovation and clinical care. Most importantly, they serve as mentors for our trainees.



**Gregory J. Zipfel, MD**

Ralph G. Dacey Professor and Chair of Neurosurgery | zipfelg@wustl.edu



**David D. Limbrick, MD, PhD**

Executive Vice-Chair and Chief of Pediatric Division | T.S. Park Professor of Neurosurgery | limbrickd@wustl.edu



**Wilson Z. Ray, MD**

Vice-Chair; Chief of Spine Division  
Professor of Neurosurgery  
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**Peter Brunner, PhD**

Assoc. Professor of Neurosurgery  
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**Michael R. Chicoine, MD**

August A. Busch, Jr.  
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**Ralph G. Dacey, Jr., MD**

Henry G. & Edith R. Schwartz  
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**Ian G. Dorward, MD**

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**Joshua L. Dowling, MD**

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**Gabriel Haller, PhD**

Asst. Professor of Neurosurgery  
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**Albert H. Kim, MD, PhD**

Director of Brain Tumor Program  
Professor of Neurosurgery  
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**Eric C. Leuthardt, MD**

Chief of Neurotechnology Division  
Professor of Neurosurgery  
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**Pat McAllister, PhD**

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**Sean D. McEvoy, MD**

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**Camilo Molina, MD**

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Shi H. Huang Professor of Neurosurgery  
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**Ismael Seáñez, PhD**

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**Jennifer M. Strahle, MD**

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## Faculty



**Ananth Vellimana, MD**  
Asst. Professor of Neurosurgery  
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**Jon T. Willie, MD, PhD**  
Director of Stereotactic, Functional,  
and Epilepsy Surgery | Assoc. Professor  
of Neurosurgery | jontwillie@wustl.edu



**Hiroko Yano, PhD**  
Assoc. Professor of Neurosurgery  
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## Neurosurgery Residents

### CHIEFS



**Chris Dibble, MD, PhD**  
UNC – Chapel Hill  
cdibble@wustl.edu



**Jacob Greenberg, MD**  
Washington University  
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**Bhuvic Patel, MD**  
Washington University  
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PGY6



**Rupen Desai, MD**  
Duke University  
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**Anna Huguenard, MD**  
Emory University  
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**Peter Yang, MD**  
Columbia University  
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PGY3



**Sean Gupta, MD**  
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**Derek Li, MD**  
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**Benjamin Plog, MD, PhD**  
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PGY5



**Kevin Cross, MD**  
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**Carl Hacker, MD, PhD**  
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**Anja Srienc, MD, PhD**  
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PGY2



**Michelle Connor, MD**  
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**Charise Garber, MD, PhD**  
Washington University  
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**David Giles, MD, PhD**  
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PGY4



**Diane Aum, MD**  
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**Ryan Cleary**  
Washington University  
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**Rowland Han, MD**  
Washington University  
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PGY1



**Ashley Dunbar, MD**  
Quinnipiac University  
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**Corey Gill, MD, MS**  
Mount Sinai  
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**Alexander Yahanda, MD**  
Washington University  
ayahanda@wustl.edu

## Neurosurgery alums

90% complete subspecialty fellowships

60% in academic practice

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### 2021

**Adam Bevan, MD, PhD**

Private Practice, Utah

**Dan Hafez, MD, PhD**

Spine Fellowship, University of Pittsburgh

**Peter Sylvester, MD**

Private Practice, Missouri

### 2020

**Brendan Fong, MD**

Private Practice, Missouri

**Richard Price, MD, PhD**

Private Practice, Nevada

**Afshin Salehi, MD**

Asst. Professor of Neurosurgery, University of Nebraska Medical Center

### 2019

**S. Hassan Akbari, MD**

Assistant Professor of Neurosurgery, Penn State

**Ashwin Kamath, MD**

Private Practice, Texas

**Ananth Vellimana, MBBS**

Assistant Professor, Washington University in St. Louis

### 2018

**Katie Dlouhy, MD**

Assistant Professor, University of Iowa

**Jarod Roland, MD**

Assistant Professor, Washington University in St. Louis

**Zohny Zohny, MD**

Private Practice, Oklahoma

### 2017

**Eric Arias, MD**

Private Practice, Colorado

**Thomas Beaumont, MD, PhD**

Assistant Professor, UCSD

**Bradley Stephens, MD**

Private Practice, Missouri

### 2016

**Ammar Hawasli, MD, PhD**

Private Practice, Missouri

**Rory Murphy, MD**

Assistant Professor, Barrow Neurological Institute

**Chester Yarbrough, MD**

Assistant Professor, Duke University

### 2015

**S. Katie Bandt, MD**

Assistant Professor, Northwestern University

**Terry Holekamp, MD, PhD**

Private Practice, Missouri

**Matthew Reynolds, MD, PhD**

Assistant Professor, Loyola University

### 2014

**Devon Hayden, MD**

Private Practice, Florida

**Chad Washington, MD**

Chairman; Associate Professor, University of Mississippi

### 2013

**Manish Shah, MD**

Associate Professor, University of Texas/Houston

**Ivan Stoev, MD**

Private Practice, Florida

### 2012

**Ian Dorward, MD**

Associate Professor, Washington University in St. Louis

**Eriks Lusis, MD**

Private Practice, Michigan

### 2011

**Wilson Z. Ray, MD**

Vice-Chair; Chief of Spine Division  
Professor, Washington University in St. Louis

**Jon Willie, MD, PhD**

Associate Professor, Washington University in St. Louis,  
Director, Stereotactic, Functional and Epilepsy Surgery

### 2010

**Spiros Blackburn, MD**

Associate Professor, University of Texas/Houston

**Amy Lee, MD**

Associate Professor and Division Chief of Pediatrics,  
University of Washington

### 2009

**Jim Johnson, MD**

Associate Professor and Division Chief of Pediatrics,  
University of Alabama

**Daniel Refai, MD**

Associate Professor, Emory University

### 2008

**Srinivas Prasad, MD**

Associate Professor, Jefferson University

**Nilesh Vyas, MD**

Private Practice, Virginia

### 2007

**William Ashley, Jr., MD, PhD**

Private Practice, Maryland

**David Limbrick, Jr., MD, PhD**

Executive Vice-Chair; Chief of Pediatric Division  
Professor, Washington University

### 2006

**Sarah Fouke, MD**

Private Practice, Missouri

**Jose Menendez, MD**

Private Practice, Arizona

### 2005

**Douglas “Kit” Fox, MD**

Private Practice, Texas

**Eric Leuthardt, MD**

Chief of Neurotechnology Division  
Professor, Washington University

### 2004

**Richard Lytle, Jr., MD**

Private Practice, North Carolina

**David Walker, MD**

Private Practice, Oregon

### 2003

**James Lu, MD**

Private Practice, Missouri

**Dennis Rivet, MD**

Associate Professor, Virginia Commonwealth University

### 2002

**Jeffrey Leonard, MD**

Professor and Division Chief of Pediatrics, The Ohio State University

**Todd Stewart, MD**

Private Practice, Missouri

### 2001

**Stuart Kaplan, MD**

Private Practice, Nevada

**John Wanebo, MD**

Director, Moyamoya Center, Barrow Neurological Institute

## St. Louis quality of life

St. Louis is known as one of the most livable cities in the U.S., a place where residents can afford to buy their own home, commute to work by short car ride, bike, or on foot, and, at the same time, enjoy all the cultural activities a great city can offer.

### ENTERTAINMENT

Within five miles of Washington University School of Medicine, residents cheer on the Cardinals at Busch Stadium, see *Hamilton* and other Broadway shows at the Fox Theatre,



revel in Bach at the Saint Louis Symphony, attend Slam Poetry contests in north city, deconstruct Van Gogh and Monet paintings at the Saint Louis Art Museum, and pet stingrays at the Saint Louis Zoo. Because the winters are short, residents can also play golf or tennis in Forest Park, directly across the street from the hospital, starting as early as March and as late as November.

### ENERGY

With substantial resources for startups, St. Louis has become a top destination for entrepreneurs, attracting a growing millennial population, and with them an expansive network of craft breweries, music venues and restaurants. In fact, Yelp recently named St. Louis the No. 2 “food city” in the U.S. just behind San Francisco.

### CAMARADERIE

Neurosurgery residents enjoy many of these St. Louis venues together, during the monthly department-funded social events, at gatherings with faculty, and in outings planned on their own.

Because of the camaraderie within the program, and all of the fun activities they can do together in St. Louis, residents find that they make some of their best, lifelong friends here.





Washington University School of Medicine  
Department of Neurosurgery

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Joshua W. Osbun, MD, *Program Director*  
Kayla Zoschg, *Program Coordinator*

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