MESSAGE FROM THE CHAIRMAN

Dear Applicant,

We welcome your interest in the Department of Neurosurgery at the University of Illinois at Chicago.

Selecting and being accepted at a residency program to match your desires and abilities is one of the most important milestones of your neurosurgical journey. In this brochure, you will find information about the University of Illinois at Chicago and our Department, with its clinical, teaching, and research facilities. Our educational mission aims at illuminating the path for knowledge and helping our trainees become active contributors to the science and practice of neurological surgery.

Our faculty, residents, and staff are available to help you gain a thorough understanding of our program and allow you to determine how our environment will enable you to become a leading member of the neurosurgical community. We look forward to assisting you in your quest to join this exciting field.

Fady T. Charbel, MD
Professor and Head
The Neurosurgery Residency Program at the University of Illinois at Chicago is committed to providing the highest quality of clinical and academic training for future neurosurgeons. The Department of Neurosurgery has continued to grow steadily in case volume, faculty expertise, and research. Our goal is to train motivated individuals for their future careers as academic and clinical neurosurgeons.

The neurosurgical residency at UIC is an RRC/ACGME accredited program with seven postgraduate years of training. The program includes six years of clinical work in addition to a year of dedicated research time.

The general structure of the program is outlined below:

Internship (PGY1)

The PGY1 year consists of 3 months devoted to General Surgery/Fundamental Skills rotations consisting of trauma surgery, anesthesia, and ENT. Two months are spent on Neurosciences rotation including 2 months of neurology and 1 month of neuropathology. The remaining 6 months are dedicated to neurosurgical critical care.

Junior Residency (PGY2,3)

The PGY2 year consists of an additional 6 months with primary focus upon neurosurgical critical care, during which time the resident is also introduced to basic operative procedures. The remainder of the year (6 months) is devoted to neurosurgery rotations, including a dedicated endovascular rotation.

The PGY3 year resident devotes the year to general neurosurgery focusing on spine surgery, peripheral nerve surgery, pain/functional procedures, and basic cranial procedures including tumor. A 3 month pediatric neurosurgery rotation is incorporated into the year, in addition to a 3 month junior rotation at an affiliated site focused on neurotrauma.

Outpatient clinic experience in spine, tumor, pain/functional, and general neurosurgery clinics is interspersed throughout the junior years.
PROGRAM

Senior Residency (PGY4,6)
The PGY4 year resident gains increasing responsibility for operative procedures and access to a more complex case-mix including complex spine and cranial surgery. The resident also takes on an active teaching role both in and out of the OR for the more junior residents.

The PGY6 year resident rotates at affiliated sites gaining more exposure to spine and cranial trauma and functional/radiosurgery procedures. The resident functions in an increasingly independent manner, serving as a prelude to the official Chief Resident year.

Research (PGY5)
The PGY5 year is dedicated to research. Each resident has the opportunity to pursue projects of interest in an area of clinical or basic research. The scientific resources of the Department of Neurosurgery, as well as the University of Illinois, are available to the resident. Alternatively, the opportunity for training in a subspecialty field during this year can be pursued.

Chief Residency (PGY7)
The Chief Resident year is spent running the neurosurgical service at UIC, gaining a full range of experience in cerebrovascular surgery, further exposure to microsurgery through complex cranial cases, and additional experience in complex spine surgery. The Chief Resident performs a large and varied number of cases while assuming a prominent teaching role for the residents and medical students on service.

Morning Rounds
CONFERENCE SCHEDULE

Biannual hands-on operative technique and microsurgery workshops (cadaver and sawbone models)
Monthly Grand Rounds
Monthly morbidity and mortality conference
Weekly Wednesday and Thursday academic day conference schedule including:
• Neuropathology conference
• Neurosurgery general topic review – didactic and interactive sessions
• Topics conference
• Neuroanatomy laboratory/lecture series
• Neuroradiology lecture series
• Journal Club
• Neuroscience research breakfast seminar
• Resident meeting
• Pediatric case conference
• Spine case conference
Weekly neurovascular/endovascular and neurooncology conference
Daily faculty teaching rounds

Current Residents (2016-2017)
Daniel Birk, MD (PGY 7)
Gerald Oh, MD (PGY 7)
Gregory Arnone, MD (PGY 6)
Sajeel Khan, MD (PGY 6)
Ashley Barks, MD (PGY 5)
Darian Esfahani, MD (PGY 5)
Mandana Behbahani, MD (PGY 3)
Nauman Chaudhry, MD (PGY 3)
Amanda Kwasnicki, MD (PGY 2)
Laura McGuire, MD (PGY 2)
Justin Scheer, MD (PGY 1)
The University established the Neuropsychiatric Institute, dedicated to the study of the neurosciences, in 1939. It was the first institute of its kind in the United States and promoted many advances in the fields of Neurosurgery, Neurology, and Psychiatry. The Department of Neurosurgery has included such illustrious figures as Dr. Eric Oldberg (the first Department Head), Dr. Paul Bucy, and Dr. Percival Bailey.

The Neuropsychiatric Institute, completely renovated in 1995, houses the Neurosurgery administrative offices and research laboratories, as well as the Departments of Neurology & Rehabilitation and Psychiatry. The building also includes state-of-the-art microsurgical and neuropathology laboratories, closed-circuit television connections to the hospital operating rooms, a neuroscience library, and a well-equipped auditorium (converted from an original operating room amphitheater). The interventional neuroradiologists have offices in the building, as well as a reading room for review of imaging studies.

The Neurosurgery Department, in addition to serving the local community, attracts specialty cases including EC-IC bypass, complex aneurysms, skull base tumors, intractable epilepsy, pain management, and skull base and spinal cord tumors. Many community neurosurgeons throughout the midwest refer their patients to us for specialized care. Our faculty includes recognized experts in cerebrovascular surgery, neuroendovascular procedures, neuro-oncology, spinal neurosurgery, peripheral nerve surgery, pediatric neurosurgery, pain management and movement disorders. The Department also collaborates with other services in the medical center to provide multi-disciplinary care for our patients, including stereotactic radiosurgery (Radiation Oncology), craniofacial surgery (The Craniofacial Center), pituitary and skull base tumors (ENT), stroke and critical care (Neurology).
Facy T. Charbel, MD
Professor and Head
Neurovascular

Sepideh Amin-Hanjani, MD
Professor and Program Director
Neurovascular

Ali Alaraj, MD
Assistant Professor
Neuroendovascular/Neurovascular

Herbert Engelhard, MD, Ph.D.
Associate Professor
Neuro-Oncology

Yoon Hahn, MD
Professor
Pediatric Neurosurgery
FACULTY

Ankit Mehta, MD
Assistant Professor
Spine

Sergey Neckrysh, MD
Assistant Professor
Spine

Demetrios Nikas, MD
Assistant Professor
Pediatric Neurosurgery

Konstantin Slavin, MD
Professor
Stereotactic and Functional
AFFILIATED FACULTY

Markus Chwajol, MD
Assistant Professor
General Neurosurgery

Reza Dashti, MD, Ph.D.
Visiting Associate Professor
Neuroendovascular, General

Tamir Hersonskey, MD
Assistant Professor
Epilepsy

Roger Lichtenbaum, MD
Assistant Professor
General Neurosurgery

Soma Sinha Roy, MD
Assistant Professor
Neuroendovascular
The University of Illinois at Chicago is located on the west side of the city, near Chicago’s “Loop” and within easy reach of all of Chicago’s cultural, educational, and entertainment attractions. It is one of three campuses of the University of Illinois (the other two are in Springfield and Champaign-Urbana). The medical school at the University of Illinois is the largest in the United States, graduating nearly 1300 students each year. Research is a primary focus, with significant funding from the National Institutes of Health as well as from other sources. The University of Illinois Medical School is widely regarded as a leader in producing educators, medical practitioners, and scientific investigators.

The Medical Center includes a 500-bed hospital as well as more than 40 primary care and specialty clinics. Its state-of-the-art facilities include a newly built Outpatient Care Center, a 3-Tesla MRI, two angiographic suites, and a dedicated neurosurgical unit that includes a 22-bed Neurosurgical ICU and a step-down floor. The Medical Center is a major referral center, attracting cases from around the world as well as from the entire U.S. Midwest region.
Research is a major focus in the Department, for both faculty and residents. Well-trained, certified research personnel are also available to help support your efforts. Research is currently being done in a variety of areas, such as stroke, movement disorders and brain tumors. Our residents are actively involved in the ongoing departmental research projects. Collaboration with other Departments is also highly encouraged. Collaborations currently exist with Neurology, Radiology, Pathology, Anesthesiology, Engineering, Anatomy and Cell Biology, Applied Health Sciences, and the School of Public Health.

**Departmental Facilities:**
- State-of-the-Art Animal Angiography Suite
- Microsurgery Laboratory
- Neuro-Transplant Immunology Laboratory
- Over 4,000 sq ft of dedicated basic research space
- Access to 3T MR with functional imaging capability and 9T research MR at UIC MR Center

**Research Personnel:**
- Xinjian Du, MD, MPH
- Linda Rose-Finnell, MPA, CCRA
- Mariela Girotti, RN, MS-PSL
- Helena Yoder, PharmD

**Collaborating Faculty:**
- Prashant Banerjee, PhD
- Andreas Linnerger, MD, PhD
- Keith Thulborn, MD, PhD
Prospective Clinical Studies / Trials:

Cerebrovascular
- Baseline Blood Flow Study of the Cerebral Vessels
- Extracerebral to Intracerebral (EC/IC) Bypass Outcomes Analysis
- Cognitive Outcomes Following Carotid Revascularization
- Image Based Patient Specific Predictive Modeling of Cerebral Circulation
- Assessment of Structure and Function of Human Aneurysm Tissue and Link to Hemodynamic Loading
- MISTIE III Trial - Minimally Invasive Surgery Plus Rt-PA for ICH Evacuation
- NEWTON 2 Trial - Nimodipine microparticles to enhance recovery while reducing toxicity after subarachnoid hemorrhage

Tumor
- Prospective Neurosurgery Brain Tumor Registry
- Tumor Biomarker - Graphene Cell Signature

Functional/Pain
- A Prospective Study of the Natural History of Facial Pain Syndromes
- DBS for the Management of Patients with Major Depressive Disorder
- Effects of DBS on EMG Recordings from Patients with Implanted Electrodes
- Analysis and Modeling of Neuronal Activity Recorded During Surgery for DBS
- Neuromodulation System in the Treatment of Chronic Peripheral Nerve Pain
- Finding the Genes that Predispose to Trigeminal Neuralgia
- High-Frequency Nerve Block for Post-Amputation Pain: A Pivotal Study (Neuros)
- Pathway CH-2 Trial-Sphenopalatine Ganglion Stimulation for the Treatment of Chronic Cluster Headache

Spine
- Peripheral Nerve Stimulation in Chronic Post-Surgical Back Pain
- Neurosurgery Spine Tumor Registry (NSTR)

Retrospective Studies:
- Long Term Outcome of Patients Undergoing Multimodality Treatment of Cerebral Arteriovenous Malformations (AVM)
- Long Term Outcome of Patients Undergoing Endovascular Treatment of Intracranial Aneurysm
- Long Term Follow Up of Extracranial to Intracranial (EC/IC) Bypass
- Evaluating Site of Rupture in Subarachnoid Hemorrhage in the Setting of Multiple Intracranial Aneurysms
- Digital Subtraction Angiography Confirmation of Non-Invasive Identification of Unruptured Cerebral Aneurysms
- Blood Flow Imaging in Patients with Cerebrovascular Occlusive Diseases
- Surgical Outcome of Vertebral Column Resection
- Comparative Results of Anterior Cervical Corpectomy and Fusion Performed with Grafts and Implantable Cages
- Cervical spondylotic myelopathy: retrospective cohort study of surgical management utilizing anterior, posterior or combined anterior/posterior decompression and instrumented fusion.
- Cervical Kyphotic Deformity Managed with Upper Thoracic Pedicle Subtraction Osteotomy: Clinical Parameters and Outcome Analysis
- C2 pedicle diameter measurement using Standard Preoperative versus Intraoperative Computed Tomography: precision and the feasibility for transpedicular fixation
- C7 Bridge in Posterior Cervicothoracic Fusion
- Perioperative Risk Factors Associated With Rates of Dysphagia in Anterior Cervical Surgery
- Fusion Rate Outcomes with use of Magnifuse Bone Graft
- Secular Trends in Lumbar Spinal Canal Dimensions in Modern Northern American Population (SLSC)
- Transforaminal lumbar interbody fusion (TLIF) for the Management of Spondylosis with and without Sagittal Imbalance: Clinical and Radiological Parameters and Outcome Analysis
- Surgical Strategy and Management of Thoracic Spondylogenic Myelopathy

Animal Models/Research:
- Carotid Aneurysm Models in Swine
- Elastase Carotid Aneurysm Model in Rabbits
- Microsurgical Technique in a Rat Model
- Exogenous Parathyroid Hormone and its Effects on the Mechanical Properties of Bone
- Glioblastoma Multiforme induction in NOD.Cg-Prkdcsid Il2rgtm1Wjl/SzJ mice followed by irinotecan/anti-VEGF TSP microsphere treatment
- Spinal Cord Injury with Hypoxic Conditioned Media from Bone Marrow Stem Cells
- Intrathecal Magnetic Drug Delivery of Nanoparticles: Localized Therapy for Intramedullary Spinal Astrocytomas
Chicago is one of the most livable big cities in America, spanning 228 square miles with a population of nearly 3 million. The city is divided by quarters, into north, south, and west sides, with Lake Michigan forming the border to the east. From its famous Magnificent Mile to the towering skyscrapers along 29 miles of lakefront property, coupled with its cultural and ethnic diversity, it is easy to see why so many are happy to call the “windy city” their home.

For the sports enthusiast, you can catch NHL’s Blackhawks at the nearby United Center, which is also home to the NBA’s Bulls. Southsiders watch the White Sox at U.S. Cellular Field, while the northsiders travel to Wrigley Field to follow the Cubs. We certainly cannot forget the Chicago Bears. No matter the weather, Soldier Field is the place to be when watching them play. Chicago sports clubs have some of the country’s most loyal and animated fans.

Chicago is known as the cultural and artistic giant of the Midwest, home to the world renowned Lyric Opera of Chicago, the Chicago Symphony Orchestra, Ballet Chicago, the Steppenwolf and Goodman theater companies, and hundreds of art galleries and other various entertainment venues. Downtown is home to three of Chicago’s most beloved museums: the Field Museum of Natural History, the Shedd Aquarium, and the Adler Planetarium. Other internationally recognized institutions include the Museum of Contemporary Art, the Museum of Science and Industry, and the Art Institute of Chicago. The city’s architecture is an art exhibit in itself, ranked with New York and Hong Kong as one of the Big Three world skylines.
INFORMATION

Chairman
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