



MASSACHUSETTS
GENERAL HOSPITAL

NEUROSURGERY
RESIDENCY
PROGRAM



HARVARD MEDICAL SCHOOL
TEACHING HOSPITAL

“WHEN IN DISTRESS, EVERY MAN BECOMES OUR NEIGHBOR.”

Drs. James Jackson and John Collins Warren –
founders of Massachusetts General Hospital, 1811

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Aman Patel, MD, Program Director

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OVERVIEW

The Massachusetts General Hospital neurosurgery residency program aims to train the next generation of neurosurgical leaders. We have a long and proud tradition of training neurosurgeons who have made major clinical and scientific contributions to the field of neurosurgery. Our department is dynamic, growing and strongly positioned in both clinical and scientific areas to continue to lead and innovate in neurosurgery.

Our philosophy is grounded in exposing residents to a large volume of high-quality cases, spanning the breadth of neurosurgery. Mass General is the largest hospital in New England and a tertiary referral center attracting both national and international patients. Our neurosurgical residents are trained in both the surgical and nonsurgical management of neurosurgical disease. Chief residents are expected to operate and function at the highest level as they transition to junior faculty members.

In addition to the unparalleled clinical training, our residents dedicate two years to research, a clinical fellowship or pursue an advanced degree. Most residents spend two years in a laboratory of their choice as part of the residency training. The research opportunities in the Boston area are unrivaled and include Mass General (the largest recipient of NIH funding among U.S. hospitals), Harvard Medical School, Massachusetts Institute of Technology, Broad Institute, Dana Farber Cancer Center and Boston Children's Hospital. In addition to traditional scientific and clinical fellowship efforts, residents have also pursued advanced degrees (MPH and MBA) at Harvard University.

Mass General is ranked as a top hospital every year and comprised of first rate clinical services in every aspect of medicine and surgery. The Mass General neurosurgery program has a tradition of respect and camaraderie among the residents and between the residents and staff. That leads to an exceptionally supportive and stimulating educational environment. The combination of excellent clinical training, superb research and the many outstanding opportunities available here enables graduates to successfully pursue the career track of their choice.

#1 RESEARCH HOSPITAL
IN THE COUNTRY BASED ON FEDERAL FUNDING

3274
SURGICAL CASES PER YEAR

EXPOSURE TO A UNIQUE BREADTH OF
COMPLEX CASES FROM ACROSS THE WORLD

RESIDENTS RECEIVE AN UNPARALLELED
CLINICAL TRAINING AND OPERATING AT THE
HIGHEST LEVEL BY THEIR CHIEF YEAR.

RESIDENTS HAVE 2 YEARS TO DEDICATE
TO RESEARCH, FELLOWSHIP OR PURSUING
AN ADVANCED DEGREE





CLINICAL TRAINING PROGRAM

Our neurosurgical residents are exposed to high clinical volume, direct patient care and are expected to gain mastery of clinical and operative skills under the guidance of experienced attending neurosurgeons. It is essential that residents are exposed to each subspecialty in sufficient depth and breadth to become fully competent. Every trainee receives a focused experience in each of the main subspecialties, working in close conjunction with an expert senior attending physician who is a leader focused in brain tumor, vascular, functional, pediatric, peripheral nerve, skull-base or spine.

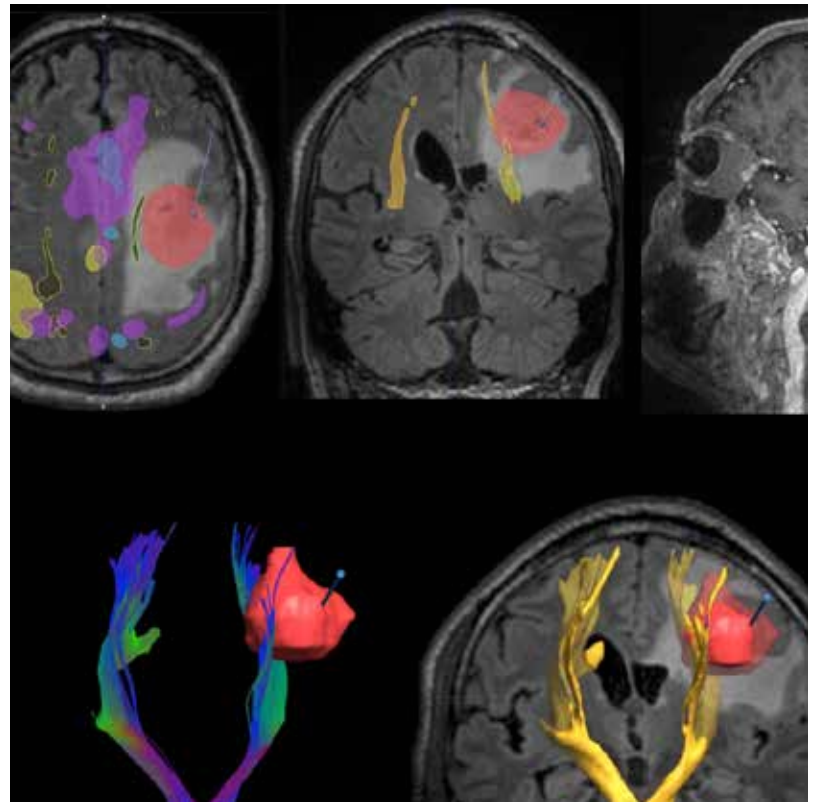
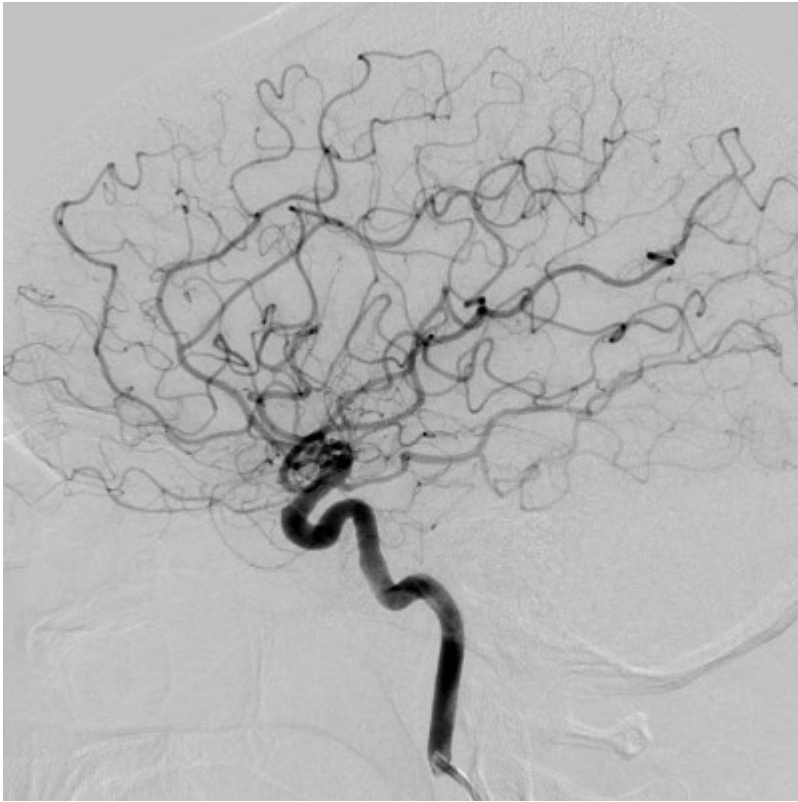
EDUCATION OPPORTUNITIES

Residents contribute to lectures, group discussions and symposiums with leading national and international researchers and clinicians. In addition, residents present at the neurosurgery grand rounds, Annual Frye Halloran symposium and neuroscience grand rounds with neurology, psychiatry, otolaryngology and ophthalmology. Our residents frequently present at American Association of Neurological Surgeons, the Academy of Neurological Surgeons, the Society of Neurological Surgeons, the Congress of Neurological Surgeons, Sub-specialty Section meetings and at local and regional meetings. In addition, residents attend neurosurgical courses in their desired sub-specialty as junior and senior residents.

PROGRAM OVERVIEW

All program phase locations are at Mass General's main campus unless another location is specified.

PGY-1	PGY-2 + 3	PGY-4 + 5	PGY-6 + 7
General Surgery (6 months)	East Junior (4 months)	Research / Fellowship	East Senior / Chief Resident (4 months as R6 Senior and 4 months as R7 Chief)
Neurosurgery & ICU (3 months)	West Junior / Radiosurgery (4 months)		West Senior / Chief Resident (4 months as R6 Senior and 4 months as R7 Chief)
Neurology Service (3 months)	Boston Children's Hospital (4 months)		North Chief Resident (4 months as R6 Senior and as R7 Chief)
	North Junior (4 months)		



PGY1

General Surgery (6 months)

Residents spend 6 months rotating on general surgery, critical care, trauma and other surgical specialty rotations developing operative skills and management of complex medical and surgical patients.

Neurosurgery & ICU (3 months)

Residents focus on all aspects of the management of neurological and neurosurgical patients in the neuroscience ICU focused on intracranial pressure, management of IV fluids and basic management of acute neurological, cardiac and pulmonary issues common to these patients.

Neurology Service (3 months)

Residents develop expertise in the neurological exam and diagnostic workup of neurological disease. Rotations on inpatient and outpatient neurological services include advanced neurology, Neuro-oncology, neurovascular, stroke, epilepsy, movement disorders and pediatric neurology.

PGY2+3

East Junior (4 months)

Residents focus on the surgical and nonsurgical management of spinal, functional and pediatric diseases. Residents are exposed to the breadth of spinal disorders including degenerative disease, tumors, deformity and peripheral nerve. In addition, residents are exposed to functional neurosurgery including deep brain stimulation, epilepsy surgery and surgery for pain. Residents care for the surgical and nonsurgical management of pediatric cranial and spinal disease.

West Junior/Radiosurgery (4 months)

Residents focus on the surgical and nonsurgical care of brain tumor patients. In addition to the surgical skill, residents take part in the treatment and planning of single fraction radiosurgery, proton beam radiosurgery and the linear accelerator (LINAC).

Boston Children's Hospital (4 months)

Residents rotate at the Boston Children's Hospital to gain additional experience in the clinical and surgical management of pediatric patients.

North Junior (4 months)

Residents focus on the management of vascular (open and endovascular) cases where they are exposed to surgical, nonsurgical and endovascular techniques. In addition the residents focus on trauma, general neurosurgery and spine to operate on a breadth of neurosurgical cases.

PGY4+5

Research/Fellowship

Years 4 and 5 are dedicated to research, clinical fellowships or pursuing advanced degrees. Clinical responsibilities are proportionately decreased. During the first research year, the residents take night call 1-2 times per week. The second year of research is free of any clinical responsibilities. Residents take the written neurosurgery boards during this time.

I can't imagine finding a place with more diverse, curious, kind or genuine people, and I consider myself very lucky to have trained in and benefited from this positive environment.

PAMELA S. JONES, M.D., M.P.H., RESIDENT CLASS OF 2016

PGY6+7

East Senior/Chief Resident

(4 months as R6 Senior and 4 months as R7 Chief)

The East Senior/Chief assumes a large role in the operative and clinical management of complex spine, pediatric and functional cases. There is a special emphasis on complex spinal disease (degenerative, deformity and neoplasm). In addition, residents have an extensive exposure to functional neurosurgery, including deep brain stimulation, epilepsy surgery and surgery for pain. Residents are exposed to the breadth of pediatric neurosurgery during this rotation as well. There is considerable responsibility for the teaching and supervision of other residents

West Senior/Chief Resident

(4 months as R6 Senior and 4 months as R7 Chief)

The West Senior/Chief Resident plays a large role in the operative and clinical management of complex tumor cases ranging from intra-axial, extra-axial, skull base and pituitary tumors. Residents gain an extensive experience in the surgical management of brain tumors with the use of cutting edge intraoperative mapping, intraoperative imaging, endoscopic and endonasal techniques and novel minimally invasive techniques. There is considerable responsibility for the teaching and supervision of other residents.

North Chief Resident

(4 months as R6 Senior and as R7 Chief)

The North Chief Resident is the administrative chief resident. The North Chief has his or her own office, administrative assistant and performs a wide spectrum of cases including trauma, cerebral hemorrhage and a variety of spinal cases. The North Chief resident is also in charge of the call schedule, the operating room assignments and has considerable responsibility for the teaching and supervision of other residents. The Vascular Chief resident plays a large role in the surgical (open vascular) and nonsurgical management of open and endovascular neurosurgical cases. The resident performs diagnostic angiograms and participates in coiling and embolization endovascular neurosurgical procedures.





Towards you

CLINICAL FACULTY



Frederick Barker, M.D.
Neurosurgical Oncology



Jean-Valery Coumans, M.D.
Neurosurgical Spine



Ganesh M. Shankar, M.D., Ph.D.
Neurosurgical Spine



Lawrence Borges, M.D.
Neurosurgical Spine



William Curry, M.D.
Neurosurgical Oncology



John Shin, M.D.
Neurosurgical Spine



Justin Brown, M.D.
Peripheral Nerve Surgery



Tina Duhaime, M.D.
Pediatric Neurosurgery



Brooke Swearingen, M.D.
Neurosurgical Oncology



William Butler, M.D.
Pediatric Neurosurgery



Pamela Jones, M.D.
Neurosurgical Oncology



Ziv Williams, M.D.
Functional Neurosurgery
Peripheral Nerve Surgery



Daniel Cahill, M.D., Ph.D.
Neurosurgical Oncology



Brian Nahed, M.D., MSc.
Neurosurgical Oncology
Neurosurgical Spine



Robert L. Martuza, M.D.
Neurosurgical Oncology



Bob Carter, M.D., Ph.D.
Neurosurgical Oncology
Neurovascular Surgery



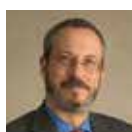
Aman Patel, M.D.
Neurovascular Surgery
Neuroendovascular



Nicholas Zervas, M.D.
Neurosurgery



Paul Chapman, M.D.
Pediatric Neurosurgery



Jeffery Schweitzer, M.D.
Functional Neurosurgery
Community Neurosurgery

NEUROSURGERY RESIDENTS

PGY7



Andrew Venteicher, M.D. Ph.D.
Stanford Medical School
UPenn



Christopher Stapleton M.D.
Harvard Medical School
UCI



Matthew Mian, M.D.
Harvard Medical School
Duke

PGY6



Vijay Yanamadala, M.D., M.B.A.
Harvard Medical School
Harvard



Marcus Zachariah, M.D., Ph.D.
UCSF Medical School
UCB

PGY5



Sarah Bick, M.D.
Vanderbilt Medical School
Harvard



Matthew Koch, M.D.
UPENN Medical School
Princeton



Robert Koffie, M.D., Ph.D.
Harvard Medical School
Indiana



Christopher Alvarez-Breckenridge, M.D., Ph.D.
Ohio State Medical School
Ohio State

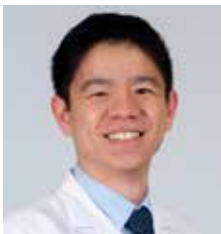
PGY4



Benjamin Grannan, M.D.
Harvard Medical School
MIT

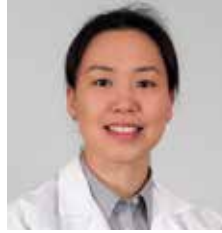


Bryan Choi, M.D., Ph.D.
Duke Medical School
Harvard



Jimmy Yang, M.D.
Harvard Medical School
Harvard

PGY3



Christine Lee, M.D., Ph.D.
Stanford Medical School
Harvard



Athar Malik, M.D., Ph.D.
Harvard Medical School
Johns Hopkins



Cameron Sadegh, M.D., Ph.D.
Harvard Medical School
MIT

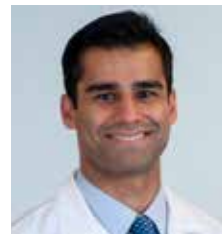
PGY2



Amy Baohan, M.D., Ph.D.
UCLA Medical School
Columbia



Victoria Clark, M.D., Ph.D.
Yale Medical School
Harvard



Arjun Khanna, M.D.
Harvard Medical School
Duke

PGY1



Muhamed Hadzipasic, M.D., Ph.D.
Yale Medical School
Johns Hopkins



Myron Rolle, M.D.
Florida State Medical School
Florida State



Pratik Talati, M.D., Ph.D.
Vanderbilt Medical School
UAB



RICHARD B. SIMCHES RESEARCH

RESEARCH

Research Training

The Mass General Department of Neurosurgery is a leader in clinical, translational and basic science research. Every neurosurgical attending is engaged in research and works closely with collaborators from Neurooncology, Radiation Oncology, Neuropathology, Neurophysiology, Neurology and the Mass General Cancer and Vascular Centers. Residents pursue research projects with mentors stemming from neurosurgery, and researchers at Mass General, Massachusetts Institute of Technology, Broad Institute, Dana Farber Cancer Center and Harvard University.

Research Accomplishments

The Mass General Department of Neurosurgery has a successful track record with NIH and foundation grants. Our residents are often awarded independent funding and fellowships, including awards from the NIH (NRSA, K08) NREF, ABTA, Parkinson Disease Foundation, American Parkinson Disease Associations, Burroughs Wellcome Fund and many others. Numerous residents have had high quality publications in journals such as *Science*, *Nature Neuroscience*, *Nature Medicine*, *Cancer Discovery*, *New England Journal of Medicine*, *Journal of Neuroscience*, *Journal of Neurosurgery* and *Neurosurgery*, among many others. The department has also been awarded the prestigious R25 training grant by the NIH to support the resident research years.

RESIDENTS ARE MENTORED BY CLINICAL AND SCIENTIFIC MENTORS IN DEVELOPING A SUBSPECIALTY AND RESEARCH EXPERTISE LEADING TO AWARDS, FUNDING AND PRESENTATIONS AT NATIONAL AND INTERNATIONAL MEETINGS.

MGH NEUROSURGERY HAS AN R25 TRAINING GRANT TO SUPPORT RESIDENT RESEARCH.

2017

Pankaj Agarwalla
University of Southern
Florida, Tampa
Fellow, Skull Base Surgery

Katie Fehnel
Boston Children's Hospital
Fellow, Pediatric Surgery

2016

Anoop Patel
University of Washington
Assistant Professor, Skull Base and
Endoscopic surgery;
Neurosurgical Oncology

Pamela Jones
Massachusetts General Hospital
Instructor, Neurosurgical
Oncology

Josh Aronson
Dartmouth
Assistant Professor; Director
of Functional Neurosurgery

2015

Navid Redjal
Capital Institute
Attending; Director of
Neurosurgical Oncology

Brian Walcott
USC
Fellow, Cerebrovascular Surgery

Patrick Codd
Duke
Assistant Professor; Director of
Endoscopic Neurosurgery

2014

Kris Kahle
Yale
Assistant Professor,
Pediatric Neurosurgery;
Director, Congenital Anomaly
Neurosurgery

Peter Fecci
Duke
Assistant Professor,
Neurosurgical Oncology;
Associate Residency Program
Director

Anna Terry
Duke
Assistant Professor,
Neurosurgical Spine

2013

Gavin Dunn
Washington University, St. Louis
Assistant Professor,
Neurosurgical Oncology

John Barr
Duke
Assistant Professor,
Neurosurgical Spine

2012

David Jho
Allegheny General Hospital
Assistant Professor, Neurosurgical
Spine; Director of Endoscopic Skull
Base and Spine

Sameer Sheth
Baylor
Assistant Professor,
Functional Neurosurgery

Eric Chang
Southern New Hampshire
Attending, Neurosurgery

2011

Brian Nahed
Massachusetts General Hospital
Associate Professor,
Neurosurgical Oncology;
Associate Residency Program
Director

Rollin Hu
Kaiser Permanente
Attending, Neurosurgical Spine

2010

Jason Gerrard
Yale
Assistant Professor, Director of
Functional Neurosurgery

Wael Asaad
Brown
Associate Professor; Director of
Functional Neurosurgery & Epilepsy

Travis Tierney
Miami Childrens Hospital
Assistant Professor, Pediatric
Functional Neurosurgery

2009

Christopher Farrell
Thomas Jefferson
Assistant Professor, Skull base and
Endoscopic Surgery;
Neurosurgical Oncology

Manuel Ferreira
University of Washington
Associate Professor, Skull base
and Neurosurgical Oncology;
Chief, Neurosurgical Surgery

2008

Daniel Cahill
Massachusetts General Hospital
Associate Professor,
Neurosurgical Oncology

Clark Chen
University of Minnesota
Professor and Department Chair,
Neurosurgical Oncology

2007

Manish Aghi
UCSF
Professor, Neurosurgical Oncology;
Co-Director, Center for Minimally
Invasive Skull Base Surgery

Ramin Amirnovin
Inland Neurosurgery
Attending, Neurosurgery

2006

Ziv Williams
Massachusetts General Hospital
Associate Professor, Functional
Neurosurgery; Director of
Peripheral Nerve Surgery

Khalid Abbed
Yale
Associate Professor,
Chief of Neurosurgery Spine

2005

Brian Hoh
University of Florida
Professor, Vice Chair of
Neurosurgery; Chief of
Cerebrovascular Surgery

Ekkehard Kasper
Beth Israel Deaconess
Associate Professor; Director,
Neurosurgical Oncology and
Stereotactic Radiosurgery

2004

Joseph Neimat

University of Louisville
Professor and Department Chair,
Functional Neurosurgery

William Curry

Massachusetts General Hospital
Professor; Director of
Neurosurgical Oncology;
Co-Director, Neurosciences Institute

2003

Steve Kalkanis

Henry Ford
Professor and Department Chair,
Neurosurgical Oncology

Edward Smith

Boston Children's Hospital
Professor; Director of Pediatric
Cerebrovascular Neurosurgery

2002

John Brisman

NSPC
Attending, Neurosurgery

Yogish Kamath

Kell West Regional Hospital
Chair, Department of Neurosurgery

2001

Albert Lee

Tallahassee Neurological
Attending, Neurosurgery

Sepi Amin-Hanjani

UIC
Professor Cerebrovascular
Surgery; Residency
Program Director

2000

Richard Chung

Neurosurgical Associates of Santa
Barbara
Attending, Neurosurgery

Emad Eskandar

Massachusetts General Hospital
Professor, Chief of Functional
Neurosurgery

1999

Zoher Ghogawala

Lahey Clinic
Professor and Department Chair,
Neurosurgical Spine

Bob Carter

Massachusetts General Hospital
Professor and Department Chair,
Neurosurgical Oncology

1998

Marius Maxwell

Arctic Spine
Attending, Neurosurgery

Robert Friedlander

University of Pittsburgh
Professor and Department Chair,
Cerebrovascular Surgery

1997

John Yu

Cedars-Sinai
Attending; Co-Director,
Comprehensive Brain Tumor Program

Stephen Tatter

Wake Forrest
Professor, Chief of Neurosurgical
Oncology

1996

Nicole Moyaeri

Kaiser Permanente
Attending, Neurosurgery

Peyman Pakzaban

Pasadena Neurosurgery
Attending, Neurosurgery

1995

E. Antonio Chioocca

Brigham & Women's
Professor and Department Chair,
Neurosurgical Oncology

David Frim

U. of Chicago
Professor and Department Chair,
Pediatric Neurosurgery

1994

William Butler

Massachusetts General Hospital
Assistant Professor, Pediatric
Neurosurgery

William Rosenberg

Midwest Neurosurgery
Attending, Neurosurgery

1993

Andrea Halliday

Spine & Brain Center
Attending, Neurosurgery

Richard Westmark

Houston Neurosurgery
Attending, Neurosurgery

1992

Jim Schumacher

Sarasota Neurosurgery
Attending, Neurosurgery

Fred Barker

Massachusetts General Hospital
Professor, Neurosurgical Oncology;
Director, Skull Base Center

1991

John Steichen

Charleston Neurosurgery
Attending, Neurosurgery

Chris Ogilvy

Beth Israel Deaconess
Professor, Cerebrovascular
Surgery; Director, Endovascular
and Operative Surgery

1990

Kevin McGrail

Georgetown
Professor and Department Chair,
Cerebrovascular Surgery

Allan Hamilton

U of Arizona
Attending, Neurosurgery;
Executive Director, ASTEC

1989

Debbie Petrucci

Yale
Attending; Neurosurgery Chair
Emeritus, White Plains Hospital
and Lincoln Hospital

Joe Madsen

Boston Children's
Professor, Pediatric
Neurosurgery; Director,
Epilepsy Surgery

To see more of our alumni visit
[massgeneral.org/neurosurgery/
alumni](http://massgeneral.org/neurosurgery/alumni)



Mass General Residents 75th Anniversary Gala

BOSTON & BEYOND

Boston is a truly exceptional place to live with something to offer for all. The city is distinguished by its proud, vibrant and unique neighborhoods, each with its own individual flair and character. More than 11 million annual visitors and residents frequent Newbury Street, Copley Place and the Prudential Center for shopping. With 37 sports titles, Boston is known as “The City of Champions.” There are miles of pathways for exercise and leisure along the Charles River and Jamaica Way. Nearby athletic options include cross-country skiing or golfing at Franklin Park, hiking at the Blue Hills Reservation and sailing and swimming at 20 regional beaches.

Boston’s diverse restaurants serve up everything from Ethiopian to Japanese to Colombian cuisines. Hundreds of food trucks operate day and night across the city. Almost 30 neighborhood farmers markets are sprinkled throughout the city.

While Boston is perhaps best known for its rich history, it is also full of true arts and culture gems, like the Institute of Contemporary Art, the Museum of Fine Arts, the Opera House and Boston Creates, which rotates public art displays and soundscapes along the mile-and-a-half long Rose Kennedy Greenway. The city also comes alive during each season with different festivals, concerts, markets and crafts fairs.

Beyond all the great experiences Boston offers residents, Massachusetts is consistently ranked among the top places in the country to raise a family. The years in residency can be as formidable personally as they are professionally, and many current and former Mass General residents have started their own families during their time here.

+4,500

**FOOD AND RETAIL ESTABLISHMENTS,
INCLUDING 100+ FOOD TRUCKS**

4 JAMES BEARD AWARD WINNERS

500+

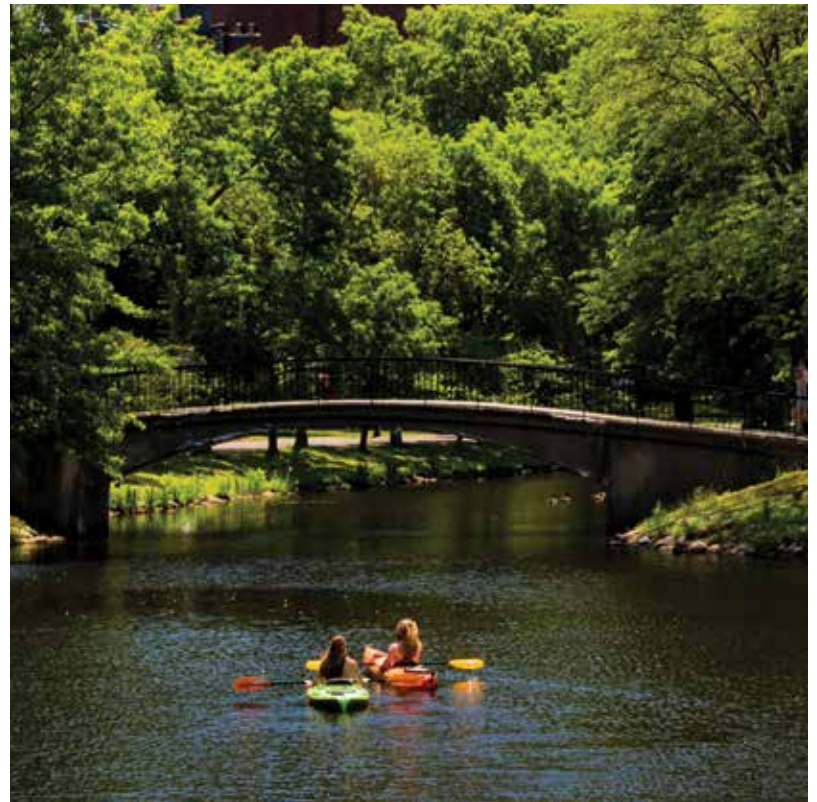
ARTS AND CULTURE EVENTS PER YEAR

20+ BREWERIES

**98% OF BOSTONIANS LIVE WITHIN A
10-MINUTE WALK OF A PARK OR OPEN SPACE**

**217 PUBLIC PARKS, 65 PUBLIC
SQUARES, OVER 35,000 STREET TREES**

**RECREATIONAL OPPORTUNITIES —
BIKE, RUN, SAIL OR KAYAK ALONG
THE CHARLES OR HARBOR, SWIM OR SKI
WITHIN AN HOUR’S REACH**





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LEONARD BUILDING

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