

Adopt-A-Resident Program



EMORY
UNIVERSITY
SCHOOL OF
MEDICINE

Department of Radiology
and Imaging Sciences



MESSAGE FROM THE CHAIR

Dear Friends and Colleagues,

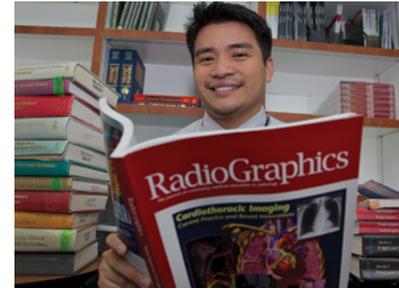
I am exceedingly proud of what we have done together to shape the future of radiology by supporting our best and brightest future leaders. In just thirteen years, the Adopt-A-Resident Program has significantly impacted both Emory and our field. By offering highly motivated and talented radiology residents the support, mentorship, and resources to pursue their dream projects, we have developed and sustained innovative programs in global radiology, electronic education, and health policy and advocacy. Our “adoptees” have exceedingly bright career paths; they also are well on their way to enhancing the value of radiology for us all.

Please join me in continuing to support our future through the Emory Radiology and Imaging Sciences Adopt-A-Resident Program.

Best wishes,

CAROLYN CIDIS MELTZER, MD, FACR

William P. Timmie Professor and Chair
Department of Radiology and Imaging Sciences



THE OPPORTUNITY

Emory's Department of Radiology and Imaging Sciences is a community dedicated to promoting health, supporting discovery and innovation, and educating the future healthcare workforce. We embrace and celebrate a collaborative culture, adaptive approaches to continuous innovation, and aligned partnerships in patient-centered care.

That's why Emory Radiology encourages its diagnostic radiology residents to be well-rounded professionals with a broad range of skills needed to improve healthcare worldwide. The **Adopt-A-Resident Program** provides funding and faculty mentorship for enterprising residents to undertake and complete specialized projects that advance the quality of clinical, academic, and research training.

The following stories explain how **Adopt-A-Resident** grantees have harnessed the power of technology to improve training, and also created innovative program tracks to more formally prepare trainees for careers as educators, researchers, informatics specialists, and even medical entrepreneurs.

Join us by supporting the **Adopt-A-Resident Program**. Your generosity is an investment in both the people and the promise of radiology and imaging sciences.

2020

PROJECT
AWARDED

HL7-Shield: A Versatile HL7 Listener Software for Automated Follow-Up Tracking

MENTORS

Nabile Safdar, MD, MPH, and Peter Harri, MD



Valeria Makeeva, MD

In general, incidental findings are reported in 10 to 30% of imaging studies with 5% of reports recommending further work-up, presenting an opportunity to address a serious medical condition at an early treatable stage and reduce morbidity. However, an estimated 10-60% of patients fail to receive the recommended workup.

Applying these statistics just to Emory's 1.2 million imaging studies completed in 2017, about 60,000 of those studies would have recommended further workup, but at least 39,600 of those patients would not have received such a workup. This failure represents a patient safety threat.

Dr. Makeeva proposes to shift the current paradigm for incidental findings follow-up for early-disease patients by developing and evaluating a fully-automated and scalable HL7 tool for differentiating radiology patients most at risk for follow-up loss.

The HL7-Shield aims to build a fund of knowledge surrounding incidental findings follow-up by out-performing current semi-automated models; generating the necessary data volume to make meaningful conclusions; and investigating the characteristics of providers, patients, modalities, and recommendation types associated with increased risk of follow-up loss.

2020

PROJECT
AWARDED

IR in the Land of 1000 Hills: Development of Interventional Radiology Training Program in Rwanda

MENTORS

Nima Kokabi, MD, and Janice Newsome, MD



Tina Sankhla, MD

Dr. Sankhla's project aims to create an elective that sends Emory Radiology to learn and teach at a newly-developing interventional radiology program in Rwanda.

There are currently only 13 practicing radiologists in Rwanda, and the first formally trained interventional radiologist will soon be returning to Rwanda following training to establish an interventional radiology service. Organized by Dr. Nima Kokabi, Emory Radiology plans to send teams consisting of an attending IR, an IR technologist, and IR nurse from Emory to King Faisal Hospital up to three times annually for two weeks at a time to provide additional training and support for the Rwanda IR program.

"I strongly feel that by sharing the skillset needed for image guided procedures, we can have a profound positive impact on patient care in hospitals in developing nations," says **Dr. Sankhla**. "Creating this resident elective will provide an opportunity for myself and my fellow residents to help share our knowledge with Rwandan residents."

Once it's safe to resume travel, the goal of the project is to send two Emory Radiology residents each year to Rwanda.

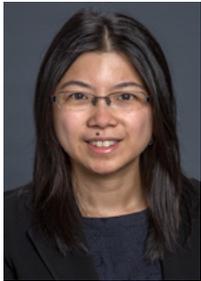
2019

PROJECT
AWARDED

Clarkston Imaging Project: Improving Health-care for the Uninsured Through Establishing Radiologist-Driven Imaging Services

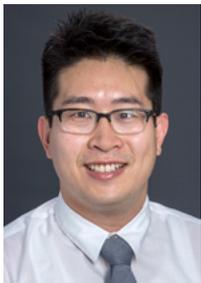
MENTORS

Sadhna Nandwana, MD, Nabile Safdar, MD, MPH, and Smyrna Tuburan, MD



Charlotte Chung, MD, and Dean Thongkham, MD

The winners of 2019 coveted Adopt-A-Resident grant are R3 residents **Charlotte Chung** and **Dean Thongkham**. Their winning proposal is “Clarkston Imaging Project: Improving Healthcare for the Uninsured Through Establishing Radiologist-Driven Imaging Services.”



Over the past year, **Drs. Chung** and **Thongkham** helped facilitate Emory University’s donation of an ultrasound machine to a free clinic in Clarkston. They now envision a program that would take advantage of that donation to help uninsured patients receive much-needed imaging studies. This ultrasound clinic, including the backend radiology workflow and IT solutions, would be staffed by volunteer ultrasound technicians, radiology residents and attendings, drawn primarily from the Emory Radiology department.

“We thought about working with patients and the idea of a bedside doctor. In radiology, that interaction can easily be overlooked,” says **Dr. Chung** on what led them to choose this project in particular. “Part of our desire was to add value by interacting with patients in an

immediate vicinity.”

While in medical school, both **Drs. Chung** and **Thongkham** volunteered with free clinics to provide medical care. However, they quickly saw how cost prohibitive and inaccessible medical imaging seemed to be. As they progressed in their residency training, they again saw the challenges free primary care clinics faced in not being able to utilize radiology for patient care. That’s where **Drs. Chung** and **Thongkham**, along with their faculty advisors **Drs. Sadhna Nandwana, Nabile Safdar,** and **Smyrna Tuburan,** are stepping in to bridge that gap.

“Existing efforts from organizations such as RAD-AID focus on international outreach to low-resource developing countries. We’re trying to address a need in our local community. Clarkston is an incredible, diverse city, serving as a popular relocation center and home for refugee and immigrant communities,” they shared.

But that’s not all they’re trying to improve. They hope to put radiologists at the forefront of patient care. “This project is trying to go where the patients are, to bring medical imaging to the patient,” explains **Dr. Thongkham**. “With the combination of educational service, excellent medical care, and patient engagement, we create a difference in an area of obvious need.”

2018

PROJECT
AWARDED

**Radiology at Emory Medical Innovation
(REMI) Track**

MENTORS

Zachary Bercu, MD, and Janice Newsome, MD



Alex Dabrowiecki, MD

Alex Dabrowiecki sees his proposed *Radiology at Emory Medical Innovation (REMI) Track* as a logical addition to the residency program.

"I chose radiology because of the exciting manipulation of technology that drives our contributions in medicine," **Dr. Dabrowiecki** explains. "Even as a hard-working and capable (albeit junior) resident attempting to bring a solution of mine to fruition, I quickly stalled, realizing product development was never part of my formal academic education."

He is designing the REMI track to combine didactic education with hands-on learning to equip residents with the knowledge and skills necessary to turn a good idea into a marketable product. Participating residents would attend monthly lectures on the theories and tenets of entrepreneurship and product development during their first two years of residency. REMI-track residents in their third and fourth years of residency then would conceive and develop a prototype technological solution with an accompanying business plan as a capstone project.

The goal is to launch the REMI track in 2019.

2018

PROJECT
AWARDED

**Neuroanatomy Live: An Interactive Curriculum
Using 3D Print Technology**

MENTORS

**Mark Mullins, MD, PhD, and Kristin Baugnon,
MD**



Anna Trofimova, MD, PhD

Anna Trofimova hopes "*Neuroanatomy Live: An Interactive Curriculum for Radiology Residents and Fellows Using 3D Printing Technology*" will make it easier for residents to master the complexities of neuroanatomy.

"Radiology is one of, if not the most rapidly developing technology-driven fields in medicine, and we as radiologists work with an increasing number of different imaging modalities and techniques," says **Dr. Trofimova**.

Dr. Trofimova is developing six workshops that augment the presentation of neuroanatomic information with 3-dimensional printed models of the brain, head, and neck." These will allow residents to better see, feel, and understand complex anatomical and neuroanatomical systems and structures. 3D printing can produce an endless variety of models which can be designed and redesigned as needed.

"I'm very excited to have an opportunity to bring together my passion for neuroradiology and cutting-edge technologies to enhance residents' education in our and, potentially, other residency programs," shares **Dr. Trofimova**.

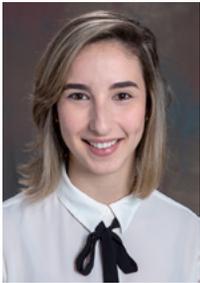
2017

PROJECT
AWARDED

Integrated Imaging Informatics Track (I3T)

MENTOR

Nabile Safdar, MD, MPH



Patricia Balthazar, MD

Dr. Patricia Balthazar recognizes how radiologists are increasingly expected to take the lead with information systems and envisions I3T providing in-depth imaging informatics experience to trainees working closely with the Division of Imaging Informatics. She explains, "I3T residents will learn skills needed to improve the quality and efficiency of imaging services while supporting clinical, educational, and research efforts through the use of information technology. This will place Emory Radiology at the forefront of imaging informatics education."

The curriculum **Dr. Balthazar** designed was approved for roll-out in fall 2018. It includes didactic instruction plus an informatics capstone project.

Capstone projects will prioritize the application of informatics to improve residency training. For example, **Dr. Balthazar** studied a data retrieval tool to find and list imaging reports with noncritical, incidental findings to improve patient follow-up; a successful pilot-test was presented at the SIIM annual meeting.

2016

PROJECT
AWARDED

Versatile 3D Printed Training Models

MENTORS

Ryan Peterson, MD, and Amanda Corey, MD



Sean Z. Goodin, MD

The models medical students encounter in their training may not be idealized beauties revered for their nearly perfect bodies but they're just as far from a representation of the average person as the supermodel.

That's why **Dr. Sean Z. Goodin** proposed developing a new kind of anatomic model to be used in training: a dynamic 3D printed model. These models can easily and inexpensively be altered to simulate body conditions like high or low BMI and produce degenerative pathologies so residents can practice troubleshooting such difficulties.

Like **Dr. Goodin's** proposed 3D printed model project, half of Adopt-A-Resident projects employ technology in innovative ways. Projects also are evenly split between exploring innovations in teaching and training and advancing the quality of clinical practice. Some projects even focus on global health issues.

Dr. Goodin's project has paved the way for other Adopt-A-Resident grantees to leverage 3D printed model technology to enrich training both for residents and for global health partners.

2015

PROJECT
AWARDED

Cloud-Based Teaching Database and PACS for Simulated Medical Student Training

MENTORS

Brent Little, MD, and Stefan Tigges, MD



Frederic Bertino, MD

Dr. Frederic Bertino wanted medical students to have a clinical radiology experience that allows them to create reports, experience how a radiologist thinks, and learn clinical medicine from the other side. Learning to think like a radiologist diversifies the educational experience and translate into better patient care regardless of the student's chosen career path.

Dr. Bertino envisioned medical students working in the reading rooms on their simulated PACS at the same time radiology faculty are interpreting patient images so students get a real feel for image-guided medicine. The simulated PACS has about 120 case files that require student to engage in evidence-based decision-making by reading and interpreting the simulated imaging studies and dictating their findings to the system, all within the radiologists' real work environment.

"This allows students the opportunity to act clinically, feel integrated into the reading room team, and learn the thought process of a radiologist to better prepare them for residency both in and outside of radiology," says **Dr. Bertino**.

2015

PROJECT
AWARDED

Radiology START: Stratified Training in Academic Research and Teaching

MENTORS

Mark Mullins, MD, PhD, and Bruno Soares, MD



Dexter Mendoza, MD

Dexter Mendoza, MD, always enjoyed teaching, so he proposed a track to prepare residents like him for academic medical careers. He was awarded Adopt-A-Resident program funding to create the Clinician-Educator Track, which features seminars and group discussions about learning theories, learning and teaching styles, curriculum development, mentorship, and research. The track's required capstone project germinates additional innovation: for his capstone, **Dr. Mendoza** created a curriculum for building an academic career using teaching and education research. His work resulted in presentations at the Association of University Radiologists 2017 and 2018 conferences plus an article in Academic Radiology.

Dr. Mendoza credits Dr. Mullins plus mentors Ryan Peterson, MD, and Meg Fleming, MD, for his success. He also mentored other residents to ensure a leadership pipeline. **Dr. Mendoza** also inspired other residents to propose additional program tracks.

2014

PROJECT
AWARDED

Investigating the Effect of Multitasking and Interruptions on the Quality and Practice Environment in Radiology

MENTORS

Michael Osipow, MD, and Aarti Sekhar, MD



Drew Streicher, MD

Dr. Streicher realized that interruptions such as clinical consults, phone calls, and protocoling exams are inevitable yet valuable. At the same time, these interactions can increase levels of stress and fatigue, which can impact the quality and efficiency of the radiologist's primary responsibility: imaging interpretation. Through a mutual interest in the topic with his mentors, **Drs. Michael Osipow** and **Aarti Sekhar**, the project idea was developed.

Dr. Streicher identified the types and number of interruptions a radiologist experiences and how these interruptions affected stress levels. He also investigated how thoughtful reading room design could impact the number of interruptions and decrease the need for multitasking.

Additionally, through a unique partnership with the SimTigrate design lab at Georgia Tech, **Streicher** performed a case-control simulation that involved imaging interpretation in two different environments, an interruption heavy and interruption free environment, to determine the effect of multitasking and interruptions on efficiency, report quality, and error rate.

2013

PROJECT
AWARDED

Radiologists as Imaging Consultants: The Challenges and Lessons Learned from Comparing the Roles of Canadian and American Radiologists

MENTOR

Kimberly Applegate, MD, MS



Nima Kokabi, MD

Dr. Kokabi proposed investigating the occurrence of unnecessary imaging examinations across two different healthcare systems: the US and Canada.

During two 2-week elective rotations at a tertiary referral center in Canada, **Kokabi** investigated the utility of various imaging modalities for a specific clinical presentation in a targeted group of patients. The emphasis was on clinicians conforming to available guidelines and the role of radiologists in reducing unnecessary examinations. By surveying both clinicians and radiologists, he was able to map out the working dynamics at both healthcare centers and determine best practices and areas of challenge.

A Resident Quality Assurance Committee has been initiated to investigate practical ways to assess use of medical imaging at Emory and adherence to best practice guidelines. The committee participates in educating trainees in other specialties about evidence-based use of imaging for various clinical presentations.

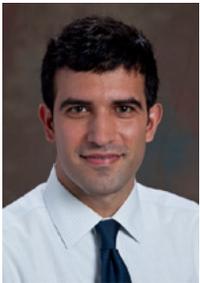
2013

PROJECT
AWARDED

Data Visualization of Diagnostic Radiological Errors

MENTORS

Walt Carpenter, MD, PhD, Travis Henry, MD, and Brent Little, MD



Faramarz Edalat, MD

Dr. Edalat proposed an anonymous, HIPAA-compliant, web-based interface for the storage of residents' diagnostic errors and missed cases as a solution to appropriately share such cases across the residency program. The interface he developed displays the frequency of the most commonly missed diagnoses, has a built-in search engine, and has the ability to organize cases based on diagnosis, section, and modality. While many different programs exist for storing and sharing cases, none has the ability to sort these cases by frequency of missed cases, diagnosis, body section or modality.

Edalat's interface not only is useful as a direct interface for residents, it also can use stored data on residents' usage to suggest areas that residents would benefit from more teaching. Furthermore, given the ACGME mandate for resident quality assurance conferences and feedback, this project can be used to streamline identification of cases for use in such conferences. Future applications of this project include using missed cases for training purposes in a dynamic fashion such as teaching files, simulators and assessments.

2012

PROJECT
AWARDED

Portable Radiology Teaching File

MENTORS

Travis Henry, MD, and Walt Carpenter, MD, PhD



Thomas Loehfelm, MD, PhD

Dr. Loehfelm was awarded a grant to develop a tablet-computer application to make it easy to share medical images for teaching purposes among faculty and residents at Emory and beyond. Radiologists often collect images from interesting cases to share with their colleagues—a remarkable spine MRI, a rare tumor or infection, or a classic radiographic finding. A typical radiologist might accumulate hundreds or thousands of such images on a USB thumb drive, a shared network folder, and/or external hard drive. Tablet computers, like the iPad, provide an ideal platform for such images: nearly every resident has one, and they are portable, internet-enabled, and have high-quality touch-screen displays. All that would be required to make the images usable on tablet-computers would be an application that could retrieve and display these interesting cases, and a platform to allow anyone sitting at a workstation to easily create them. **Loehfelm** has developed a PC program to create shareable tests, cases, and teaching files, and an application for Android tablets. The Android app, RADIANT, has been downloaded more than 1500 times around the world, and he was able to use it to digitize the film library of a hospital in Ethiopia. He plans to translate these programs for the iPad and distribute them to the faculty and other residents.

2011

PROJECT
AWARDED

Radiologists as Anatomists: Improving Gross Anatomy and Radiology Education

MENTORS

**Stefan Tigges, MD, MSCR, and
Walt Carpenter, MD, PhD**



Ryan Peterson, MD

Dr. Peterson received an award from the Adopt-A-Resident Program to incorporate advanced imaging into human anatomy courses. **Dr. Peterson** sought to provide more hands-on learning opportunities in radiology to medical students because “diagnostic and interventional radiology has become an essential part of every patient’s care.” He used cross-sectional CT imaging to scan cadavers to show the importance of radiology for medical planning and management. Peterson secured a workstation capable of rendering 3D images and worked with the directors of the human anatomy course to provide images that mesh with their curriculum. He also worked to integrate radiology into medical education and raise medical students’ involvement in radiation by offering greater access to radiology for medical students.

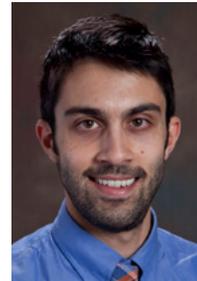
2010

PROJECT
AWARDED

Audience Response System

MENTOR

Ashley Aiken, MD



Neil Shah, MD and

Bryan Yi, MD, MPH

Dr. Yi initiated a project to transform the classroom experience for residents by creating an audience response system that renders didactic lectures interactive. Using this technology, called ResponseWare, enables the lecturer to query all of his/her students at once or to obtain instant feedback. After **Dr. Yi’s** graduation, **Dr. Shah** assumed responsibility for the project. In the past year, **Dr. Shah** has developed tutorials to facilitate the use of ResponseWare. It has been successfully used by many lecturers. **Shah** has created templates to make ResponseWare even more user-friendly.



2010

PROJECT
AWARDED

Diagnostic Radiology in Comprehensive Health Care Clinics and Teaching Hospitals in Nigeria

MENTOR

Yemi Ibraheem, MD



Nnenna Aguocha, MD, MPH

Dr. Aguocha embarked on a funded, month-long international rotation in March, 2012 to Nigeria to examine the role of radiology in primary, secondary, and tertiary health care institutions in Abuja and Jos. In Jos, **Aguocha** provided radiological interpretations for imaging studies performed at nonprofit comprehensive health care clinics, and she organized lectures for radiology residents and faculty at the Jos University Teaching Hospital. In Abuja, she conducted needs assessments and cost/benefits analyses of primary health care clinics and mobile health care units to assess the feasibility of introducing portable ultrasound machines to these clinics, which offer free antenatal care. **Aguocha** hopes that her project will “encourage radiology residents to think of radiology in global terms and to formulate innovative ideas to extend some of the benefits of radiological advances and resources to developing countries.”

2009

PROJECT
AWARDED

Political and Business Influences that Shape Radiology Practice in the US

MENTOR

Carolyn Meltzer, MD, FACR



John Chenevey, MD

Well aware of how political and business influences shape the way radiology is practiced in the United States, **Dr. John Chenevey** used the award to participate in radiology organizations and learn more about critical issues in health care policy. **Chenevey** served as the resident member of the American College of Radiology (ACR) All Members Meeting Steering Committee and the ACR Neuroradiology Commission, as well as participating in the ACR Resident and Fellow Membership Subcommittee. He wrote web articles for the ACR Resident and Fellow Section and contributed to Emory's residency program through newsletter articles, email updates, and noon conferences. In addition to lecturing at the Georgia and South Carolina state radiology society meetings, he also spoke at the American Institute for Radiologic Pathology as the ACR introductory speaker.

2009

PROJECT
AWARDED

Project: International Humanitarian Radiology Elective in Ethiopia

MENTOR

Pat Hudgins, MD, FACR



Ali Tahvildari, MD

Driven by his interest in global health, **Dr. Ali Tahvildari** created an educational partnership with the Addis Ababa University (AAU) Department of Radiology in Ethiopia. **Tahvildari** and his mentor, **Dr. Pat Hudgins**, traveled to Ethiopia to teach at AAU in 2011 and 2012. Together they created the Global Health Radiology Initiative curriculum.

As a part of a joint effort between AAU and Emory to develop a neuroradiology fellowship for the AAU radiology program, Ethiopian faculty has also have served rotations in Emory's neuroradiology division. **Drs. Tahvildari** and **Hudgins** published an article in the July 2012 JACR about their experience, which drew the attention of RAD-AID, a global health imaging nongovernmental organization (NGO) based in The Johns Hopkins University Department of Radiology. **Tahvildari** was invited to speak about his experiences at the RAD-AID annual meeting and collaborated on a chapter on education in RAD-AID's Global Health Imaging Textbook. He has created a sustainable resident elective rotation that continues to draw attention to medical humanitarianism in radiology.

2008

PROJECT
AWARDED

Radiology Podcasting and iTunes U

MENTOR

Mark Mullins, MD, PhD



Jay Patel, MD

The first beneficiary of the Adopt-A-Resident Program, **Dr. Jay Patel** created a virtual library of radiology conferences, lectures, and case studies available as podcasts.

"Podcasting presents a new conduit to quickly provide radiologists with state-of-the-art information about CT and MRI scanners, acquisition protocols, and post-processing of data sets 24 hours a day. The ease of creation and delivery enables the information to be rapidly updated," said **Patel**. These podcasts can be accessed anywhere, even while on the go, moving learning from the library to the computer. Over 150 lectures are now available to Emory residents; these files come in various high-quality formats compatible with desktop computers, iPods, tablets, and other smart devices. Though he has moved on to another institution, current residents continue to create podcasts and refine the application.

Adopt-A-Resident Program

If you wish to discuss support for our department with a member of our development team, please contact Ashley Michaud at 404.778.1250 or ashleymichaud@emory.edu.



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