

# RadiologyUpdate

THE RUSSELL H. MORGAN DEPARTMENT OF RADIOLOGY AND RADIOLOGICAL SCIENCE



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## CHAIR'S MESSAGE



The Johns Hopkins Department of Radiology and Radiological Science ended another great academic year of accomplishments and tackled formidable challenges. As I look back on our successes, I am proud to lead such an amazing group of faculty members, staff members and trainees.

As we advance toward our goal of becoming One Radiology across the health system to provide an integrated care delivery, educational and research model, we have many highlights and achievements from the last year.

### LEADERSHIP CHANGES

This past year, we saw changes in our physician and administrative leadership and are looking forward to the possibilities under these new leaders. Dr. Aylin Tekes stepped into the role as division chief of pediatric radiology and pediatric neuroradiology. Dr. Ihab Kamel is now radiology chair at Johns Hopkins Bayview Medical Center, and Dr. Haris Sair succeeded Dr. David Yousem as division chief of neuroradiology. In addition, Dr. Jenny Hoang joined our department from Duke as our first vice chair of radiology enterprise integration and medical director of Johns Hopkins Medical Imaging. Dr. Sheila Sheth came back to Johns Hopkins to assume the role of ultrasound section chief and associate director of diagnostic radiology. Our Radiological Physics Division is also under the new leadership of Dr. George Sgouros. Additional details about these leaders can be found on page 4.

Our education leadership roles also saw changes. Dr. Lilja Solnes is the Radiology Residency Program director, joined this year by Dr. Tony Lin as the new associate program director. Dr. Erin Gomez

and Dr. Javad Azadi are now directing the medical school radiology elective.

Last year also marked a transition in our administrative leaders. Andrew Menard joined us from the Brigham and Women's Hospital as our chief administrative officer, and we recruited Stacey Baldwin from the Department of Surgery to be our functional unit administrator. In addition, Marty Bledsoe recently retired, and Stacey Baldwin assumed Marty's role as president of Johns Hopkins Medical Imaging.

I am confident that this new generation of Johns Hopkins Radiology leaders will guide our department to new heights and attract additional talented faculty members, trainees and staff members.

### PATIENT CARE

It was another busy year as we expanded our footprint in the ambulatory setting by opening services at Green Spring Station Pavilion III. The new pavilion offers expanded magnetic resonance capacity and brings interventional radiology services to the outpatient setting for the first time. We continue to be busy at White Marsh and Columbia. In addition, Bethesda is undergoing extensive renovations and equipment upgrades. This year will certainly be busy and rewarding.

### RESEARCH

Last year, our department was tremendously successful in procuring grant funding. We received \$44.7 million in new awards last year, which is the highest ever. These awards validate the talent and vision of our faculty and trainees pushing the boundaries of science and discovery.



We have installed state-of-the-art research imaging instrumentation in a brand-new facility opened in September 2019. These new research instruments that will be available for the first time at Johns Hopkins include a simultaneous 7T PET-MR scanner to perform in vivo molecular imaging and a mass spectrometry imaging scanner for molecular analysis of tissues.

Our research faculty received a gold medal from the International Society for Magnetic Resonance in Medicine twice in a row (last year to Dr. Susumu Mori, and this year to Dr. Zaver Bhujwala). I have continued to invest in and support the research efforts of our faculty through the Rad\_BriteStar Awards Program that provides bridge and pilot funding for research. We have continued with the successful tradition of our annual Radiology Research Day. Our research mission continues with exciting momentum, making significant advances in discovery and translation.

## EDUCATION

Last year was also a successful year for trainees. Our radiology department was ranked #1 in *U.S. News and World Report's* best medical school rankings and ranked #6 in *Doximity Residency Navigator*, where nuclear medicine remains ranked #1.

We also launched a new residency in combined interventional radiology/diagnostic radiology and are now in our third year of the combined diagnostic radiology and molecular imaging residency. Our trainees received many national honors and awards, including the 2019 William W. Olmsted Editorial Fellowship for Trainees for Dr. Matt Alvin.

We are looking forward to another great year in radiology. Please enjoy the newsletter and contact me if you have any questions.

Sincerely,

Karen M. Horton  
*Martin W. Donner Professor and Director,  
Department of Radiology  
and Radiological Science*

Mr. Johns Hopkins changed the course of history with one bold stroke of his pen by signing a will that would create The Johns Hopkins University.



### *What Will Your Legacy Be?*

Your support ensures the future of the Russell H. Morgan Department of Radiology and Radiological Science. Consider these opportunities to leave a meaningful legacy while taking into account your personal goals.

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Gifts that cost nothing in your lifetime.

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# New Leaders Will Advance Our Tripartite Mission

**A**s the Russell H. Morgan Department of Radiology and Radiological Science continues to expand, we welcome new faculty leaders appointed in the 2019–2020 academic year. They will advance our tripartite mission of delivering the highest quality of patient care, facilitating groundbreaking discoveries and training the next generation of experts in radiology.



**Jenny Hoang, M.B.B.S.**

Vice Chair of Radiology Enterprise Integration and Medical Director of Johns Hopkins Medical Imaging

Hoang joined Johns Hopkins from the Duke University Health System, where she served in institution leadership roles as the director of head and neck imaging and chair of the Grand Rounds Committee. Hoang graduated with a master's degree in health science from Duke University in 2017 and will complete the final term of an executive M.B.A. at Duke's Fuqua School of Business at the end of 2019.

In her new role at Johns Hopkins, Hoang will focus on how to best support faculty members, staff members and systems as the department continues integrating operations and increasing its clinical presence in the community. "I am excited to be part of a health system and department that are embracing change and leading toward creating a truly integrated radiology enterprise across a complex health system," says Hoang.



**Ihab Kamel, M.D., Ph.D.**

Chair of Radiology at Johns Hopkins Bayview Medical Center

Kamel joined the Johns Hopkins

faculty in 2000 and served as the clinical director of MRI since 2008. He has led significant MRI expansion across the entire Johns Hopkins enterprise, including within the Sheikh Zayed Tower, Skip Viragh Outpatient Cancer Building and Johns Hopkins Medical Imaging. He also led several MRI safety initiatives while maintaining high-quality imaging studies and improving patient access. Kamel is recognized globally for his involvement in radiology associations and multidisciplinary clinical work on complex hepatobiliary and pancreatic cases.

In his new role as chair of radiology at Johns Hopkins Bayview, he oversees and coordinates clinical operations while promoting research, education and high-quality patient care. He looks forward to partnering with multiple subspecialties in providing critically needed patient care,

with a focus on oncology, rheumatology, trauma and geriatrics services. "I am looking forward to being a part of Johns Hopkins Bayview as we transform and modernize the department and the entire campus," says Kamel. "Johns Hopkins Bayview is quickly becoming a center of excellence, and I am developing and fostering partnerships with other directors and enterprise leadership to integrate the timely delivery of high-quality care to our patients and our community."



**Haris Sair, M.D.**

Division Chief of Neuroradiology

Sair is well-known for his work in functional MRI (fMRI) and interdepartmental

collaboration to improve clinical operations and patient safety. He joined Johns Hopkins in 2010 and from 2017–2018 served as interim director of the neuroradiology division. He also serves on the faculty of the Malone Center for Engineering in Healthcare, where he is researching how artificial intelligence (AI) can be better utilized through more quantitative approaches to imaging and neuroradiology. "It's a very exciting time in neuroradiology right now," he says, "especially with the potential that AI holds to improve imaging diagnostics, workflow and patient outcomes."

Sair is dedicated to ensuring that neuroradiology at Johns Hopkins remains at the forefront of research developments, clinical expertise and training.



**George Sgouros,  
Ph.D.**

**Division Chief of  
Radiological Physics**

Sgouros joined Johns Hopkins in 2003 with a research focus on

improving radiopharmaceutical therapy by introducing dosimetry and quantitative imaging with an emphasis on alpha-particle therapy. He is widely recognized for his work in this area and has served on numerous committees related to addressing research problems in radiopharmaceutical therapy.

As the new division chief, Sgouros is working to develop a master's degree program in radiological physics and to establish an integrated, enterprisewide service operations center to provide physics support and quality control for all Johns Hopkins radiology locations. "I also hope to expand the research mission of the division so that members are comfortable bringing quantitative methods and thinking to laboratory-based work and to imaging. This is what physicists excel at," says Sgouros.



**Sheila Sheth,  
M.D.**

**Chief of  
Ultrasound and  
Associate Division  
Chief for  
Diagnostic Imaging**

Sheth returned to

Johns Hopkins to assume this leadership role after a yearlong appointment at New York University. Sheth, who joined the Johns Hopkins faculty in 1986, is recognized nationally and internationally as an authority in ultrasound and for her involvement with numerous radiological society committees.

Her research interests include improving management of thyroid nodules by implementing standardized reporting and management guidelines through close participation with the ultrasound clinical educator. "I am looking forward to leading the effort to harmonize ultrasound services throughout the enterprise and to offering cutting-edge ultrasound technology, such as contrast-enhanced ultrasound and elastography, to our patients," she says.

As the associate division chief for diagnostic imaging, Sheth is committed to developing a strong mentorship program to help junior faculty members achieve their goals in their academic endeavors.



**Aylin Tekes,  
M.D.**

**Division Chief of  
Pediatric Radiology  
and Pediatric  
Neuroradiology**

Tekes is internationally

known for her expertise in neonatal neuroimaging, vascular anomalies and congenital malformations.

She has been a Johns Hopkins faculty member since 2008. She served as deputy director of the division since 2015 and director for the Pediatric Radiology and Pediatric Neuroradiology Fellowship since 2016.

Tekes works closely with the Johns Hopkins Children's Center and is co-director of the neuro-neonatal ICU and neuro-pediatric ICU programs. She focuses on systems-based solutions in clinical operations, such as the work she has done for radiation-free imaging of hydrocephalus in children. She believes clinical excellence is in the front line of our mission, and promotes multidisciplinary conferences and one-on-one consultations. "We set the example," she says, "with the best pediatric radiology services available in large integrated health care systems such as Johns Hopkins." ■



## New expanded services

Johns Hopkins Medical Imaging at Green Spring Station opened in the new Pavilion III in June 2019. This expansion of the campus brings additional imaging services and new equipment including 3T MRI, CT, breast imaging and ultrasound. Within the Johns Hopkins imaging suite is a unique interventional radiology space to provide minimally invasive outpatient procedures in a community setting.



# New Residency Option Matches First Trainees

**T**he radiology residency programs at Johns Hopkins, which offer the most advanced medical imaging facilities and unparalleled patient care and research opportunities, draw top medical school graduates from around the world.

Charged with maintaining the residency programs' excellence are the two directors, **Brian Holly, M.D.**, who heads the interventional radiology residency, and **Lilja Solnes, M.D.**, who leads the diagnostic radiology residency.

This year, the department matched a first class of three residents who are combining both fields to complete a dual interventional radiology/diagnostic radiology program. "They are currently completing their intern year of training and will begin their IR/DR residency in July 2020. The first graduating class of IR/DR residents, who were transitioned from the DR residency program, will complete their training in June of 2021," says Holly.

In the interventional radiology program, radiologists learn to use advanced medical imaging to treat patients with a range of illnesses, from cancer to atherosclerosis to sports injury. The program is intensive and far-reaching, notes Holly. "We do everything from draining a fluid collection to killing a tumor. It's a great learning environment but one that is changing too," he says.

Traditionally, he says, would-be interventional radiologists would complete a one-year internship after medical school, followed by a four-year residency in diagnostic radiology, capped by a one-year fellowship in interventional radiology.

With all the advances in interventional radiology, Holly says, that model is no longer adequate: There is too much to learn in one year of fellowship training.

So, now at Johns Hopkins — as at many other academic medical centers — the interventional radiology program comprises three years of diagnostic radiology and two years of interventional radiology. The advantage for residents is that at the end, they are board certified in both diagnostic and interventional radiology.

"All interventional radiologists get a dual certificate," Holly says.

Solnes says that the distinguishing feature of Johns Hopkins' radiology

programs is that they are heavily focused on hands-on opportunities to complement more traditional didactic educational experiences.

This sort of intensive program, she notes, is well-suited to the high caliber of residents who Johns Hopkins regularly attracts. They demand a rigorous program that will prepare them for leadership.

Residents in the Johns Hopkins diagnostic radiology program enjoy access to all the latest cutting-edge equipment, and they learn from and work beside some of the world's best radiologists to sharpen their skills in a fast-paced environment that sees more



**Residency Class of 2019: From left to right, Program Director Lilja Solnes, Ned Holman, Mikhael Polotsky, Ryan Stephens, Jessica Wen, A.J. Moreland, Karen Clark, Erin Gomez, Vikram Rajpurohit, Neb Adenaw, Jamie Schroeder and Jeremy Hackworth**



From left, Louis Bonacorsi, Brian Holly and Betsy Hu

than its share of rare conditions.

One example of the unique opportunities at Johns Hopkins, Solnes says, is the growing integration of artificial intelligence (AI) into diagnostic radiology. Increasingly, radiologists and computer scientists are teaming up to develop algorithms that assist human specialists in combing images, spotting patterns and making connections that are transforming the field.

In one ambitious collaboration dubbed the Felix Project, for example, Johns Hopkins radiologists are working closely with oncologists and computer scientists to catch pancreatic cancers very early, when they're still operable. Their final product will be a software program that analyzes CT images and flags suspicious areas. It won't replace the radiologist but will be like always having an expert consultant on hand.

"Though AI is still in the early stages in diagnostic radiology, we recognize it will be a force in the future, and our residents will be on that forefront," Solnes says. ■



Laura Fayad

## The Changing World of Musculoskeletal Imaging Oncology

**W**HEN THEY ARE MALIGNANT, bone and soft tissue tumors are devastating. Unfortunately, the more common benign tumors are hard to distinguish from their deadly counterparts, leading to unnecessary biopsies of many tumors that are harmless. **Laura Fayad, M.D.**, chief of musculoskeletal imaging at Johns Hopkins, uses MRI in new ways to change how doctors approach these tumors.

Fayad has developed functional and metabolic imaging techniques from which she can determine malignancy, potentially saving the patient from a biopsy. Furthermore, for conditions that are associated with tumors all over the body, such as neurofibromatosis (the most common congenital neurologic disorder), Fayad and her team have developed whole-body MRI techniques to see the tiny tumors growing on the peripheral nerves. They are able to spot a malignancy amid the vast array of benign tumors that are characteristic of this disease.

"If it's benign, we don't do a biopsy. We follow it or forget it," Fayad says. "These advanced sequences probably save patients a biopsy about 20 percent of the time." Furthermore, Fayad's musculoskeletal imaging team has worked on using her advanced MRI techniques to improve the accuracy of medical interventions, like biopsies and tumor treatments.

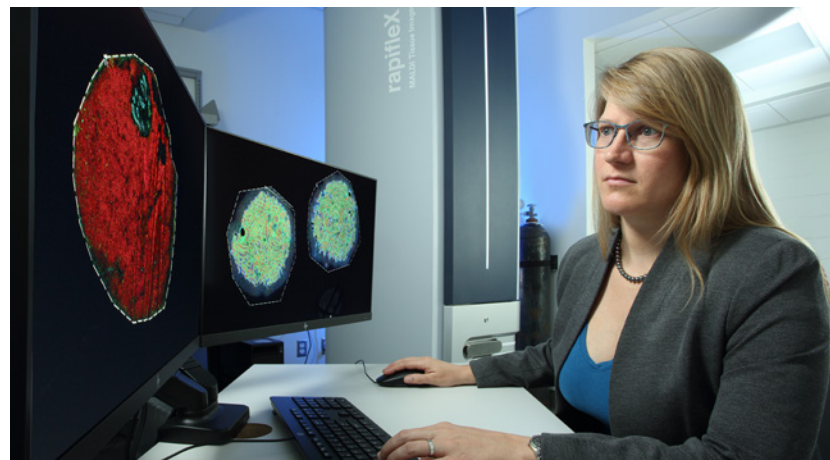
Another burgeoning area in musculoskeletal work is in developing new MRI techniques for imaging prosthetic joints to reduce visual artifacts that have plagued traditional CT and MRI.

"More than 1 million people will get joint replacements in the United States each year. Better imaging will be important for them, and at Johns Hopkins, we have a technique called SMART imaging that uses metal artifact reduction sequences in patients who have had traumas, tumors and arthritis," she says.

Central to any musculoskeletal imaging is the practice of sports medicine. Fayad says the team is capable of the fastest high-resolution scans in the country. Her team worked directly with MRI engineers to optimize image sequencing. "We can see all the tiny important structures in the knee, foot and ankle, the ligaments, tendons and cartilage — and we can do an MRI scan in five to 10 minutes," Fayad says. ■



# New Tools to Advance Research Across Johns Hopkins



From left to right, Rebecca Krimins, Desmond Jacob and Zaver Bhujwala (top), and Kristine Glunde (bottom)

**I**N THE PAST TWO DECADES, perhaps no field of medicine has evolved quite so fast or dramatically as radiology. Fueled by new technologies, ever-faster and smarter computers, and cutting-edge techniques, radiology is at the forefront of diagnostics, intervention and, perhaps most notably, biomedical research. And nowhere is that evolution more apparent than in the Johns Hopkins Department of Radiology and Radiological Science, where several

groups are providing radiological tools to advance research in a wide variety of disciplines across the institution.

**Zaver Bhujwala, Ph.D.**, director of the MRB Molecular Imaging Service Center and vice chair of research for the department, is particularly proud of the newest acquisition in the service center, a positron emission tomography-magnetic resonance (PET-MR) scanner, which combines the best of PET and MR to provide scans that are unparalleled in

their accuracy and spatial resolution. This PET-MR machine, available for the first time at Johns Hopkins, is designed for research studies with animal models.

PET, by itself, is great for detecting radio tracers at very low concentrations to look at molecular expression of receptors, antigens and more. But PET lacks in spatial resolution, exactly where MRI excels. With PET-MR, it is possible to measure metabolism, perfusion and diffusion, among other spatially



significant information, to gain further insights into multiple disease processes.

“With the combination of PET-MR,” Bhujwalla says, “you get structural, functional and molecular information.” The instrument will be available through the service center to all faculty members at Johns Hopkins to advance their research, she notes.

“With PET-MR, we can now see how changes in molecular pathways affect function in a molecular-functional approach. That improves understanding across many areas, ranging from cardiovascular disease to cancer to neurology,” says Bhujwalla.

Not far from the MRB Molecular Imaging Service Center satellite facility, **Kristine Glunde, Ph.D.**, inaugural director of the new Applied Imaging Mass Spectrometry (AIMS) Service Center, is equally proud to discuss impressive new technology, known as matrix-assisted laser desorption/ionization, or MALDI, imaging. It is a form of mass spectrometry, and while MALDI itself is not new to Johns Hopkins, MALDI’s tissue imaging capabilities are.

Having worked in the field for 15 years, Glunde says that MALDI imaging has finally arrived at a point where it now allows for consistently reproducible, high-spatial-resolution, high-throughput and, most importantly, much faster MALDI tissue imaging, which stands to have a profound impact on biomedical research.

“MALDI imaging lets us see actual molecules in the tissue,” she adds. It can detect the presence and location of a drug in the tissue or whether the molecular composition of a tissue has been affected by disease or treatment. “Plus, we’re able to image several biomolecules in one

shot,” Glunde says. “MALDI imaging is highly multiplexed with great spatial resolution too.”

The AIMS Service Center is making this impressive new technology available to all faculty members at Johns Hopkins. Glunde and her team are already working with faculty members in tissue engineering, oncology, biological chemistry, pathology, neurology and radiology to advance their research projects.

**Rebecca Krimins, D.V.M.**, was recently selected to direct the Express Radiology Research Lab, another of the radiology department’s research-specific initiatives. The “express” in the lab’s name refers to the efficiency with which the facility can deliver data, allowing researchers to move research more quickly

into clinical trials.

A research team often consists of multiple faculty members from across departments and can include residents, students, industry personnel and experts from other universities. Simply getting the entire team assembled to be present at any one time is a feat in itself. “Our lab understands these operational complexities, so we collaborate with a researcher and work around their schedule,” Krimins says.

The lab is open to researchers in disciplines across Johns Hopkins who need advanced imaging, such as CT, ultrasound, PET-CT or magnetic resonance imaging. This includes the vast array of medical specialists working on all Johns Hopkins campuses who are designing new equipment or procedures that require radiological imaging.

“You provide the objective; we provide the imaging equipment. We’re here for everyone at Johns Hopkins,” says Krimins, who is a veterinary anesthesiologist by training. Since studies in her lab frequently involve large-animal models, her expertise ensures animal safety and comfort as well as compliance to university, state and federal regulations.

For Krimins, the big message about the Express Radiological Research Lab is its mission: By expediting animal studies, the lab more quickly delivers diagnostics, equipment and therapies that can be translated into practical medical applications to help those who suffer from injury or disease — be it a cruciate ligament tear or cancer.

“We’re eliminating hurdles so that scientists and researchers can focus on what matters: quickly identifying better ways to heal patients,” Krimins says. ■

## MPI SCANNER MAKES ITS DEBUT

Thanks to a successful National Institutes of Health S10 shared instrumentation grant awarded to **Jeff Bulte, Ph.D.**, the first magnetic particle imaging (MPI) scanner on the East Coast will be installed on the Johns Hopkins Hospital/Kennedy Krieger Institute campus. MPI is a revolutionary modality with unique benefits for cutting-edge molecular and cellular imaging research. Its ultrahigh sensitivity allows for direct visualization and quantitation of magnetic nanoparticles where the iron oxide formulation is a tracer instead of using contrast agents. Bulte has partnered with 11 investigators across Johns Hopkins and the Kennedy Krieger Institute for interdisciplinary, precision imaging-based projects. ■

# ALUMNI RECEPTIONS

## The Johns Hopkins Radiology Alumni Reception at RSNA

In November 2018, the Russell H. Morgan Department of Radiology and Radiological Science held its annual alumni reception at R29 in the Franklin building in Chicago. The gathering reflected the ever-growing size, diversity and strength of the Johns Hopkins radiology community.

A global network of alumni were in attendance, as were numerous Johns Hopkins faculty members, residents and fellows, to stay connected with the department.

**Save the Date:**  
Tuesday, December 3, 2019,  
at R29 at the Franklin



## The Johns Hopkins Alumni Cocktail Reception at SIR

The Division of Interventional Radiology in the Russell H. Morgan Department of Radiology and Radiological Science held its annual alumni reception in March 2019, at the Four Seasons in Austin. The event was an opportunity for alumni, current faculty members, residents and fellows to catch up and network with former colleagues and friends.

**Save the Date:**  
Tuesday, March 31, 2020,  
in Seattle



1. Ihab Kamel, Emily Lee, Kelvin Hong and Clifford Weiss  
2. Jeff Bulte and Roxana Ansari

3. Satomi Kawamoto and Ulrike Hamper  
4. Anthony Venbrux, Lisa Ignacio, Douglas Yim and Kelly Van Epps

5. Robert Liddell, Christos Georgiades, Mandeep Dagli, Aravind Arepally, John Statler and Harjit Singh  
6. Brian Holly and Kelvin Hong



# Pushing the Boundaries with Angiography

BY BOB GAYLER

**J**OHNS HOPKINS' IMAGING HERITAGE includes many things that are today just footnotes. The development of angiography took long and steady work as radiologists, technologists, nurses, physicists and engineers pushed the boundaries of image clarity while always keeping in mind patient care and safety.

In the 1950s, intracerebral vessel imaging used to be done through direct carotid artery injections with steel needles. The two types of needles were Seldinger and Cournand, and they both had pointed stylets. Placement would be based on palpation, and then the stylet would be removed, arterial flow observed and the connection to short tubing with stopcock done. A saline flush followed, with a manual test injection of 2–3 cubic cm of iodine contrast with a test film. This was without fluoroscopy, so the film was developed with either hand

development or seven-minute automatic processing.

During the automatic processing, a saline flush was necessary to prevent clot formation at the needle tip. If the test injection showed good placement, then the diagnostic injection of 10–12 cubic cm of contrast could be done with filming. The contrast medium was usually methylglucamine diatrizoate.

Aortoiliac vessel with femoral runoff angiography was done with a translumbar approach. This could be quite anxiety-provoking, as there was no post-needle withdrawal compression, but the retroperitoneal connective tissues stopped blood flow. The noncatheter needle placement would be done without fluoroscopy and used a 7-inch-long, 17 g Dos Santos needle, which had two side holes near the tip, with a pointed, closed tip to avoid an intramural injection.

As a note, syringes in the 1950s were

glass. The smallest syringe with the desired volume was favored, as it could provide more pressure and a faster injection. Sometimes, if the radiologist was very strong, these glass syringes would break. At Johns Hopkins, the machine shop made a stainless steel syringe, now on historical display on the third floor of the Johns Hopkins Outpatient Center.

The equipment and techniques that were once relied on so heavily are now long obsolete. Johns Hopkins' new Interventional Radiology Residency Program shows the breadth of new, precise procedure options available to patients. Still, even in 2019, with the department spread across eight locations with state-of-the-art imaging modalities and full radiochemistry and cyclotron facilities, it is important to remember that the department continues to build on the achievements started in the 1950s. ■



Olga Baghdassarian Gatewood, M.D., and Charlotte Godwin, R.N., preparing for an angiogram, about 1960.

The Russell H. Morgan Department of Radiology and Radiological Science recently launched an interview series, "A Legacy Retrospective," with former Johns Hopkins Radiology faculty members. Watch the first interviews with Dr. Bob Gayler and Dr. Stanley Siegelman interviewed by Dr. Mahadevappa Mahesh at: [www.hopkinsmedicine.org/radiology/our-team/legacy.html](http://www.hopkinsmedicine.org/radiology/our-team/legacy.html)

## Elliot K. Fishman, M.D. Professorship Dedication

**T**HE ELLIOT K. FISHMAN, M.D. Professorship in Radiology was established in the Russell H. Morgan Department of Radiology and Radiological Science in 2018 by the generosity of multiple donors led by an anonymous donor, as well as Jensen Huang, CEO of Nvidia, and Edwin Catmull, Ph.D., a co-founder of Pixar and president of Disney Animation Studios, in honor of their lifelong friendship with Dr. Fishman.

Dr. Fishman has worked with the lead donors over the course of his career in developing new techniques and technologies in visualization, 3D imaging, and most recently cinematic rendering. It is the donors' wish that Dr. Fishman's legacy and commitment to innovation continue in perpetuity in order to ease pain, provide hope and save lives. Their investment will have a transformative impact on the lives of patients for generations to come.

More than 100 colleagues, family and friends attended the professorship dedication ceremony on Oct. 15, 2018, to witness the installation of Dr. Fishman as the inaugural recipient. Fittingly, the ceremony was held in the William H. Welch Medical Library, in front of the 1906 John Singer Sargent portrait of Johns Hopkins' four founding doctors: William Welch, William

Stewart Halsted, William Osler and Howard Kelly. These pioneers laid the foundation that has fostered Johns Hopkins Medicine's distinctive creative and innovative environment for medical discovery.

Throughout his career, Dr. Fishman has embodied this spirit.

Radiologists play a critical role in the diagnosis, care and treatment of patients, and as a radiologist, Dr. Fishman has impacted and directed the care of countless patients and saved many lives. He is consistently ranked as a top radiologist among the more than 54,000 radiologists worldwide.

"To have my name forever linked to the Department of Radiology in perpetuity is an honor, alongside Russell Morgan, Martin Donner, Bill Brody and others," he says. "The dedication ceremony highlighted the importance of meaningful friendships."

Dr. Fishman serves as director of diagnostic imaging and body CT in the Department of Radiology and Radiological Science and professor of radiology, surgery, urology and oncology at Johns Hopkins. His career has encompassed several main areas, including computer applications in radiology, advanced clinical applications of CT scanning and medical education. He became involved in the development



Elliot Fishman and Karen Horton



Paul Rothman, Elliot Fishman and Ronald Daniels



**"The importance of an endowed professorship cannot be overstated, as it is often critical in recruiting and retaining our top faculty, and it helps us maintain our continued excellence, as exemplified by Elliot Fishman, the inaugural holder."**

—KAREN HORTON





**Whitney Zember, John Cameron, Elliot Fishman, Jim and Eva Zinreich, and Ron Zember**

of 3D medical imaging in the mid-1980s and continued his work in the field with Pixar, Apple and Nvidia. Over the past 30 years, he has helped develop 3D imaging to its current status as an important clinical tool.

He has also been a leader in developing new applications for CT, including CT angiography for vascular and oncologic applications. Dr. Fishman serves as principal investigator of the Felix Project for Early Detection of Pancreatic Cancer, focused on using deep learning and artificial intelligence for medical imaging. His work in CT has resulted in more than 1,300 peer-reviewed publications, and he has co-authored 10 textbooks. His research team has been one of the leading groups in developing new techniques and technologies in visualization, post-processing and education.

Dr. Fishman has expertise in computer- and web-based education. He developed the website [www.ctisus.com](http://www.ctisus.com), which has more than 300,000 users, as well as its Facebook, Instagram and Twitter versions, which have more than 1 million followers from over 190 countries. Dr. Fishman and his team

have also developed 16 programs for the iPad and eight for the iPhone for the App Store. For the past three decades, he has been the co-founder of HipGraphics Inc., a leader in 3D software development.

The dedication ceremony featured remarks from Catmull; Huang; Ronald Daniels, president of The Johns Hopkins University; Paul B. Rothman, M.D., the Frances Watt Baker, M.D., and Lenox D. Baker, Jr., M.D. Dean of the Medical Faculty and CEO of Johns Hopkins Medicine; and Karen M. Horton, M.D., the Martin W. Donner Professor of Radiology and director of the Russell H. Morgan Department of Radiology and Radiological Science.

“We are truly honored to have the Fishman Professorship in the Department of Radiology,” noted Dr. Horton. “An endowed professorship provides the stability and flexibility needed for



**Elliot Fishman, Ed Catmull and Jensen Huang**



**Whitney Zember, Elliot Fishman and Torrey Fishman**

our faculty to take advantage of the important opportunities for innovation, research and treatment of patients. The importance of an endowed professorship cannot be overstated, as it is often critical in recruiting and retaining our top faculty, and it helps us maintain our continued excellence, as exemplified by Elliot Fishman, the inaugural holder. Most importantly, this is a significant way to celebrate Elliot’s accomplishments in the department and the field of radiology.”

Throughout his career, Dr. Fishman has been an innovator who has helped to redefine radiology and reimagine a better future for patients and their families. His extraordinary career has been defined by technical brilliance, innovative thinking, collaboration with other disciplines and a determination to seek a better approach. ■

Gifts in honor of Dr. Elliot K. Fishman can be made to **“The Fishman Professorship”** and sent to the: Russell H. Morgan Department of Radiology and Radiological Science, Johns Hopkins Medicine, 550 N. Broadway, Suite 701 B, Baltimore, MD 21205. Or give online at [www.hopkinsmedicine.org/radiology/ways-to-give/](http://www.hopkinsmedicine.org/radiology/ways-to-give/)

# Inaugural Stanley S. Siegelman, M.D. Resident Award

IN JUNE 2019, THE RUSSELL H. MORGAN Department of Radiology and Radiological Science celebrated the inaugural Stanley S. Siegelman, M.D. Resident Award supported by the Stanley S. Siegelman, M.D. Leadership Fund. The award is being presented annually to a radiology resident who performs at a high level of excellence and embodies Dr. Siegelman's commitment to education, training and academic scholarly achievements.



Dr. Siegelman, professor emeritus since 2011, presented the inaugural award to **Erin N. Gomez, M.D.**, during radiology graduation. Dr. Gomez received her bachelor's degree from the Florida Institute of Technology. She then earned her medical degree at the Johns Hopkins University School of Medicine, where she completed her residency in

radiology. Numerous Johns Hopkins residents, fellows, faculty members and patients have benefited from his knowledge and dedication.

As a clinician, researcher, scientific editor and teacher, Dr. Siegelman was active at the inception of many of the major advances in imaging, including CT. In 1977, he directed Johns Hopkins' first body CT scanner program, and used the new technology to image and describe many medical conditions for the first time.

Editor of *Radiology* from 1986 to 1998, Dr. Siegelman has been credited with developing the publication into the premier scientific journal for diagnostic radiologists. In addition, he is a founding member of the International Skeletal Society and the Society of Cardiovascular Radiology. In 1986, Dr. Siegelman served as chair of the executive committee of the American Roentgen Ray Society, and in 1987, he served as president of the Society of Computed Body Tomography and Magnetic Resonance. The Radiological Society of North America awarded its prestigious Gold Medal to Dr. Siegelman in 1992.

A distinguished speaker, Dr. Siegelman has delivered 25 named lectures and, in 2001, received the Gold Medal from the American Roentgen Ray Society. He was also awarded a Gold Medal from the Chicago Radiological Society and from the Society of Computed Body Tomography and Magnetic Resonance. Dr. Siegelman has been granted honorary memberships in the European Society of Radiology, French Society of Radiology and German Radiological Society.

In addition to his contributions to advancements in radiology, Dr. Siegelman exemplifies what it means to be a professor, with his energy, enthusiasm and love for teaching residents and medical students. In 1976, he was awarded the George J. Stuart Award, given annually to an outstanding teacher of clinical medicine at Johns Hopkins. Dr. Siegelman continues to teach medical students and researchers. In 2018, he was named Teacher of the Year in the Division of Pulmonary and Critical Care Medicine in the Department of Medicine at Johns Hopkins.

The department is deeply grateful to Dr. Siegelman and to all of the generous donors to the Stanley S. Siegelman, M.D. Leadership Fund for their investment in this important



radiology. She served as chief resident for the diagnostic radiology class of 2019 and continues at Johns Hopkins as a fellow in body magnetic resonance. Dr. Gomez will join the Johns Hopkins faculty in 2020.

During the graduation ceremony, Dr. Siegelman was acknowledged for his distinguished career and his contributions to the department and the field of



educational resource. The ultimate goal of the Siegelman Leadership Fund is to raise \$2.5 million to fully fund an endowed chair in Dr. Siegelman's honor. The Siegelman Professorship will be an important resource in attracting and retaining superb faculty members who will make significant contributions to resident education and to strengthening the academic foundation of our specialty. Please consider supporting the Siegelman Leadership Fund so we may build this important endowment and honor Dr. Siegelman's legacy in radiology. ■

Gifts in honor of Dr. Stanley S. Siegelman can be made to **The Stanley S. Siegelman, M.D., Leadership Fund** and sent to the Russell H. Morgan Department of Radiology and Radiological Science, Johns Hopkins Medicine, 550 N. Broadway, Suite 701B, Baltimore, MD 21205. Or give online at [www.hopkinsmedicine.org/radiology/ways-to-give](http://www.hopkinsmedicine.org/radiology/ways-to-give)

## CONVERSATION SERIES

### Leading Change: Perspectives from Outside of Medicine

THE RUSSELL H. MORGAN DEPARTMENT OF RADIOLOGY AND RADIOLOGICAL SCIENCE presented another installment of the series "Leading Change: Perspectives from Outside of Medicine." The series invites business leaders to speak to the Johns Hopkins community about their expertise offering high-quality services and experiences to customers, and how that can be translated to medicine. We welcome your attendance at future lectures.

For more information, please contact **Stephanie Blackwood** at 410-955-5173 or [sblack29@jhmi.edu](mailto:sblack29@jhmi.edu). ■

## 2019–2020 Lecture Series:

**Laurel Taylor**  
*Founder and CEO of Future Fuel.io, "The Accidental Consequences of Student Debt"*

**Travis Montaque**  
*CEO of Holler, "The Future of Digital Communications, AI, and your Privacy"*

**Oz Woloshyn and Karah Preiss**  
*Woloshyn is an Emmy- and Peabody-award winning host and producer, Preiss is a content producer based in New York City, "Found in Translation: Unpacking the A.I. Revolution That Has Already Arrived"*

**Dr. John L. Cameron**  
*Alfred Blalock Distinguished Service Professor of Surgery, Johns Hopkins, "Leadership"*

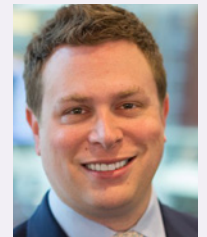
Additional speakers for winter/spring 2020 will be announced.

All lectures are held in the Chevy Chase Bank Conference Center located in the Sheikh Zayed Tower, 1800 Orleans St., Baltimore, MD 21287. The conversations start promptly at 5 p.m. and are followed by a question-and-answer session.

## 2018–2019 Lecture Series:



**David Isbitski**  
*Chief Evangelist for Alexa and Echo at Amazon, "Learning to Talk Again in a Voice First World"*



**Keith Grossman**  
*Global Chief Revenue Officer at Bloomberg Media, "Change Management"*



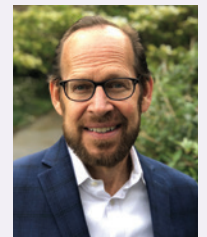
**Elli Kaplan**  
*CEO at Neurotrack, "Disrupting Alzheimer's with Technology: Using Data to Forge a Solution"*



**Mark Larkin**  
*Executive Vice President and General Manager at CNET Media Group, CBS Interactive, "The Next Topic for Digital Tech Publishing"*



**Eric Becker**  
*Founder and Co-Chairman at Cresset Capital, "The Entrepreneurial Mindset: A Framework for Problem-Solving and Creativity at Work and in Life"*



**Jim Traficant**  
*Accenture Managing Director of Federal Health, "Healthcare Transformation from the Outside In"*

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*Radiology Update* is published by the  
Russell H. Morgan Department of  
Radiology and Radiological Science  
of the Johns Hopkins University  
School of Medicine.

[hopkinsmedicine.org/radiology](http://hopkinsmedicine.org/radiology)

**Karen M. Horton, M.D.**

Martin W. Donner Professor  
and Director  
Department of Radiology and  
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**The Johns Hopkins Hospital**

**Johns Hopkins Bayview  
Medical Center**

**Suburban Hospital**

**Sibley Memorial Hospital**

### DOXIMITY

Each year, Doximity and *U.S. News & World Report* rank U.S. residency programs based on input from alumni that you can read about here:

[bit.ly/1UOaHSb](http://bit.ly/1UOaHSb), along with

comments from current residents or recent graduates. Read the great things that our trainees are saying about the Johns Hopkins diagnostic radiology program [bit.ly/2xwdESp](http://bit.ly/2xwdESp). If you would like to participate in this process in the future, simply register as a Doximity member at this link:

[bit.ly/2PN3Yu7](http://bit.ly/2PN3Yu7).

### Ways to Give...

For those interested in making a tax-deductible contribution in support of any program or research project in the Russell H. Morgan Department of Radiology and Radiological Science, please contact the Development Office at 443-287-7958 or [cvera3@jhmi.edu](mailto:cvera3@jhmi.edu), or visit [hopkinsmedicine.org/radiology](http://hopkinsmedicine.org/radiology).

If you are an alumnus of Johns Hopkins Radiology and you would like to receive the latest news, please send your email, phone number and mailing address to [cvera3@jhmi.edu](mailto:cvera3@jhmi.edu). Also, if you prefer not to receive mail from us moving forward, let us know and we will promptly remove you from our mailing list.