



# RSNA Research & Education Foundation

## New Grants Approved for Funding

2020

### RESEARCH SCHOLAR GRANT

*The Foundation's premier career development grant transitions junior faculty to independent investigators. Funding protects research time to conduct complex projects under the guidance of a mentor and scientific advisor in preparation for NIH funding. Two-year grant of \$150,000.*

**Harrison X. Bai, MD** | Rhode Island Hospital  
*Deep Learning-based Response Assessment and Outcome Prediction for Transarterial Chemoembolization Treatment of Hepatocellular Carcinoma*

**Joseph M. Caster, MD, PhD** | University of Iowa  
*Utilizing Hypofractionated Radiation, PARP Inhibition, and T-cell Checkpoint Inhibitors to Stimulate Adaptive Anti-tumor Immune Responses in Colorectal Tumor Models*

**Benjamin H. Kann, MD** | Massachusetts General Hospital  
*An Imaging-based, Artificial Intelligence-driven Platform for Pretreatment Identification of Extranodal Extension in Head and Neck Cancer*

**Iman Khodarahmi, MD, PhD** | New York University  
*Optimization of the Radiofrequency Pulse Polarization for Reduction of Metal Related Artifacts in 3T Magnetic Resonance Imaging of the Hip Arthroplasty Implants*

**Andreas M. Rauschecker, MD, PhD** | University of California, San Francisco  
*Human-interpretable AI-based Quantitative Metrics for Primary CNS Lymphoma Prognosis*

**Hersh Sagreiya, MD** | University of Pennsylvania  
*Automated Hepatic Fat Quantification Using Machine Learning*

**Hiram Shaish, MD** | Columbia University  
*Utility of Multiparametric MRI with Advanced Sequences and Radiomics for Predicting Success of Sperm Fine-needle Aspiration (FNA) Mapping in Patients With Non-obstructive Azoospermia*

**Sreeharsha Tirumani, MBBS, MD** | University Hospitals Cleveland Medical Center  
*Integrating ADC Values and MR Fingerprinting With Clinical Parameters in the Evaluation of PI-RADS 3 Lesions: Utility in Predicting Clinically Significant Prostate Cancer*

**Brent D. Weinberg, MD, PhD** | Emory University  
*Automated Longitudinal Imaging Tracking Tools to Guide Clinical Decision Making in Brain Tumor Patients*

## RESEARCH SEED GRANT

*Every great discovery starts with a spark. This grant provides seed money to test hypotheses and conduct pilot studies in preparation for major grant applications to corporations, foundations, and government agencies. One-year grant of up to \$40,000.*

**John Conklin, MD, MSc** | Massachusetts General Hospital

*Optimization and Clinical Evaluation of a 2-minute Brain MRI Exam for Evaluation of Acute Intracranial Pathology in Emergency and Inpatient Settings*

**Steven Y. Huang, MD** | The University of Texas M.D. Anderson Cancer Center

*Development of a Bioresorbable Mesenchymal Stem Cell-loaded Radiopaque Polymer to Improve Rates of Arteriovenous Fistula Maturation and Long-term Patency*

**Maxim Itkin, MD** | University of Pennsylvania

*Quantification of Lymph Flow in the Thoracic Duct Using Dynamic CT Lymphangiography*

**Stephanie Y. Jo, MD, PhD** | University of Pennsylvania

*DOT1L and Osteoarthritis: Towards a Precision Medicine Approach to Osteoarthritis*

**Dae Hee Kim, MD** | Memorial Sloan Kettering Cancer Center

*Interplay of Circulating Effector T-cell Populations in the Systemic Tumor Microenvironment After Liver-directed Locoregional Therapies on Metastatic Melanoma*

**Ryan M. Kohlbrenner, MD** | University of California, San Francisco

*Pharmacokinetic Comparison of Selective Prostatic Arterial and Intravenous PSMA Radioligand Infusions in Treatment-naïve Prostate Cancer Patients*

## RESEARCH RESIDENT/FELLOW GRANT

*This grant provides investigators a chance to explore powerful ideas. Working alongside an experienced advisor, trainees gain insight in research methods and techniques; it is a catalyst to pursue research at a critical point in a radiologist's career. One-year grant of \$30,000/\$50,000.*

**Julie Y. An, BS** | University of California, San Diego

*Using Electronic Alerts to Improve Compliance of Imaging-based HCC Surveillance in At-risk Patients: A Prospective, Randomized Controlled Trial*

**Evan DC Calabrese, MD, PhD** | University of California, San Francisco

*MR Imaging Deep Learning and Radiomics Features for Guiding Individualized Therapy in Diffuse Gliomas*

**Christopher D. Malone, MD** | Washington University in St Louis

*Harnessing Cerenkov Emission From Yttrium-90 (Y-90) as a Source of Photodynamic Therapy to Enhance Radioembolization for Liver Tumors*

**Eric D. Miller, MD, PhD** | The Ohio State University

*Utilization of Dynamic Digital PET for Prediction of Histopathologic Response Following Neoadjuvant Chemoradiation for Esophageal Cancer*

**S. Ali Nabavizadeh, MD** | University of Pennsylvania

*Dynamic Contrast-enhanced and Ferumoxytol-enhanced MRI to Predict the Reliability of Circulating Tumor DNA Detection in Adult Patients with Glioblastoma*

**Amanda R. Smolock, MD** | The Medical College of Wisconsin, Inc

*Histotripsy as a Technique for Vein Occlusion*

**Joseph N. Stember, MD, PhD** | Memorial Sloan Kettering Cancer Center

*Eye Tracking with Speech Recognition to Semi-automate Deep Learning from Clinical Interpretation: Application to Brain Metastases*

**Shamar J. Young, MD** | University of Minnesota

*Immunomodulatory Effects of Radioembolization: A Prospective Study of Peripheral Monocyte Modulation, Immune Cell Infiltration, and Cytokine Variation*

**Jason Chiang, MD, PhD** | University of California, Los Angeles

*Computational Modeling of Combination Transarterial Embolization and Microwave Ablation Therapy Using 4D Flow MRI in an in Vivo Porcine Liver Model*

**Alan Chu, MD, PhD** | University of Pennsylvania

*Improved Localization and Quantification of Disease in Frontotemporal Lobar Degeneration With High-resolution MRI at 7 Tesla*

**Brendan C. Cline, MD** | Duke University  
*Safety and Endocrine Sequelae of Particle Embolization of the Pancreas in a Porcine Model*

**Philip G. Colucci, MD** | Joan & Sanford I. Weill Medical College of Cornell University  
*Ultra-high Resolution Magnetic Resonance Neurography: An Interactive Atlas of the Brachial Plexus and Upper Extremity Peripheral Nerves*

**Mohammad Fakhri, MD** | Washington University in St Louis  
*Improving Resting-state fMRI Localization Precision for Presurgical Eloquent Cortex Mapping*

**Joseph A. Frankl, MD** | University of Texas Southwestern Medical Center  
*Comparison of Quantitative Molecular Imaging to a Tissue-based Gold Standard for Brown Adipose Tissue Activity*

**Colbey W. Freeman, MD** | University of Pennsylvania  
*Detection of Brain Perfusion Abnormalities in a Porcine Model of ECMO With Contrast-enhanced Ultrasound*

**Peter Goff, MD, PhD** | University of Washington  
*DNA Damage Response Inhibitors & Radiation for Merkel Cell Carcinoma Immunogenic Cell Death*

**Brian Hurt, MD, MS** | University of California, San Diego  
*Probabilistic Visual Augmentation of Radiographs: Enhancing Physician Interpretation with Deep Learning*

**Angela Y. Jia, MD, PhD** | Johns Hopkins University  
*A Pilot Study of HPV E7-specific Soluble T-cell Receptor Radiopharmaceutical Therapy*

**Matthew D. Li, MD** | Massachusetts General Hospital  
*Automated Assessment of Change in Pulmonary Edema on Chest Radiographs Using a Siamese Neural Network*

**Ece Meram, MD** | University of Wisconsin, Madison  
*A Quantitative Angiographic Technique for Characterizing Flow Through Normal and Stenotic Iliofemoral Arteries*

**Christopher L. Newman, MD, PhD** | Indiana University School of Medicine  
*Assessing Cortical Bone Porosity With Magnetic Resonance Imaging in Animals with Chronic Kidney Disease*

**Charlie C. Park, MD, MS** | Emory University  
*Assessment of Hemodynamic Flow Patterns in Patients with Internal Carotid Webs Compared to Patients with Atherosclerotic Plaques: A 4D Flow MRI Study*

**Kelli B. Pointer, MD** | University of Chicago  
*Non-canonical NF- $\kappa$ B Signaling Promotes Faster Tumor Growth and Metastases that can be Inhibited Through Blockade of p52 Signaling*

**Thomas A. Reher, MD** | University of Wisconsin  
*Multi-compartment Diffusion Weighted Imaging Across the Lifespan in Healthy Aging and Alzheimer's Disease*

**Quaovi H. Sodji, MD, PhD** | Stanford University  
*The Complement C3a Inhibits Natural Killer Cell Cytotoxic Activity and Infiltration into the Tumor Microenvironment of Pancreatic Cancer*

**Jae Ho Sohn, MD** | University of California, San Francisco  
*Longitudinal Risk Stratification of Pulmonary Nodules in National Lung Cancer Screening Data Using Gated Recurrent Unit*

**Jennifer A. Stanley, MD, PhD** | Washington University in St Louis  
*Exploiting Radiation Induced Anti-tumor Immunity in Advanced-stage and Metastatic Ovarian Cancer*

**Lisa Sudmeier, MD, PhD** | Emory University  
*Characterization of Cd8+ T-cells in Brain Metastases and Correlation with Response to Stereotactic Radiosurgery*

**Veena Venkatachalam, MD, PhD** | Massachusetts General Hospital  
*Using Live Cell Fluorescence Microscopy to Study the Effect of Common p53 Mutations on Cell Fate in Response to Ionizing Radiation*

## RESEARCH MEDICAL STUDENT GRANT

*Exposure to radiology research in medical schools ignites a passion for the specialty. With support of the community and a network of mentors, a summer project can turn into a career-long pursuit of research and discovery. Grant of \$3,000, matched by the sponsoring department.*

**Bitu Behrouzi** | Geisel School of Medicine at Dartmouth  
*Prognostic Value of Longitudinal MRI Radiomic Features in Glioblastoma Before, During, and After Radiation Therapy*

**David Cao** | University of Chicago  
*CT Radiomic Features of Lymph Node Metastases in Head and Neck Cancer*

**Nathan Chai** | Yale University  
*A Machine Learning Model for the Prediction of HCC Recurrence After Thermal Ablation Using Imaging and Clinical Features*

**Shin Mei Chan, BS** | Yale University  
*Virtual Reality for Interventional Radiology: Global Training Applications*

**Kevin Chen, BS** | The Washington University  
*Urine Tumor DNA as a Biomarker for Bladder-sparing Approaches to Muscle-invasive Bladder Cancer*

**Monica Cheng** | Indiana University School of Medicine  
*Novel Molecular Imaging Approach for Whole Body Tumor Perfusion Assessment*

**Rachel Choi** | Yale University  
*Deep Learning Derived Imaging Biomarkers for Breast Cancer Outcomes*

**Corbin D. Ester** | Massachusetts General Hospital  
*Deep Learning for Determining Diagnostic Image Quality and Hip Alignment on Ultrasound of Infants With Suspect Developmental Dysplasia of the Hips (DDH)*

**Feyisope R. Eweje, BS** | University of Pennsylvania  
*Deep Learning Model for MR-based Classification of Bone Lesions: Extensions to Clinical AI Applications*

**Alexey Gurevich, BS, MS** | University of Pennsylvania  
*Characterization and Modulation of the Embolic-associated Immune Landscape Within Hepatocellular Carcinoma*

**Celina Hsieh** | Rhode Island Hospital  
*Deep Learning for Fully-automated Assessment of Treatment Response Following Trans-arterial Chemoembolization for Hepatocellular Carcinoma*

**Tina Q. Huang** | University of California, Los Angeles  
*Cost-effectiveness of Surveillance Versus Prophylactic Cranial Irradiation for Extensive-stage Small Cell Lung Cancer*

**Prayash Katlariwala, BSC** | University of Alberta  
*Inter-reader and Intra-reader Reliability of the O-RADS Risk Stratification and Management System Amongst Less Experienced Radiologists Practicing in a North American Institution*

**Young Joon Kwon, BS, MS** | Icahn School of Medicine at Mount Sinai  
*Machine Learning Based Compression Algorithm for Greater Public Health Outreach of Radiological Resources*

**Kaitlynn J. Motley, BS** | University of Maryland  
*Predicting Outcome After Renal Trauma Using Voxelwise Measurements of Laceration and Associated Bleeding Features*

**Brennan Olson, BA** | Oregon Health & Science University  
*Establishment and Validation of Cervical Vertebrae Muscle Wasting as a Marker of Sarcopenia for Patients with Head and Neck Cancer*

**Leland Pung, MEng** | Duke University  
*Evaluation of Automated Vessel Detection Software for Upper and Lower GI Bleeds*

**Simone Raiter** | Rosalind Franklin University  
*Creating a Timeline of Immune Response to DEB-TACE to Optimize Combined Therapy with Immune Checkpoint Blockade in an Animal Model of HCC*

**Diwash Thapa, BS** | University of North Carolina  
*Development of a Low Dose 3D Spinal Imaging Prototype with Carbon Nanotube X-ray Sources*

**Thi My Linh Tran, BS** | Warren Alpert Medical School of Brown University

*Prediction of Outcomes of Acute Ischemic Stroke Based on CT Angiography (CTA) and Digital Subtraction Angiography (DSA) before Mechanical Thrombectomy Using Machine Learning*

**Nathan M. Velarde** | University of California, San Francisco

*Determining Predictors of When Systematic Transrectal Ultrasound Guided Biopsy Adds Value to the Detection of Clinically Significant Prostate Cancer*

**William D. Wagstaff, Jr** | University of Chicago

*Elucidating the Impact of Short Regulatory RNA on Acquired Vemurafenib Resistance and Radiosensitivity in Human Melanoma Cell Lines*

**Ryan Wahidi** | Washington University in St. Louis

*Quantification of PCR in Peripheral Muscle Using Cest for Patients With Type II Diabetes Mellitus*

**Alexander D. Wong, BSc, MPH** | Dalhousie University

*Development and Validation of a Deep Machine Learning Tool for Automated Intraventricular Hemorrhage Segmentation and Volume Measurement Using 3D Convolutional Neural Networks*

**Ianto L. Xi** | University of Pennsylvania

*Deep Learning for Differentiation of Steatohepatitis and Steatosis*

**Maria Zhu, MSc** | University of British Columbia

*Assessment of CT Perfusion Software at Variable Acquisition Times to Predict Final Infarct Volume*

## **EDUCATION DEVELOPMENT GRANT**

*To enhance education for the benefit of radiology faculty as educators and radiologists or radiology support personnel through creation of educational content, educational products or other innovative means. Grants from \$30,000 (minimum) to \$75,000 (maximum) per year for up to 3 years projects are available.*

**Andrea S. Doria, MD** | The Hospital for Sick Children

*Towards Enhancing the Value of Imaging by Communicating With Data: Developing the Next Generation of LQ2 (Qualitative-quantitative Leaders)*

## **DEREK HARWOOD-NASH INTERNATIONAL EDUCATION SCHOLAR GRANT**

*Innovation in education can transform the way radiologists learn, understand, and care for patients. This grant funds investigators looking to affect radiology education around the world. One-year grant of up to \$75,000; two year grants will be considered in exceptional cases.*

**Fabian M. Laage Gaupp, MD** | Yale University

*Development and Evaluation of an Accredited Interventional Radiology Training Program in Tanzania*

## **RSNA/AUR/APDR/SCARD RADIOLOGY EDUCATION RESEARCH DEVELOPMENT GRANT**

*This grant helps to build a critical mass of radiology education researchers and promotes the careers of those with a passion to advance the science of radiology education. One-year grant of up to \$10,000.*

**Gabrielle W. Peters, MD** | Yale University

*High Yield Physics Video Series (Hi-Phy) Pilot from a Multi-institutional Collaboration*