### EDUCATION SCHOLAR GRANT (7)

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emmanuel J. Botzolakis, MD, PhD</td>
<td>Hospital of the University of Pennsylvania</td>
<td>Development of a Novel Radiology Teaching Interface Using Bayesian Networks: Application to Neuroradiology as Proof of Concept</td>
</tr>
<tr>
<td>Christopher E. Comstock, MD</td>
<td>Memorial Sloan Kettering Cancer Center</td>
<td>Interactive Screening Mammography Teaching Set: An Effective Tool to Improve Performance?</td>
</tr>
<tr>
<td>David B. Larson, MD, MBA</td>
<td>Stanford University</td>
<td>Evaluating, Refining, and Disseminating the Radiology Improvement Team Education Program</td>
</tr>
<tr>
<td>Shaunagh McDermott, FFR(RCSI)</td>
<td>Massachusetts General Hospital</td>
<td>Online Educational Tool for Implementation and Interpretation of Low-dose CT for Lung Cancer Screening (Ed-LSC)</td>
</tr>
<tr>
<td>Bhavya Rehani, MD</td>
<td>University of California, San Francisco</td>
<td>Developing Web-based Virtual Classroom Teaching RISE (Radiology International Student Virtual Education) Platform: A Pilot International Outreach Educational Program</td>
</tr>
<tr>
<td>Lonie R. Salkowski, MD</td>
<td>University of Wisconsin - Madison, SMPH</td>
<td>Investigation of a Radiology-based Three-dimensional Simulation to Explore Attributes of Novice and Expert Learners in their Process of Correlating and Sense-making of Medical Images with the Human Body</td>
</tr>
<tr>
<td>Jie Zhang, PhD</td>
<td>University of Kentucky</td>
<td>Curriculum Development for Hands-on Physics Education of Residents in Diagnostic Radiology</td>
</tr>
</tbody>
</table>

### RSNA/AUR/APDR/SCARD RADIOLOGY EDUCATION RESEARCH DEVELOPMENT GRANT (3)

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Justin Cramer, MD</td>
<td>University of Utah</td>
<td>3D Modeling and Printing of Spine Interventions: New Educational Tools for Teaching Complex Anatomy</td>
</tr>
<tr>
<td>Osamu Fernando Kaneko, MD</td>
<td>Stanford University Hospital and Clinics</td>
<td>Imaging Top 10: An Engaging and Interactive Radiology Simulation App for the Medical Student</td>
</tr>
<tr>
<td>Melissa McCutcheon Picard, MD</td>
<td>Medical University of South Carolina</td>
<td>Long-term Evaluation of a Comprehensive Curriculum Involving Didactic and Simulation Based Methods of Teaching Residents the Identification and Management of Adverse Contrast Reactions</td>
</tr>
</tbody>
</table>
RESEARCH SCHOLAR GRANT (13)

Rivka Rachel Colen, MD
The University of Texas MD Anderson Cancer Center
Radiome Sequencing of Glioblastoma: Decoding the Imaging Genomic Landscape and Heterogeneity

Michael David Farwell, MD, MA
Hospital of the University of Pennsylvania
Development of a Reporter Gene for In Vivo PET imaging of Chimeric Antigen Receptor (CAR) T cells Directed at Solid Tumors

Gregory Gan, MD, PhD
University of New Mexico
Mechanism of Hedgehog Pathway-mediated Radiation-induced Tumor Repopulation

Manu Shri Goyal, MD, MSc
Washington University School of Medicine (WUSM), St. Louis, Missouri
Integrating Brain Imaging and Metabolomics in Malnourished Children

Kathy Han, MD
Princess Margaret Hospital, University of Toronto
The Potential for Metformin to Improve Tumor Oxygenation in Locally Advanced Cervix Cancer: A Phase II Randomized Trial

Michael Iv, MD
Stanford University Medical Center
Using Ferumoxytol-enhanced MRI to Assess Tumor-associated Macrophages in Human Glioblastoma Multiforme

Kevin S. King, MD
University of Southern California, Keck School of Medicine of the Association of Cerebrovascular Reactivity on BOLD fMRI with Structural Brain Insults and Cognitive Decline in a Community Based Cohort

Pejman Jabehdar Maralani, MD, FRCP
Sunnybrook Research Institute
Quantitative Blood Oxygenation Level Dependent (qBOLD) MRI for Assessment of Tumor Hypoxia in Glioblastoma Multiforme: Validation with Intra-Operative and Histological Correlation

Daniele Marin, MD
Duke University Medical Center
Decreased Variability for Robust Imaging-based Quantification of Tumor Heterogeneity

Leo Lee Tsai, MD, PhD
Beth Israel Deaconess Medical Center
Regional Variations in Tumor Metabolism and Proliferation Reflecting a Non-uniform Tumor Micro-environment: In Vivo Assessment with Hyperpolarized 13C MRI

Shandong Wu, PhD, MSc
University of Pittsburgh
Breast DCE-MRI Contrast Enhancement Heterogeneity and Breast Cancer Risk

Hooman Yarmohammadi, MD
Memorial Sloan-Kettering Cancer Center
Combined Blocking of Aerobic and Anaerobic Glycolytic Metabolism Pathways in Improving Treatment Response Following Transarterial Embolization of Hepatocellular carcinoma

Stefan L. Zimmerman, MD
Johns Hopkins University School of Medicine
Dual Energy Extracellular Volume Mapping for Optimized Detection of Focal Myocardial Fibrosis with Cardiac Computed Tomography

RESEARCH SEED GRANT (11)

Kelly Lynn Cox, DO
Emory University
MRI Liver Surface Nodularity Score as a New Noninvasive Biomarker for Chronic Viral Hepatitis

Matthew Scott Davenport, MD
University of Michigan
A Phase IV Randomized Double-blinded Placebo-controlled Noninferiority Study of the Effect of Intravenous Low-osmolality Iodinated Contrast Material on Renal Function in Postoperative Adults with Stage IIIb or Stage IV Chronic Kidney Disease

Nasrin V. Ghesani, MBBS
Rutgers New Jersey Medical School
Novel Gallium Imaging in Hepatocellular Carcinoma

Daniel Thomas Ginat, MD
University of Chicago
MRI-guided Minimally Invasive Laser Ablation of Recurrent Head and Neck Squamous Cell Carcinoma with Clinicoradiological Correlation for Treatment Response

Thomas A. Hope, MD
University of California, San Francisco
Interim Response to Y-90 Therapy of Neuroendocrine Tumor Using DOTA-TOC PET/MRI

Stephen J. Hunt, MD, PhD
University of Pennsylvania
Combining Antivascular Ultrasound and Immune Modulation for Systemic Control in Hepatocellular Carcinoma

Naveen Kalra, MBBS, MD
Postgraduate Institute of Medical Education and Research
Comparison of Virtual CT Enteroscopy with Small Bowel Enteroclysis in Patients with Suspected Small Bowel Tuberculosis

Viviane Khoury, MD
University of Pennsylvania
Ultrasound-guided Dry Needling Therapy for Tendinopathic Rat Supraspinatus Tendon: Histological and Mechanical Effects

Bruce E. Lehnert, MD
University of Washington
Automatic Image Quality Evaluation for CT Protocol Guidance

Yingbing Wang, MD
Massachusetts General Hospital
Multiparametric Imaging for Therapy Monitoring in Multiple Myeloma

Kristina Young, MD, PhD
Providence Portland Medical Center
Targeting Cancer Associated Fibroblasts to Enhance Radiation Efficacy
Waleed Brinjikji, MD  
Mayo Clinic  
Comparison of Efficacy of Standard Neurovascular Coil to Dedicated Carotid Surface Coil in Evaluation of Vulnerable Carotid Plaque

Nicholas Scott Burris, MD  
University of California, San Francisco  
Combined Evaluation of Hemodynamic and Inflammatory Markers in Chronic Type B Aortic Dissection Using PET/MRI

George A. Carberry, MD  
University of Wisconsin  
Treatment Algorithms to Ensure Safe, Effective Microwave Ablation of Lung Tumors Near the Heart

Aadel Chaudhuri, MD, PhD  
Stanford University  
Analysis of Circulating Tumor DNA for Early Detection of Tumor Recurrence After Definitive Radiotherapy for Non-Small Cell Lung Cancer

Robert Richard Flavell, MD, PhD  
University of California, San Francisco  
Study of Acidic Interstitial pH in Aggressive Prostate Cancer Using Novel PET and Hyperpolarized 13C Imaging Probes

Rahi Jiten Kumar, MD  
University of California, San Francisco  
In Vitro and In Vivo Differentiation and Quantification of Novel Contrast Materials at Dual-energy CT

Kathryn Lowry, MD  
Massachusetts General Hospital  
Optimizing Breast Cancer Surveillance in Women with a Personal History of Breast Cancer

Atul Mallik, MD, PhD  
University of Utah  
Structural and Functional Imaging Driven Biomarkers for Visual Hallucinations and Dementia with Lewy Bodies

Colin David McKnight, MD  
University of Michigan  
MR Imaging of Oxidative Stress in Amyotrophic Lateral Sclerosis

Matthew M. Miller, MD, PhD  
Beth Israel Deaconess Medical Center  
Quantifying Intracellular and Extracellular pH Changes in Breast Tumors during Administration of pH Modulating Agents Using Chemical Exchange Saturation Transfer (CEST) Magnetic Resonance Imaging

Yvonne Mowery, MD, PhD  
Duke University Medical Center  
Dissecting the Impact of Tumor Mutational Load and the CTLA-4 Immune Checkpoint in Mediating Response of Primary Sarcomas to Radiation Therapy

Philmo Oh, MD, PhD  
New York University School of Medicine  
Enhanced Systemic Anti-tumor Immunity through Combined Radiotherapy and Modification of the Tumor Micro-environment

Anthony Joseph Paravati, MD, MBA  
University of California, San Diego  
Phase I Trial of Adaptive Stereotactic Body Radiotherapy (SBRT) Dose Escalation in Pancreatic Cancer

Rebecca Rakow-Penner, MD, PhD  
University of California, San Diego  
Improved Quantitative Diffusion Magnetic Resonance Imaging of Breast Cancer Using Restriction Spectrum Imaging

Gelareh Sadigh, MD  
Emory University School of Medicine  

Julie Sanders, MD  
Northwestern University Feinberg School of Medicine  
Prospective Multicenter Imaging Clinical Trial: Quantitative Evaluation of 3D Carotid MR-depicted Intraplaque Hemorrhage and Its Relationship with Cerebral Small Vessel Disease, Stroke and Cognitive Impairment

Jessica Kelly Stewart, MD  
Duke University Hospital  
Creation of an Extraluminal Subcutaneous Arterial Bypass Graft Using Percutaneous Methods: Feasibility Study in a Porcine Model

Chad Tang, MD, MS  
MD Anderson Cancer Center  
Investigation of the Immunologic Basis of CT Imaging Features in Non-small Cell Lung Cancer

Elizabeth Tong, MD  
University of Virginia  
Design and Validate a Model that Uses Collaterals as Imaging Biomarkers to Predict Clinical Outcomes in Acute Ischemic Stroke

Joseph Connell Wildenberg, MD, PhD  
University of Pennsylvania, Hospital of the Magnetic Resonance Guidance and Monitoring of Percutaneous Electrochemical Ablation Using a Novel Coaxial Probe Device

Fang Yu, MD  
University of Texas Health Science Center in San Antonio  
Evaluation of Multiple Sclerosis with Myelin-specific MRI
Sunjay Barton, BA  
Columbia University College of Physicians and Surgeons  
Characterizing the Effects of High Dose Radiation on the Neuroblastoma Tumor Micro-environment  

Akshaar N. Brahmbhatt, BA  
New Jersey Medical School  
The Expression of IEX-1 in Peripheral Artery Disease and its Role in Protective Revascularization  

Randall Brenneman, PhD  
University of Miami Miller School of Medicine  
Radiotherapy-induced Tumor Targeting of Oligonucleotide Aptamer-conjugated Immunostimulatory Monoclonal Antibodies  

Randy Chang, BS  
University of California, Los Angeles  
MRI Surveillance of Induced Pluripotent Stem Cells for Stroke Using Gadolinium Nanoparticles  

Re-I Chin, BA  
Saint Louis University School of Medicine  
Correlation and Prognostic Significance of Pre-treatment PET and MRI Parameters on 18F-FDG-PET/CT in Cervical Cancer  

Alex Chung  
Emory University School of Medicine  
An Analysis of Wrong-patient errors in Radiology and Distraction effects of adding Photographs to Radiographs  

Daniel Cook  
Wake Forest School of Medicine  
Associations Between Whole Brain Network Connectivity and Cognitive Function in African Americans with Type-2 Diabetes Mellitus: A Resting-state Functional MRI Graph Theoretical Analysis  

John Tuje Ikhena, BA, MPH  
Duke University School of Medicine  
Prognostic Performance in Mild Cognitive Impairment (MCI) of Two Commercially-available Hippocampal Volumetry Tools  

Eric J. Keller  
Northwestern University Feinberg School of Medicine  
Finding a Common Ethical Language for Healthcare: the Case of Symptomatic Uterine Fibroids  

Allison Khoo, BS  
MD Anderson Cancer Center  
The Biological Mechanism of Tumor Radiosensitization by Conjugated Gold Nanoparticles  

Yoon-Jin Kim  
Emory University  
Comparison of Three View 2D Digital Mammography to Digital Breast Tomosynthesis  

James R. Knitter, BS  
The University of Arizona College of Medicine  
Response Assessment of Cerebral Metastases After High-dose Stereotactic Radiation: Using Combined Diffusion and Perfusion MR Imaging  

Michelle Irmgard Knopp  
The Ohio State University  
PET Imaging Using Low and Ultra-low Dose Techniques in Clinical Care and Research  

Andrew Kuei  
University of California, Los Angeles  
Inpatient Cost and Mortality Assessment of Transjugular Intrahepatic Portosystemic Shunt (TIPS) in the United States from 1997 to 2012  

Janesh Lakhoo, BS  
University of Illinois in Chicago  
Ablative Liver Partition and Portal Vein Embolization (ALP-PVE): Proof of Concept Testing in a Rabbit Model  

Daniel Lam  
University of Chicago  
MRI Microscopy of the Intraparotid Facial Nerve for Preoperative Planning  

Eli Lechtman, PhD, MSc  
University of Toronto  
A Cost-Effectiveness Analysis of Carotid Imaging  

Lawrence Lin, BA  
Medical College of Wisconsin  
Morbidity and Mortality of Inferior Vena Cava Filter Placement: Validation of Data Capture in Clinical Data Warehouse  

Alexander Guan-Jey Liu, BS  
UT Southwestern Medical Center at Dallas  
Principal Component Analysis on DWI and IVIM of the Prostate  

Jose Lopez, BS  
Duke University School of Medicine  
Image-rich Radiology Reports: A Value-Based Model to Improve Clinical Workflow  

Milan Manchandia, BS  
MGH/HST Martinos Centers for Biomedical Imaging  
Dynamic Perfusion and Diffusion-weighted MRI to Quantitatively Differentiate Between Treatment-related Changes and Tumor Recurrence in Patients with High-grade Gliomas  

Tamari Andre Miller, BA  
University of Chicago  
Using MRI to Predict Clinical Outcomes in Patients with Locoregionally Advanced Human Papilloma Positive (HPV+) Oropharyngeal Squamous Cell Carcinoma Treated with Nab-paclitaxel  

Paul Russell Roberts, BS  
University of Mississippi Medical Center  
The Bumpy Road Ahead: Predicting Risk of Development of HCC and Liver Decompensation Using Liver Surface Nodularity Scores  

Vidhi Vrajesh Shah  
University of Missouri-Kansas City School of Medicine  
Visualizing the Difference Between Life and Death: A Comparison of Liver Ultrasound Findings in Children with Sinusoidal Obstruction Syndrome After Bone Marrow Transplantation  

Andrew Valenzuela, BS, BA  
University of Texas Health Science Center at Houston  
Use of Magnetic Resonance Spectroscopy in the Radiogenomic Evaluation of Childhood Neuroblastoma