

## CURRICULUM VITAE

**Andrew P. Klein MD**

**Chief, Associate Professor  
Department of Radiology**

### **OFFICE ADDRESS:**

9200 West Wisconsin Avenue

Milwaukee, WI 53226

### **EDUCATION:**

08/1994 - 05/1998 B.S., Georgetown University, Washington, D.C.

08/1999 - 05/2003 M.D., Creighton University, Omaha, Nebraska

### **POSTGRADUATE TRAINING AND FELLOWSHIP APPOINTMENTS:**

07/01/2003 - 06/30/2004 Clinical Internship, Transitional Year Residency, Department of Medicine, Aurora St. Luke's, 2801 W. Kinnickinnic River Parkway, Milwaukee, WI 53215

07/01/2004 - 06/30/2008 Diagnostic Radiology Residency, Department of Radiology, Medical College of Wisconsin, 9200 West Wisconsin Avenue, Milwaukee, WI 53226

07/01/2008 - 06/30/2009 ACGME Neuroradiology Fellowship, Department of Radiology, Section of Neuroradiology, Oregon Health and Science University, 3181 SW Sam Jackson Park Road, Portland, OR 97239

07/01/2009 - 06/30/2010 Instructor- Advanced Neuroimaging Fellowship, Department of Radiology, Section of Neuroradiology, Medical College of Wisconsin, 9200 West Wisconsin Avenue, Milwaukee, WI 53226

### **FACULTY APPOINTMENTS:**

07/01/2010 - 06/30/2020 Assistant Professor, Department of Radiology, Section of Neuroradiology, Medical College of Wisconsin, 9200 West Wisconsin Ave., Milwaukee, WI 53226

07/01/2020 - Present Associate Professor, Department of Radiology, Section of Neuroradiology, Medical College of Wisconsin, 9200 West Wisconsin Ave., Milwaukee, WI 53226

### **ADMINISTRATIVE APPOINTMENTS:**

05/17/2019 - Present Section Chief of Neuroradiology, Department of Radiology, Diagnostic Imaging Services, Medical College of Wisconsin, 9200 West Wisconsin Ave., Milwaukee, WI 53226

### **EDUCATIONAL ADMINISTRATIVE APPOINTMENTS:**

09/01/2010 - 06/30/2020 Neuroradiology Education Coordinator, Department of Radiology, Medical College of Wisconsin, 9200 West Wisconsin Avenue, Milwaukee, WI 53226

01/01/2011 - 06/30/2013 Associate Program Director Neuroradiology Fellowship, Department of Radiology, Medical College of Wisconsin, 9200 West Wisconsin Avenue, Milwaukee, WI 53226

07/01/2013 - 06/30/2020 Program Director Neuroradiology Fellowship, Department of Radiology, Medical College of Wisconsin, 9200 West Wisconsin Avenue, Milwaukee, WI 53226

07/01/2020 - Present Associate Program Director Neuroradiology Fellowship Program, Department of Radiology, Medical College of Wisconsin, 9200 West Wisconsin Avenue, Milwaukee, WI 53226

### **HOSPITAL STAFF PRIVILEGES:**

07/01/2009 - Present Staff Radiologist, Department of Radiology, Section of Neuroradiology, Froedtert Hospital, 9200 West Wisconsin Avenue, Milwaukee, WI 53226

**SPECIALTY BOARDS AND CERTIFICATION:**

<u>Board Certified</u>	<u>Issue Date</u>	<u>Expiration</u>
American Board of Radiology- Diagnostic Radiology (enrolled in maintenance of certification)	06/03/2008	None
American Board of Radiology- Neuroradiology (enrolled in maintenance of certification)	11/07/2011	None

<u>Certificates</u>	<u>Issued By</u>	<u>Issue Date</u>	<u>Expiration</u>
Basic Life Support	AHA	12/20/2023	None

<u>Licensure</u>	<u>Number</u>	<u>Issue Date</u>	<u>Expiration</u>
Wisconsin	47235-20	08/2004	None

**AWARDS AND HONORS:**

08/1994 - 05/1998 Howard Hughes Research Scholar, Georgetown University  
08/1999 - 05/2003 Diagnostic Radiology Honors and honors in 12 other classroom and clinical rotations, Creighton University School of Medicine  
01/2007 - 12/2007 Chief Resident, Medical College of Wisconsin, Department of Radiology, (voted on by faculty and fellow residents)  
06/2010 - Present MCW Neuroradiology Fellowship Excellence Award 2009-2010, (voted on by faculty)  
09/2012 POET (Pursuing Organizational Excellence Together) pin awarded by Reward and Recognition Committee for Organizational Excellence, Froedtert Hospital and Medical College of Wisconsin  
05/2019 Fastest Times- Stroke IV TPA Door-to-Needle certificate (11 minutes), Froedtert and Medical College of Wisconsin Comprehensive Stroke Center Program  
2020 Cum Laude Award: Educational Exhibit "The Glymphatic system : Current concepts and role in CNS disease", ASNR

**MEMBERSHIPS IN HONORARY AND PROFESSIONAL SOCIETIES:**

2003 - Present American College of Radiology  
2003 - Present American Roentgen Ray Society  
2003 - Present Radiological Society of North America  
2008 - Present American Society of Functional Neuroradiology  
2008 - Present American Society of Neuroradiology  
2019 - Present American Medical Association

**EDITORSHIPS/EDITORIAL BOARDS/JOURNAL REVIEWS:**

Journal Review  
07/2012 - 2019 Neurographics

**LOCAL/REGIONAL APPOINTED LEADERSHIP AND COMMITTEE POSITIONS:**

07/01/2015 - 06/30/2018 Department of Radiology Representative, Faculty Council, Medical College of Wisconsin

**NATIONAL ELECTED/APPOINTED LEADERSHIP AND COMMITTEE POSITIONS:**

11/26/2016 - 2020 Member, Neuroradiology ACGME Fellowship Program Requirements Taskforce, Neuroradiology Fellowship Program Directors on behalf of the ACGME

**INTERNATIONAL ELECTED/APPOINTED LEADERSHIP AND COMMITTEE POSITIONS:**

12/03/2015 - 12/02/2018 Member, Neuroradiology/Head & Neck Subcommittee of the Scientific Program Committee, Radiologic Society of North America

## RESEARCH GRANTS/AWARDS/CONTRACTS/PROJECTS:

### Active

#### Peer Review

Title: Wisconsin Health Career Lab: A Novel Approach to Upstream Workforce Development  
Source: Advancing a Healthier Wisconsin  
Role & Effort: PI  
PI: Andrew Klein, MD  
Dates: 01/01/2025 - 12/31/2025  
Direct Funds: \$38,310

#### Non-Peer Review

Title: Identifying Changes in Cognition and Pain Networks in Chiari Patients  
Source: Conquer Chiari  
Role & Effort: Co-Investigator  
PI: Dan Heffez, MD  
Dates: 09/05/2023 - 12/31/2024  
Direct Funds: \$58,230

### Prior

#### Peer Review

Title: Comprehensive Study of Acute Effects and Recovery After Concussion: An Integrated Investigation of Head Impact Sensor Technology, Blood Biomarkers, Advanced Neuroimaging, Genetic Testing and Clinical Outcome Metrics  
Source: DOD Army Medical Research Acquisition  
Role & Effort: Providing radiologic interpretations of MRI brain scans  
PI: Michael McCrea, PhD  
Dates: 09/30/2014 - 09/29/2016  
Direct Funds: \$686,372

Title: The NCAA-DOD Grand Alliance: Concussion Assessment, Research and Education (CARE)  
Source: Indiana University  
Role & Effort: Providing radiologic interpretations of MRI brain scans  
PI: Michael McCrea, PhD  
Dates: 09/15/2015 - 09/14/2017  
Direct Funds: \$213,589

Title: Advanced MRI Applications for Mild Traumatic Brain Injury – Phase 2  
Source: GE Healthcare  
Role & Effort: Co-PI  
PI: Michael McCrea, PhD  
Dates: 11/30/2015 - 03/01/2017  
Direct Funds: \$657,320

Title: Quantitative MRI of the Post-injury Instrumented Spinal Cord  
Source: Department of Defense  
Role & Effort: Co-investigator  
PI: Kevin Koch, PhD  
Dates: 08/01/2019 - 07/31/2022  
Direct Funds: \$500,000

Title: Quantitative MRI of the Post-Injury Instrumented Spinal Cord  
Source: Department of Defense  
Role & Effort: Co-Investigator  
PI: Kevin Koch, PhD  
Dates: 08/01/2019 - 07/31/2022  
Direct Funds: \$500,000

Title: Computed Assisted Decision Making Support Platform for Unruptured Intracranial Aneurysm  
Source: Vasognosis, Inc/ National Science Foundation  
Role & Effort: Co-Investigator  
PI: Ali Bakhshinejad, PhD  
Dates: 11/01/2020 - 02/28/2021  
Direct Funds: \$12,820

Title: A Complete Metal Artifact Reduced MRI Exam for Neuroimaging  
Source: NIH Biomedical Imaging and Bioengineering  
Role & Effort: Co-Investigator  
PI: Kevin Koch, PhD & Andrew Nencka, PhD  
Dates: 02/01/2021 - 11/30/2023  
Direct Funds: \$275,000

**Non-Peer Review**

Title: Advanced MRI Applications for Mild Traumatic Brain Injury - Phase 2  
Source: GE Healthcare  
Role & Effort: PI  
PI: Michael McCrea, Andrew Klein  
Dates: 11/20/2015 - 03/01/2017  
Direct Funds: \$657,320

Title: 3T vs. 7T MR Brain Imaging Comparison in Multiple Sclerosis  
Source: MCW Center for Imaging Research  
Role & Effort: Co-investigator  
PI: Staley Brod, MD  
Dates: 02/15/2017 - 02/15/2018  
Direct Funds: \$5,000

Title: Visualization of Intracranial Perforators Using 7T MRI- A Comparative Analysis with Digital Subtraction Angiography  
Source: Daniel M. Soref Charitable Trust, MCW

Role & Effort:	Center for Imaging Research
PI:	Co-investigator
Dates:	Raphael Sacho, MD
Direct Funds:	02/27/2018 - 02/26/2019
	\$4,950

#### **INVITED LECTURES/WORKSHOPS/PRESENTATIONS:**

##### **International**

Klein AP, Functional and Dysfunctional Anatomy of the Superior Longitudinal Fasciculus, 2010 International Brain Mapping and Intraoperative Surgical Planning Society (IBMISPS) Conference, Bethesda, Maryland, 05/27/2010

Klein AP, Moderator for Scientific Session on Epilepsy and Metabolic Disorders, 2016 Radiologic Society of North America Conference, Chicago, Illinois, 11/29/2016

##### **National**

Klein AP, DTI of White Matter Language Networks, 2011 American Society of Functional Neuroradiology (ASFNr) Conference, Phoenix, Arizona, 03/03/2011

Klein AP, "Spine Imaging for the Pain Physician," invited guest lecture and workshop presenter, 2013 American Society of Anesthesiology (ASA) Conference, San Francisco, California, 10/14/2013

Klein AP, "Practical fMRI and Diffusion Tractography" hands-on workshop, 2014 American Society of Neuroradiology (ASNR) Meeting, Montreal, Canada, 05/18/2014

Klein AP, Language Anatomy and Mapping, 2015 American Society of Functional Neuroradiology (ASFNr) Conference, Tucson, Arizona, 03/18/2015

Klein AP, "Reading a Spine MRI" invited lecture and workshop presenter, 2015 American Society of Anesthesiology (ASA) Conference, San Diego, California, 10/22/2015

Klein AP, "Spinal Diagnostic Imaging for the Pain Physician," invited lecture and workshop presenter, 2016 American Society of Anesthesiology (ASA) Conference, Chicago, Illinois, 10/24/2016

Klein AP, AMP Honors: A tool you can use in your classroom, ACTE Work Based Learning Conference, Milwaukee, Wisconsin, 05/03/2024 - 05/31/2024

Klein AP, Expanding the Classroom through your Phone, National Consortium for Health Science Education, Glendale, Arizona, 10/17/2024

##### **Regional**

Klein AP, Presurgical Brain Mapping at MCW, 2014 Neuroscience Society of Wisconsin Meeting, Milwaukee, Wisconsin, 04/29/2014

Klein AP, Introduction to Spine MRI, Advanced Pain Management NP/PA Educational Meeting, Milwaukee, Wisconsin, 10/22/2016

Klein AP, Imaging of Vision Related Concerns, Current Concepts in Vision Care, Optometric CME Conference, Milwaukee, Wisconsin, 11/13/2016

##### **Local**

Klein AP, Functional and Dysfunctional Anatomy of Language White Matter Networks, MCW Neurosurgery Grand Rounds, Milwaukee, Wisconsin, 02/17/2012

Andrew Nencka, Matt Budde, Andy Klein, Kevin Koch, Mike McCrea, Tim Meier, Tugan Muftuler, Yang Wang, Big and Bigger Data in Multi-Contrast Neuroimaging of Mild TBI, MCW Brain Injury Research Day, Medical College of Wisconsin, Milwaukee, WI, 10/26/2017

Klein AP, Ulmer JL, Agarwal M, "Brain Structure and Function," Neuroscience Lab for High School Students, University Lake School, Hartland, WI, 02/23/2018

Klein AP, "Anatomic Clinical Correlation of the Spine", MCW Sports Medicine Symposium, Milwaukee, WI, 05/17/2018

#### **PEER REVIEWED WORKSHOPS/PRESENTATIONS:**

##### **International**

Bhat A, Baruah D, Mark LP, Ulmer JL, Raslau FD, Klein AP, Amygdala: What the Neuroradiologist Needs to Know. Printed Educational Exhibit. \*Received Certificate of Merit for Education Exhibit,

- Radiological Society of North America, 97th Annual Conference, Chicago, Illinois, 11/27/2011 - 12/02/2011
- Kandiah PA, Nanchal R, Ulmer J, Klein AP, A Meta-analysis of Magnetic Resonance Imaging Findings and Neurological Outcomes in Liver Failure and Severe Hyperammonemia. Oral Presentation., International Society for Hepatic Encephalopathy and Nitrogen Metabolism, Grenaa, DENMARK, 05/29/2012
- Baruah D, Ulmer JL, Klein AP, Gupta SA, Glioma Grading: Role of Routine and Advanced Imaging Techniques. Printed Educational Exhibit., Radiological Society of North America, 98th Annual Conference, Chicago, Illinois, 11/25/2012 - 11/30/2012
- Baruah D, Raslau FD, Chandra T, Guleria S, Klein AP, Ulmer JL, Identifying Primary Motor Cortex on Routine and Advanced Imaging: What Radiologists Need to Know. Electronic Educational Exhibit. \*Received Cum Laude Award, Radiological Society of North America, 99th Annual Conference, Chicago, Illinois, 12/01/2013 - 12/06/2013
- Baruah D, Chandra T, Guleria S, Klein AP, Maheshwari M, Step by Step guide for evaluating spinal cord lesions. Electronic Educational Exhibit., Radiological Society of North America, 99th Annual Conference, Chicago, Illinois, 12/01/2013 - 12/06/2013
- Pamarthy S, Bhalla M, Ulmer JL, Klein AP, McAvoy K, Mark LP, Quintet S, Bhalla N, Clinically Suspected Stroke: A Retrospective Institutional Review, Comparing True Negatives to True Positives in the Stroke Population, Radiological Society of North America, 102nd Annual Conference, Chicago, IL, 11/27/2016 - 12/02/2016
- Agarwal M, Ulmer JL, Kleain AP, Quinet S, Mark LP, Beyond the Visible Quantitative Volumetric Analysis in Neurodegenerative Disease \*Certificate of Merit, Radiological Society of North America, 103rd Annual Conference, Chicago, IL, 11/26/2017 - 12/01/2017
- Agarwal M, Klein AP, Ulmer JL, Mark LP, O'Neill D, Mustafaraj E, Mathews V, Unmasking the Masquerader: Hypertrophic Olivary Degeneration - Imaging Appearance and Differential Diagnosis. Educational Exhibit., European Society of Radiology, Annual Conference, Vienna, AUSTRIA, 02/28/2018 - 03/04/2018
- Mohit Agarwal, Malgorzata Franczak, John L. Ulmer, Laura Umfleet, Andrew P. Klein, Is volumetric MRI at the crux of a paradigm shift in dementia diagnosis? A case series of semantic variant of frontotemporal degeneration with early episodic memory loss, European Society of Radiology, Annual Conference, Vienna, AUSTRIA, 02/27/2019 - 03/03/2019
- Mohit Agarwal, Malgorzata Franczak, JL Ulmer, Laura Umfleet, Andrew P Klein, Is Volumetric MRI at the crux of a paradigm shift in dementia diagnosis? A case series of semantic variant of frontotemporal degeneration with early episodic memory loss, National meeting of the European Society of Radiology, Vienna, Austria, 02/27/2019 - 03/03/2019

### **National**

- Ulmer JL, Mark LP, Klein AP, Rohatgi S, Guleria S, Singh S, Virshni K, Maheshwari M, Integrative Approach to Presurgical Brain Mapping. Printed Scientific Exhibit., American Roentgen Ray Society, Annual Conference, San Diego, California, 05/02/2010 - 05/07/2010
- Singh S, Ulmer JL, Mark LP, Klein AP, Virshni K, Rohatgi S, Guleria S, Functional and Dysfunctional Anatomy of the Uncinate Fasciculus and Regional White Matter Pathways. Printed Educational Exhibit., American Roentgen Ray Society, Annual Conference, San Diego, California, 05/02/2010 - 05/07/2010
- Virshni K, Ulmer JL, Mark LP, Klein AP, Guleria S, Rohatgi S, Singh S, Exploring the Functional and Dysfunctional Anatomy of the Anterior Cingulum. Printed Educational Exhibit., American Roentgen Ray Society, Annual Conference, San Diego, California, 05/02/2010 - 05/07/2010
- Ulmer JL, Mark LP, Klein AP, Rohatgi S, Guleria S, Singh S, Virshni K, Maheshwari M, Integrative Approach to Presurgical Brain Mapping. Printed Scientific Exhibit., American Society of Neuroradiology, 48th Annual Conference, Boston, Massachusetts, 05/15/2010 - 05/20/2010
- Guleria S, Ulmer JL, Mark LP, Klein AP, Singh S, Virshni K, Rohatgi S, Corona Radiata: Functions and Dysfunctions from an Anatomical Imaging Perspective. Printed Educational Exhibit., American Society of Neuroradiology, 48th Annual Conference, Boston, Massachusetts, 05/15/2010 - 05/20/2010
- Virshni K, Ulmer JL, Mark LP, Klein AP, Guleria S, Rohatgi S, Singh S, Exploring the Functional and Dysfunctional Anatomy of the Anterior Cingulum. Printed Educational Exhibit., American Society of Neuroradiology, 48th Annual Conference, Boston, Massachusetts, 05/15/2010 - 05/20/2010
- Klein AP, Ulmer JL, Mark LP, Singh S, Guleria S, Virshni K, Rohatgi S, Functional and Dysfunctional

- Anatomy of the Superior Longitudinal Fasciculus. Printed Educational Exhibit., American Society of Neuroradiology, 48th Annual Conference, Boston, Massachusetts, 05/15/2010 - 05/20/2010
- Singh S, Ulmer JL, Mark LP, Klein AP, Virshni K, Rohatgi S, Guleria S, Functional and Dysfunctional Anatomy of the Uncinate Fasciculus and Regional White Matter Pathways. Printed Educational Exhibit., American Society of Neuroradiology, 48th Annual Conference, Boston, Massachusetts, 05/15/2010 - 05/20/2010
- Raslau FD, Ulmer JL, Mark LP, Klein AP, Baruah D, Zuk C, Bhat, Elgendy A, Anatomic and Functional Review of the Fornix. Printed Educational Exhibit., American Society of Neuroradiology, 49th Annual Conference, Seattle, Washington, 06/04/2011 - 06/09/2011
- Baruah D, Raslau FD, Klein AP, Ulmer JL, The Importance of Tissue Characterization in Neurosurgical Decision Making. Printed Scientific Exhibit., American Society of Functional Neuroradiology, 6th Annual Conference, Orlando, Florida, 03/07/2012 - 03/09/2012
- Gupta SA, Klein AP, Ulmer JL, Mark LP, Raslau FD, Baruah D, Goth E, DTI Functional Anatomy: How much do you know? An Interactive Quiz. Electronic Educational Exhibit., American Society of Neuroradiology, 50th Annual Conference, New York, New York, 04/21/2012 - 04/26/2012
- Singh S, Maheshwari M, Klein AP, Kelly T, Chandra T, Tuna IS, Segall H, Functional and Dysfunctional Anatomy of Brainstem White Matter Pathways and Nuclei. Printed Educational Exhibit., American Society of Neuroradiology, 50th Annual Conference, New York, New York, 04/21/2012 - 04/26/2012
- Klein AP, Baruah D, Maheshwari M, Ceranske A, Gupta S, Mark LP, Ulmer JL, Real Estate Assessment: Brainstem Infarcts. Printed Educational Exhibit., American Society of Neuroradiology, 51st Annual Conference, San Diego, California, 05/18/2013 - 05/23/2013
- Kochar P, Ulmer JL, Klein AP, Baruah D, Lath C, Bhatti Z, Agarwal M, Anderson JA, Multimodality Imaging Features of Cranial Blastomycosis - A Great Mimicker. Printed Scientific Exhibit., American Society of Neuroradiology, 52nd Annual Conference, Montreal, CANADA, 05/17/2014 - 05/22/2014
- Ulmer Jr JL, Klein AP, Mark LP, DeYoe E, Where's the stroke? What's the deficit? Electronic Educational Exhibit., American Society of Neuroradiology, 52nd Annual Conference, Montreal, CANADA, 05/17/2014 - 05/22/2014
- Anderson J, Ulmer JL, Klein AP, Agarwal M, Mark LP, Kochar P, Lath C, Why is Balo Concentric Sclerosis Still a Surgical Disease? Printed Educational Exhibit., American Society of Neuroradiology, 52nd Annual Conference, Montreal, CANADA, 05/17/2014 - 05/22/2014
- Ulmer JL, DeYoe E, Gaggl W, Mueller W, Klein AP, Mark LP, Half a dozen reasons to map the motor cortex presurgically. Printed Educational Exhibit., American Society of Neuroradiology, 52nd Annual Conference, Montreal, CANADA, 05/17/2014 - 05/22/2014
- McCollister K, Ulmer JL, Klein AP, Mark LP, DeYoe E, Agarwal M, Bhatti Z, Functional Vascular Anatomy of the Brain. Printed Educational Exhibit., American Society of Neuroradiology, 52nd Annual Conference, Montreal, CANADA, 05/17/2014 - 05/22/2014
- Agarwal M, Ulmer JL, Mark LP, Klein AP, McCollister KB, DeYoe EA, Chandra T, Kochar P, Subcortical substrates of cranial nerve function. Printed Educational Exhibit., American Society of Neuroradiology, 52nd Annual Conference, Montreal, CANADA, 05/17/2014 - 05/22/2014
- Agarwal M, Ulmer JL, Mark LP, Klein AP, McCollister KB, DeYoe EA, Baruah D, Cortical substrates of cranial nerve function. Printed Educational Exhibit., American Society of Neuroradiology, 52nd Annual Conference, Montreal, CANADA, 05/17/2014 - 05/22/2014
- Klein AP, Ulmer JL, Mueller WM, Mark LP, Agarwal M, Ceranske A, Baruah D, From Baseball to the OR. Printed Educational Exhibit., American Society of Neuroradiology, 52nd Annual Conference, Montreal, CANADA, 05/17/2014 - 05/22/2014
- Ulmer Jr JL, Klein AP, Mark LP, So you think you know sensory motor brain anatomy? Printed Educational Exhibit., American Society of Neuroradiology, 52nd Annual Conference, Montreal, CANADA, 05/17/2014 - 05/22/2014
- Tuna IS, Klein AP, DeYoe EA, Agarwal M, Chandra T, McCollister KB, Mark LP, Ulmer JL, Resting State fMRI, Brain Connectivity and Promising Clinical Applications, American Roentgen Ray Society, 115th Annual Conference, Toronto, ON, Canada, 04/19/2015 - 04/24/2015
- Tuna IS, Klein AP, DeYoe EA, Kohl L, Agarwal M, Chandra T, McCollister KB, Mark LP, Ulmer JL, Pictorial Review of Resting State fMRI, American Society of Neuroradiology, 53rd Annual Conference, Chicago, IL, 04/25/2015 - 04/30/2015
- Alam N, Bhalla M, J Ulmer JL, Klein AP, Fitzsimmons B, Pamarthy S, Quinet S, McAvoy K, ED Utilization of CT and MR Imaging in Acute Stroke Management: A Single Institution Experience, American Society of Neuroradiology, 54th Annual Conference, Washington, DC, 05/23/2016 - 05/26/2016

- Agarwal M, Ulmer JL, Klein AP, Agarwal I, Pamarthy S, Mark LP, Bhalla M, Graner B, Big whorls and little whorls: A diagnostic approach to Balo concentric sclerosis through a meta-analysis of 68 cases, American Society of Neuroradiology, 54th Annual Conference, Washington, DC, 05/23/2016 - 05/26/2016
- Graner B, Ulmer JL, Fitzsimmons B, Klein AP, Mark LP, Magnetic Resonance Angiography Follow-up of Coiled Aneurysms: Does the addition of Arterial Spin Labeling Perfusion Imaging Add Clinical Value?, American Society of Neuroradiology, 54th Annual Conference, Washington, DC, 05/23/2016 - 05/26/2016
- Bhalla M, Ulmer JL, Klein AP, Pamarthy S, Fitzsimmons, Mark LP, McAvoy K, Alam N, Impact of Demographic Profiles and Risk Factors on Predictive Value of CT and MR Imaging in Acute Stroke: An Institutional Review, American Society of Neuroradiology, 54th Annual Conference, Washington, DC, 05/23/2016 - 05/26/2016
- Pamarthy S, Ulmer JL, Bhalla M, Klein AP, Quinet S, Mark LP, Alam N, McAvoy K, Cerebrovascular Stroke Reporting: Comparison of Neuroradiology Trainee and Faculty Interpretations, and Institutional Review, American Society of Neuroradiology, 54th Annual Conference, Washington, DC, 05/23/2016 - 05/26/2016
- Ulmer E, Franczak S, Sabsevitz D, Klein AP, Primary Progressive Aphasia Subtype of Frontotemporal Degeneration: The Importance of Integrating Clinical and Neuroimaging Correlates, American Society of Neuroradiology, 55th Annual Conference, Long Beach, CA, 04/24/2017 - 04/27/2017
- Ulmer E, Franczak S, Sabsevitz D, Klein AP, Behavioral Variant of Frontotemporal Degeneration: The Importance of Integrating Clinical and Neuroimaging Correlates, American Society of Neuroradiology, 55th Annual Conference, Long Beach, CA, 04/24/2017 - 04/27/2017
- Agarwal M, Ulmer JL, Squires CE, Klein AP, Mark LP, Quinet S, A New Toy in Town: Volumetric Assessment of Hippocampal Volume, American Society of Neuroradiology, 55th Annual Conference, Long Beach, CA, 04/24/2017 - 04/27/2017
- Bhalla M, Ulmer JL, Klein AP, Bhalla N, Mark LP, Quinet S, McAvoy K, Quandary of Etiologies in Clinically Suspected Stroke with Dizziness/Vertigo: A Review of Vascular and Non-vascular Conditions Comprising the Differential Diagnosis List, American Society of Neuroradiology, 55th Annual Conference, Long Beach, CA, 04/24/2017 - 04/27/2017
- Cavallo Horn K, Ulmer JL, Agarwal M, Mark LP, Klein AP, The clinical implications of failing to recognize aberrant arachnoid granulations, American Society of Neuroradiology, 55th Annual Conference, Long Beach, CA, 04/24/2017 - 04/27/2017
- Bhalla M, Klein AP, Ulmer JL, Mark LP, Quinet S, Bhalla N, Diagnostic Discrepancies Between MRI and Clinical Diagnoses in Stroke Imaging, Association of University Radiologists, 65 Annual Conference, Hollywood, FL, 05/08/2017 - 05/11/2017
- Bhalla M, Ulmer JL, Klein AP, Quinet S, Mark LP, Bhalla N, Interpretative Differences Between Neuroradiology Trainee and Faculty in Cerebrovascular Stroke Evaluation: Case Illustration and Analysis, Association of University Radiologists, 65th Annual Conference, Hollywood, FL, 05/08/2017 - 05/11/2017
- Franczak S, Ulmer E, Agarwal M, Klein AP, Integrating Imaging Morphometric and Clinical Criteria in Diagnosing Frontotemporal Degeneration: The Behavioral Variant, American Roengen Ray Society, 118th Annual Conference, Washington, DC, 04/22/2018 - 04/27/2018
- Franczak S, Ulmer E, Agarwal M, Klein AP, The Importance of Morphometric Analysis in Diagnosing Frontotemporal Degeneration: Primary Progressive Aphasia Variant, American Roentgen Ray Society, 118th Annual Conference, Washington, DC, 04/22/2018 - 04/27/2018
- Bhalla M, Ulmer JL, Klein AP, Mark LP, Quinet S, Don't Forget the Amnesia (Transient Global Amnesia) A Diagnosis You Can Suggest as a Clinician, Association of University Radiologists, 66th Annual Conference, Orlando, FL, 05/07/2018 - 05/10/2018
- Bonis JM, Klein AP, Tetzlaff JE, et al., Prevalence of Potentially Clinically Significant Magnetic Resonance Findings in Athletes with and without Sport-Related Concussion, Military Health System Research Symposium, Kissimmee, FL, 08/20/2018 - 08/23/2018
- M Agarwal, JL Ulmer, AP Klein et al. Comparison of cerebrovascular disease load between amnesic and non-amnesic MCI. Educational exhibit at the annual meeting of the American Society of Neuroradiology, Boston. 4. Grochmal JK, Lozen AM, Klein AP, Mark LP, Li J, Wang MC, Interobserver Reliability of Magnetic Resonance Imaging Predictors of Outcome in Cervical Spine Degenerative Conditions, World Neurosurgery, 117: e215-e220, 09/2018
- M Agarwal, JL Ulmer, AP Klein, et. al., All That Tremors is Not Parkinson's: How Volumetric MRI Helped

- Us Characterize Extrapyrarnidal Syndromes, American Society of Neuroradiology, 57th Annual Conference, Boston, MA, 05/18/2019 - 05/23/2019
- M Agarwal, JL Ulmer, AP Klein, et. al., Comparison of cerebrovascular disease load between amnesic and non-amnesic MCI, American Society of Neuroradiology, 57th Annual Conference, Boston, MA, 05/18/2019 - 05/23/2019
- M Agarwal, JL Ulmer, AP Klein et al, All That Tremors is Not Parkinson's: How Volumetric MRI Helped Us Characterize Extrapyrarnidal Syndromes, Educational exhibit at the annual meeting of the American Society of Neuroradiology, Boston, Massachusetts, 05/18/2019 - 05/23/2019
- Bhalla, M., Klein, A., Diagnosing Transient Global Amnesia in Altered Mental Status, 51st Annual Meeting of The Western Neuroradiological Society, Cour d'Alene, ID, 09/26/2019
- Bhalla, M., Ulmer, J., Klein, A.P., Agarwal, M., O'Neill, D.P, Cerebral Lobar Volume: Concordance of Visual and Quantitative Assessment, Radiological society of North America (RSNA), 105th Scientific Assembly and Annual Meeting, Chicago, IL, 12/01/2019 - 12/06/2019
- Emmert, N. A., Agarwal, M., Franczak, M., Reiter, K., Klein, A., & Glass Umfleet, L., Quantitative volumetric differences between MCI groups with different presumed etiologies., 48 th annual meeting of the International Neuropsychological Society, Denver, CO, 02/05/2020 - 02/08/2020
- Reiter, K., Correro, A., Janecek, J., Agarwal, M., Reuss, J., Franczak, M., Klein, A., & Glass Umfleet, L., Relationship between cognitive reserve and brain volume in amnesic and nonamnesic MCI, 47 th annual meeting of the International Neuropsychological Society, Denver, CO, 02/05/2020 - 02/08/2020
- Oswaldo Velez-Martinez, John Ulmer, AP Klein, G Burek, M Franczak, LG Umfleet, Mohit Agarwal., A stimulating guide to overcome the amygdala: Review of anatomy and its role in psychiatric disorders, Annual meeting of the American Roentgen Ray Society (ARRS), Chicago, IL, 05/03/2020 - 05/08/2020
- Jason Hibbard, LGU, MF, AP Klein, KR, AC, Mohit Agarwal, The application of volumetric MRI in predicting MCI phenotype, Annual meeting of the American Roentgen Ray Society (ARRS), Chicago, IL, 05/03/2020 - 05/08/2020
- Deepali Bhalla, S Franczak, AP Klein, Mohit Agarwal., The Glymphatic system : Current concepts and role in CNS disease, ASNR 2020, Virtual, 05/30/2020 - 06/04/2020
- Voss B, Maheshwari M, Klein A, Smullen D, Agarwal M., To see or not to see: Spectrum of Imaging abnormalities of the Optic Disc and associated CNS diseases, ARRS 2022, New Orleans, LA, 05/11/2022 - 2022
- Zaneta Dymon DO, Lohitha Kolli MD, Andrew Klein MD, Darren O'Neill MD , David Smullen MD, Mohit Agarwal MD., Turn Your Gaze to This: Causes and Patterns of Abnormal CNIII Enhancement, ASNR 2022, New York, NY, 05/13/2022 - 05/19/2022

## **COMMITTEE SERVICE:**

### **Medical College of Wisconsin**

- 07/01/2010 - 06/30/2014 Member (subsequently became chair), Neuroradiology Fellowship Program Evaluation Committee, Neuroradiology, Radiology, Medical College of Wisconsin
- 2012 - 2020 Member, MRI Safety Committee, Medical College of Wisconsin
- 2012 - 2021 Member, Residency Program Evaluation Committee, Radiology, Medical College of Wisconsin
- 2013 - 2020 Member (responsible for R2 evaluations), Radiology Residency Clinical Competence Committee, Radiology, Medical College of Wisconsin
- 2013 - 2019 Member, Radiology Residency ACGME Milestone Committee, Radiology, Medical College of Wisconsin
- 07/01/2014 - 06/30/2020 Chair, Neuroradiology Fellowship Program Evaluation Committee, Neuroradiology, Radiology, Medical College of Wisconsin
- 2014 - Present Member, Neuroradiology Fellowship Clinical Competency Committee, Neuroradiology, Radiology, Medical College of Wisconsin
- 2014 - 2022 Member, Education Committee, Radiology, Medical College of Wisconsin
- 2015 - 2019 Member, Resident Morning Conference Committee, Radiology, Medical College of Wisconsin
- 2015 - 2019 Member, Department Incentive Committee, Radiology, Medical College of Wisconsin
- 2015 - 2017 Chair, After Hours/Call Planning Workgroup, Radiology, Medical College of Wisconsin
- 2015 - 2019 Member, Imaging Services Quality Improvement Committee, Radiology, Medical College of

Wisconsin  
2015 - 2019 Member, Education Subcommittee for Imaging Services Quality Improvement Committee, Radiology, Medical College of Wisconsin  
2016 - 2019 Member, Critical Results Subcommittee for Imaging Services Quality Improvement Committee, Radiology, Medical College of Wisconsin  
2019 - 2022 Member, Department Education Workgroup, Radiology, Medical College of Wisconsin  
2019 - Present Member, Reimbursement Committee, Radiology, Medical College of Wisconsin  
2019 Healthcare Services Review Committee, Radiology, Medical College of Wisconsin  
06/30/2020 - Present Member, Neuroradiology Fellowship Program Evaluation Committee, Neuroradiology, Radiology, Medical College of Wisconsin  
2022 Member, Neuroscience Institute Executive Director Search Committee, Radiology, Medical College of Wisconsin  
2022 - Present Member, Radiology Practice Advisory Committee, Radiology, Medical College of Wisconsin

### **Hospital**

2015 - 2020 Member, MRI Safety Committee, Froedtert Hospital  
2023 - Present Member, Radiation Oncology Brain Metastasis AI Implementation Committee, Radiology, Froedtert Community Hospital Division  
2023 - Present Member, CHD Trauma Reporting Standardization Committee, Radiology, Froedtert Community Hospital Division  
2023 - Present Member, Intraoperative MR and Functional Brain Mapping Initiative to implement Omniscient Platform Committee, Radiology, Froedtert Community Hospital Division  
2023 - Present Member, Multidisciplinary Neuro-oncology RANO and Volumetric Reporting Implementation Committee, Radiology, Froedtert Community Hospital Division

### **MCW TEACHING ACTIVITIES:**

#### **Medical Student Education**

2007 - 2008 "A Resident's Life" lecture to medical students as chief resident  
2010 - 2011 "Head and Neck Imaging" lecture to M1 class  
2012 "Introduction to Brain Mapping" lecture to MCW Radiology Interest Group  
2014 - 2017 "Imaging of CNS Disease" lecture to M2 class as part of the Discovery Curriculum  
2014 - 2017 "Imaging of CNS Anatomy" lecture to M2 class as part of the Discovery Curriculum  
2015 "Introduction to Intracranial Hemorrhages" lecture to MCW Radiology Interest Group  
2016 - 2017 Teaching CNS anatomy to the M1 students during anatomy lab using the Anatomage Table  
2017 - Present M4 radiology rotation project presentation referee (neuroradiology)  
2017 - Present "CT Imaging of Intracranial Hemorrhage" lecture for monthly M3/M4 radiology rotation  
2017 "Introduction to Stroke Imaging" lecture to MCW Radiology Interest Group  
02/27/2019 Introduction to Intracranial Hemorrhages; M4 Neuroscience Elective Presentations  
07/17/2019 Intro to Radiology: Neuroradiology and Computer Topics  
02/04/2020 M4 Neuroscience Elective Discussion, Photon-Counting CT of the Brain: In Vivo Human Results and Image-Quality Assessment  
04/08/2020 Introduction to Neuroradiology, Biophysics Lecture

#### **Resident and Fellow Education**

2009 "Pineal Region and Intraventricular Neoplasms" resident lecture  
2010 "MR Imaging of the Spine" lecture for Anesthesia Pain Fellowship  
2010 - 2014 Senior radiology resident oral board review conferences (oral boards since discontinued)  
2010 - 2014 "Radiation Safety for the Pain Physician" lecture for Anesthesia Pain Fellowship  
2011 "Imaging of the Orbits" radiology resident lecture  
2011 "DTI and Language" neuroradiology fellow lecture  
2012 "Clinical Brain Mapping of the Language System" radiology resident lecture  
2012 "Spine Infection and Inflammatory Disorders" resident lecture  
2013 "Radiology Reporting" neuroradiology fellow lecture  
2014 - Present Fellowship Lecture: Functional Brain Mapping  
2014 "Ball-in-Glove Configuration in Presurgical Brain Mapping" neuroradiology fellow lecture

2015 - Present MR Imaging of the Spine, MCW Pain Fellow Lecture, Chronic Pain Series  
 2016 - Present DTI and Language, Fellow Lecture  
 2017 "Volumetric Imaging of the Dementias," psychiatry resident lecture  
 2017 "Fundamentals of Neuroimaging" psychiatry resident lecture  
 08/13/2018 Pineal Region and Intraventricular Neoplasms, Resident Conference  
 09/25/2018 "MR Imaging of the Spine," MCW Pain Fellow Lecture, Chronic Pain Series  
 10/30/2018 Functional and Dysfunctional Language System with Clinical Brain Mapping, Resident Lecture  
 11/01/2018 Spine Infection and Inflammatory Disorders, Resident Conference  
 01/04/2019 DTI and Language, Fellow Lecture  
 03/05/2019 Language Brain Mapping, Fellow Lecture  
 03/05/2019 "Language Brain Mapping," Fellow Lecture  
 04/16/2019 Ball-in-Glove, Fellow Lecture  
 05/08/2019 Volumetric Imaging of the Dementias, Psychiatry Resident Lecture  
 05/08/2019 Fundamentals of Neuroimaging, Psychiatry Resident Lecture  
 08/27/2019 "MR Imaging of the Spine," MCW Pain Fellow Lecture, Chronic Pain Series  
 10/18/2019 Degenerative Disease of the Spine, Resident Conference  
 10/24/2019 Language Brain Mapping, Fellow Lecture  
 11/15/2019 Head Trauma, Resident Lecture  
 02/17/2020 Orbits Part 1, Resident Conference  
 02/19/2020 Orbits Part 2, Resident Lecture  
 03/02/2020 Ball-in-Glove, Fellow Lecture  
 03/04/2020 Fundamentals of Neuroimaging, Psychiatry Resident Lecture  
 03/04/2020 "Volumetric Imaging of the Dementias" Psychiatry Resident Lecture  
 07/20/2020 Intro to Radiology: Neuroradiology and Computer Topics  
 07/21/2020 Pineal and Intraventricular Neoplasms, Resident Conference  
 10/22/2020 Language Brain Mapping, Fellow Lecture  
 12/09/2020 DTI and Language, Fellow Lecture  
 12/10/2020 DTI and Language, Fellow Lecture  
 03/03/2021 Fundamentals of Neuroimaging, Psychiatry Resident Lecture  
 03/03/2021 "Volumetric Imaging of the Dementias" Psychiatry Resident Lecture  
 03/09/2021 "MR Imaging of the Spine," MCW Pain Fellow Lecture, Chronic Pain Series  
 09/21/2021 "MR Imaging of the Spine," MCW Pain Fellow Lecture, Chronic Pain Series  
 10/22/2021 Language Brain Mapping, Fellow Lecture  
 11/08/2021 Fellowship Lecture: Functional Brain Mapping - Language fMRI  
 12/10/2021 DTI and Language, Fellow Lecture  
 02/07/2022 "Intracranial Hemorrhages," Radiology Interest Group  
 03/02/2022 "Fundamentals of Neuroimaging," Psychiatry Resident Lecture  
 04/20/2022 "Clinical Neuroimaging," Biophysics Lecture

#### **Community/Lay Public**

2016 - 2017 "Stroke Imaging at MCW" lecture to all members of the Cardiovascular Intensive Care Unit (CVICU)

#### **MCW STUDENTS, FACULTY, RESIDENTS AND CLINICAL/RESEARCH FELLOWS MENTORED:**

##### **Medical Students**

2012 - 2013 Patrick Darga, class of 2013, Radiology Mentor, Medical College of Wisconsin  
 02/2013 - 05/2015 Andrew Ceranske, class of 2015, Master Clinician Pathway Advisor, Medical College of Wisconsin  
 2013 - 2014 Joshua Brown, class of 2014, Radiology Mentor, Medical College of Wisconsin  
 2017 - 2019 Nate Skinner, MD/PhD student, Clinical Advisor, Medical College of Wisconsin

##### **Clinical/Research Fellows**

07/2010 - 06/2011 Dhiraj Baruah, MD, Neuroradiology Fellow, Medical College of Wisconsin  
 07/2010 - 06/2011 Conor Zuk, DO, Neuroradiology Fellow, Medical College of Wisconsin  
 07/2010 - 06/2011 Flavius Raslau, MD, Neuroradiology Fellow, Medical College of Wisconsin

07/2010 - 06/2011 Ambarish Bhat, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2011 - 06/2012 Dhiraj Baruah, MD, Advanced Neuroradiology Fellow, Medical College of Wisconsin  
07/2011 - 06/2012 Flavius Raslau, MD, Advanced Neuroradiology Fellow, Medical College of Wisconsin  
07/2011 - 06/2012 Saurabh Gupta, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2011 - 06/2012 Eric Goth, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2012 - 06/2013 Manav Bhalla, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2012 - 06/2013 Saurabh Gupta, MD, Advanced Neuroradiology Fellow, Medical College of Wisconsin  
07/2012 - 06/2013 Rajeev Mannem, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2012 - 06/2013 Ibrahim Tuna, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2012 - 06/2013 Veronica Carranza, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2013 - 06/2014 Puneet Kochar, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2013 - 06/2014 Jeff Anderson, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2013 - 06/2014 Mohit Agarwal, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2013 - 06/2014 Zagum Bhatti, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2013 - 06/2014 Chinar Lath, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2014 - 06/2015 Ibrahim Tuna, MD, Advanced Neuroradiology Fellow, Medical College of Wisconsin  
07/2014 - 06/2015 Mohit Agarwal, MD, Advanced Neuroradiology Fellow, Medical College of Wisconsin  
07/2014 - 06/2015 Laura Kohl, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2014 - 06/2015 Tushar Chandra, MD, Advanced Neuroradiology Fellow, Medical College of Wisconsin  
07/2014 - 06/2015 Keith McCollister, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2015 - 06/2016 Manav Bhalla, MD, Advanced Neuroradiology Fellow, Medical College of Wisconsin  
07/2015 - 06/2016 Mohit Agarwal, MD, Advanced Neuroradiology Fellow, Medical College of Wisconsin  
07/2015 - 06/2016 Brian Hopper, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2015 - 06/2016 Brian Graner, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2016 - 06/2017 Terrance Grant, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2016 - 06/2017 Christopher Grant, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2016 - 06/2017 Mohit Agarwal, MD, Advanced Neuroradiology Fellow, Medical College of Wisconsin  
07/2017 - 06/2018 Anthony Zbacnik, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2017 - 09/2018 Chris MacDonald, MD, PhD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2017 - 06/2018 Elton Mustafaraj, DO, Neuroradiology Fellow, Medical College of Wisconsin  
10/2017 - 09/2018 John Slaby, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2018 - 06/2019 Kristin Fay, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2018 - 06/2019 Joshua Bonis, MD, PhD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2018 - 06/2019 Chris Kleefisch, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2019 - 06/2020 Sheeraz Daudi, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2020 - 06/2021 Joshua Westbrook, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2020 - 06/2021 Mohammed Ahsheri, MBBS, Neuroradiology Fellow, Medical College of Wisconsin  
07/2021 - 06/2022 Zaneta Dymon, DO, Neuroradiology Fellow, Medical College of Wisconsin  
07/2021 - 06/2022 Kim McKenna, DO, Neuroradiology Fellow, Medical College of Wisconsin  
07/2021 - 06/2022 Lohitha Kolli, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2021 - 06/2022 Khalid Alsabban, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2022 - 06/2023 Alexander Kurdi, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2022 - 06/2023 John Clarke, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2022 - 06/2023 Nathan Gruenhagen, MD, Neuroradiology Fellow, Medical College of Wisconsin  
07/2022 - 06/2023 Eric Wideburg, DO, Neuroradiology Fellow, Medical College of Wisconsin  
07/2022 - 06/2023 Greg Bradley, DO, Neuroradiology Fellow, Medical College of Wisconsin  
07/01/2023 - 06/30/2024 Patrick Budny, MD, Neuroradiology Fellow, Medical College of Wisconsin

### **Residents**

01/05/2011 Samir Shah, MD, Mentor for resident seminar, "MR Evaluation of Spine Infections", Medical College of Wisconsin  
02/22/2012 Quinton Kelly, MD, Mentor for residency journal club, Medical College of Wisconsin  
01/23/2013 Gary Roper, MD, Mentor for residency journal club, Medical College of Wisconsin  
03/20/2013 Dan Kehler, MD, Mentor for resident seminar, "Solitary Spine Lesions", Medical College of Wisconsin  
01/27/2016 Tyler Flessner, MD, Mentor for residency journal club, Medical College of Wisconsin

02/03/2016 Tyler Flessner, MD, Mentor for resident seminar, "Globe Injuries", Medical College of Wisconsin  
02/26/2016 Joshua Bonis, MD, PhD, Mentor for resident seminar, "Traumatic Brain Injury", Medical College of Wisconsin  
01/25/2017 Nick Johnson, MD, Mentor for residency journal club (Traumatic Brain Injury), Medical College of Wisconsin  
02/16/2017 Jerome Larson, MD, Mentor for resident seminar, "Hyperdense Lesions on Head CTs", Medical College of Wisconsin  
02/24/2017 Manav Bhalla, MD, Mentor for resident seminar, "MR Stroke Imaging", Medical College of Wisconsin  
03/17/2017 Nick Johnson, MD, Mentor for resident seminar, "Cavernous Sinus Anatomy and Pathology", Medical College of Wisconsin  
04/2019 Ben Meyer, MD, Journal Club, Mentoring: Acute Toxic Encephalopathy, Medical College of Wisconsin

**EXTRAMURAL STUDENTS, FACULTY, RESIDENTS, AND CLINICAL/RESEARCH FELLOWS MENTORED:**

**High School Students**

06/01/2017 - 07/31/2017 Stephanie Franczak, Neuroscience Summer Internship, Divine Savior Holy Angels, Complete Research Project on Semantic Dementia and submitted as ACR Case-in-Point  
06/01/2017 - 07/31/2017 Emily Ulmer, Neuroscience Summer Internship, University Lake School, Completed Research Project on Alzheimer's Disease and submitted as ACR Case-in-Point  
09/2018 - 05/2019 Swapnil Vallecha, Career guidance as part of the Insight Program, Pewaukee High School  
09/01/2019 - 06/30/2020 Isabel Palomo, Career guidance as part of the Insight Program, Pewaukee High School  
09/01/2020 - 06/15/2021 Drew Fox, Career guidance as part of the Insight Program, Pewaukee High School  
09/01/2021 - 06/15/2022 Alex Eidem, Career guidance as part of the Insight Program, Pewaukee High School  
09/01/2022 - 05/31/2023 Dana Wolkomir, Career guidance as part of the Insight Program, Pewaukee High School  
09/01/2023 - 05/31/2024 Nathan Kamath, Career guidance as part of the Insight Program, Pewaukee High School

**Undergraduate Students**

06/2015 - 08/2015 Caroline Blake, Mentor for summer exposure to the neurosciences, Furman University

**OTHER MENTORING ACTIVITIES:**

2019 - Present Co-founded and developed a free networking site and app for students interested in healthcare careers called, "AMP Honors." This resource connects high school students with resources, opportunities, and mentors.

**COMMUNITY SERVICE ACTIVITIES:**

08/1998 - 07/1999 Jesuit Volunteer Corps, Houston, TX (year-long program dedicated to serving the poor). Employed as activities coordinator, coach, tutor, and mentor for inner-city Hispanic youth at MECA (Multicultural Education and Counseling through the Arts).  
2012 - 2016 Youth T-ball/baseball coach at St. Dominic's Parish in Brookfield, WI  
2013 - Present Classroom volunteer at Pewaukee Lake Elementary in Pewaukee, WI  
2013 - 2017 Referee and volunteer for Upward Youth Basketball in Pewaukee, WI  
2014 - 2018 Chess club volunteer at Horizon Middle School in Pewaukee, WI  
04/20/2017 MCW and United Way, Making a Lunch 2017.  
06/13/2019 Imagine More Dinner, Fundraiser for MCW Neuroscience  
09/01/2021 - 06/15/2022 Volunteer presenter/advisor for Bellarmine Preparatory High School pre-med club

06/13/2022 Imagine More Dinner, Fundraiser for MCW Neuroscience  
07/01/2022 - Present Partnership Council for WI - HOSA (Health Occupation Student Association)  
09/01/2024 - Present Started the Health Career Club at University Lake School (high school) in Hartland, Wisconsin.

#### **PHYSICIAN ENGAGEMENT :**

2016 - Present Representing Center for Diagnostic Imaging "CDI" and Froedtert Hospital with visits to offices of referring physicians to help market imaging services

#### **BIBLIOGRAPHY**

##### **Refereed Journal Publications/Original Papers**

1. Baruah D, Chandra T, Bajaj M, Sonowal P, **Klein A**, Maheshwari M, Guleria S. A simplified algorithm for diagnosis of spinal cord lesions. *Curr Probl Diagn Radiol*. 2015;44(3):256-66.
2. Jarman JP, Arpinar VE, Baruah D, **Klein AP**, Maiman DJ, Muftuler LT. Intervertebral disc height loss demonstrates the threshold of major pathological changes during degeneration. *Eur Spine J*. 2015 Sep;24(9):1944-50.
3. Arpinar VE, Rand SD, **Klein AP**, Maiman DJ, Muftuler LT. Changes in perfusion and diffusion in the endplate regions of degenerating intervertebral discs: a DCE-MRI study. *Eur Spine J*. 2015 Nov;24(11):2458-67. PMID: PMC4755697
4. Kochar PS, Lath CO, **Klein AP**, Ulmer JL. Multimodality imaging in cranial blastomycosis, a great mimicker: Case-based illustration with review of clinical and imaging findings. *Indian J Radiol Imaging*. 2016 Jan-Mar;26(1):120-5. doi: 10.4103/0971-3026.178360. PubMed PMID: 27081235; PubMed Central PMCID: PMC4813061.
5. Agarwal M, Ulmer JL, Chandra T, **Klein AP**, Mark LP, Mohan S. Imaging correlates of neural control of ocular movements. *Eur Radiol*. 2016 Jul;26(7):2193-205.
6. Agarwal M, Ulmer JL, **Klein AP**, Mark LP. Why Is This Auntminnie a Diagnostic Conundrum?: A Knowledge-Based Approach to Balo's Concentric Sclerosis From Reports of 3 Cases and Pooled Data From 68 Other Patients in the Literature. *Curr Probl Diagn Radiol*. 2018 Jan 6.
7. Grochmal JK, Lozen AM, **Klein AP**, Mark LP, Li J, Wang MC. Interobserver Reliability of MRI Predictors of Outcome in Cervical Spine Degenerative Conditions. *World Neurosurg* 2018 Jun 15 PMID: 29913296 06/19/2018.
8. Bhalla M, Ulmer JL, **Klein AP**, McAvoy KE, Bhalla NM. Posttraumatic subgaleal herniation of an intracranial cerebral arterial segment. *Proc (Bayl Univ Med Cent)*. 2019 Mar 26;32(2):271-273. doi: 10.1080/08998280.2018.1560782. PubMed PMID: 31191151; PubMed Central PMCID: PMC6541065.
9. **Klein AP**, Tetzlaff JE, Bonis JM, Nelson LD, Mayer AR, Huber DL, Harezlak J, Mathews VP, Ulmer JL, Sinson GP, Nencka AS, Koch KM, Wu YC, Saykin AJ, DiFiori JP, Giza CC, Goldman J, Guskiewicz KM, Mihalik JP, Duma SM, Rowson S, Brooks A, Broglio SP, McAllister T, McCrea MA, Meier TB. Prevalence of Potentially Clinically Significant Magnetic Resonance Imaging Findings in Athletes with and without Sport-Related Concussion. *J Neurotrauma*. 2019 Jun;36(11):1776-1785. PMID: PMC6551984.
10. Ivanovic V, Paydar A, Chang YM, Broadhead K, Smullen D, **Klein A**, Hacein-Bey L. Impact of Shift Volume on Neuroradiology Diagnostic Errors at a Large Tertiary Academic Center. *Acad Radiol*. 2023 Aug;30(8):1584-1588.
11. Franczak S, Pommy J, Minor G, Zollicoffer C, Bhalla M, Agarwal M, Nencka A, Wang Y, **Klein A**, O'Neill D, Henry J, Umfleet G. Detecting Primary Progressive Aphasia Atrophy Patterns: A Comparison of Visual Assessment and Quantitative Neuroimaging Techniques *Journal of Alzheimer's Disease Reports*. 2022;6(1):493-501.
12. Gunasekaran VS, Hejdak D, Meyer B, **Klein A**, Koch K. Quantitative correlation of lumbar foraminal stenosis with local morphological metrics *European Spine Journal*. November 2021;30(11):3319-3323.
13. Emmert NA, Reiter KE, Butts A, Janecek JK, Agarwal M, Franczak M, Reuss J, **Klein A**, Wang Y, Umfleet LG. Hippocampal Volumes in Amnesic and Non-Amnesic Mild Cognitive Impairment Types Using Two Common Methods of MCI Classification. *J Int Neuropsychol Soc*. 2022 Apr;28(4):391-400.

14. Umfleet LG, Butts AM, Janecek JK, Reiter K, Agarwal M, Brett BL, Ryan JJ, Reuss J, **Klein A**, Corro AN, Franczak M. Memory Performance and Quantitative Neuroimaging Software in Mild Cognitive Impairment: A Concurrent Validity Study. *J Int Neuropsychol Soc.* 2020 Nov;26(10):954-962.
15. Schneble E, Lack C, Zapadka M, Pfeifer CM, Bardo DME, Cagley J, Acharya J, **Klein AP**, Bhalla M, Obayashi JT, Ross D, Pettersson DR, Pollock JM. Increased Notching of the Corpus Callosum in Fetal Alcohol Spectrum Disorder: A Callosal Misunderstanding? *AJNR Am J Neuroradiol.* 2020 Apr;41(4):725-728. PMID: PMC7144650
16. **Klein AP**, Tetzlaff JE, Bonis JM, Nelson LD, Mayer AR, Huber DL, Harezlak J, Mathews VP, Ulmer JL, Sinson GP, Nencka AS, Koch KM, Wu YC, Saykin AJ, DiFiori JP, Giza CC, Goldman J, Guskiewicz KM, Mihalik JP, Duma SM, Rowson S, Brooks A, Broglio SP, McAllister T, McCrea MA, Meier TB. Prevalence of Potentially Clinically Significant Magnetic Resonance Imaging Findings in Athletes with and without Sport-Related Concussion. *J Neurotrauma.* 2019 Jun;36(11):1776-1785. PMID: PMC6551984
17. Grochmal JK, Lozen AM, **Klein AP**, Mark LP, Li J, Wang MC. Interobserver Reliability of Magnetic Resonance Imaging Predictors of Outcome in Cervical Spine Degenerative Conditions. *World Neurosurg.* 2018 Sep;117:e215-e220.
18. Agarwal M, Ulmer JL, **Klein AP**, Mark LP. Why Is This Auntminnie a Diagnostic Conundrum?: A Knowledge-Based Approach to Baló's Concentric Sclerosis From Reports of 3 Cases and Pooled Data From 68 Other Patients in the Literature. *Curr Probl Diagn Radiol.* 2019;48(4):415-422.
19. Arpinar VE, Rand SD, **Klein AP**, Maiman DJ, Muftuler LT. Changes in perfusion and diffusion in the endplate regions of degenerating intervertebral discs: a DCE-MRI study. *Eur Spine J.* 2017 May;26(5):1416.
20. Raslau FD, Mark IT, **Klein AP**, Ulmer JL, Mathews V, Mark LP. Memory Part 2: The Role of the Medial Temporal Lobe *American Journal of Neuroradiology.* 1 May 2015;36(5):846-849.
21. **Klein AP**, Ulmer JL, Mueller WM, Raslau FD, Gaggl W, Maheshwari M. DTI for presurgical mapping Functional Brain Tumor Imaging. 1 May 2014;9781441958587:95-109.
22. **Klein AP**. Normal anatomic atlas of common white matter tracts using DTI *Functional Neuroradiology: Principles and Clinical Applications.* 1 January 2012:983-996.
23. Maheshwari M, **Klein AP**, Ulmer JL. White matter: Functional anatomy of key tracts *Functional Neuroradiology: Principles and Clinical Applications.* 1 January 2012:767-783.
24. Ulmer JL, Berman JI, Mueller WM, Gaggl W, DeYoe EA, **Klein AP**. Issues in translating imaging technology and presurgical diffusion tensor imaging *Functional Neuroradiology: Principles and Clinical Applications.* 1 January 2012:731-765.
25. Eng MH, **Klein AP**, Wink O, Hansgen A, Carroll JD, Garcia JA. Enhanced stent visualization: a case series demonstrating practical applications during PCI. *Int J Cardiol.* 2010 May 14;141(1):e8-e16.
26. Koch KM, Nencka AS, **Klein A**, Wang M, Kurpad S, Vedantam A, Budde M. Diffusion-weighted MRI of the spinal cord in cervical spondylotic myelopathy after instrumented fusion. *Front Neurol.* 2023;14:1172833. PMID: PMC10236479
27. Raslau FD, Mark IT, **Klein AP**, Ulmer JL, Mathews V, Mark LP. Memory part 2: the role of the medial temporal lobe. *AJNR Am J Neuroradiol.* 2015 May;36(5):846-9. PMID: PMC7990589
28. Ulmer JL, Berman JI, Mueller WM, Gaggl W, De Yoe EA, **Klein AP**. Issues in Translating Imaging Technology and Presurgical Diffusion Tensor Imaging *Functional Neuroradiology: Principles and Clinical Applications.* 1 January 2023:969-1002.
29. Kamali A, Kumar VA, Hasan KM, Maheshwari M, **Klein AP**, Talekar KS, Ulmer JL, Faro SH. DTI: Functional Anatomy of Key Tracts *Functional Neuroradiology: Principles and Clinical Applications.* 1 January 2023:1061-1084.
30. **Klein AP**. Normal Anatomic Atlas of Common White Matter Tracts Using DTI *Functional Neuroradiology: Principles and Clinical Applications.* 1 January 2023:1477-1489.
31. Franczak S, Pommy J, Minor G, Zollicoffer C, Bhalla M, Agarwal M, Nencka A, Wang Y, **Klein A**, O'Neill D, Henry J, Umfleet G. Detecting Primary Progressive Aphasia Atrophy Patterns: A Comparison of Visual Assessment and Quantitative Neuroimaging Techniques. *J Alzheimers Dis Rep.* 2022;6(1):493-501. PMID: PMC9484148
32. Gunasekaran VS, Hejduk D, Meyer B, **Klein A**, Koch K. Quantitative correlation of lumbar foraminal stenosis with local morphological metrics. *Eur Spine J.* 2021 Nov;30(11):3319-3323.
33. Brett BL, **Klein A**, Vazirnia P, Omidfar S, Guskiewicz K, McCrea MA, Meier TB. White Matter Hyperintensities and Microstructural Alterations in Contact Sport Athletes from Adolescence to Early

- Midlife. *J Neurotrauma*. 2024 Oct;41(19-20):2307-2322. PMID: PMC11564850
34. Sharafi A, **Klein AP**, Koch KM. Quantitative MRI Assessment of Post-Surgical Spinal Cord Injury Through Radiomic Analysis. *J Imaging*. 2024 Dec 08;10(12). PMID: PMC11678099

### **Books, Chapters, and Reviews**

1. Ulmer JL, Berman JL, Mueller WM, Gaggl W, DeYoe EA, **Klein AP**. Issues in Translating Imaging Technology and Presurgical Diffusion Tensor Imaging. In *Functional Neuroradiology: Principles and Clinical Applications*. Ed. S. Faro and FB Mohammed MD, Springer Science+Business Media, LLC, December 2010.
2. Maheshwari M, **Klein AP**, Ulmer JL. White Matter: Functional Anatomy of Key Tracts. In *Functional Neuroradiology: Principles and Clinical Applications*. Ed. S. Faro and FB Mohammed MD, Springer Science+Business Media, LLC, December 2010.
3. **Klein AP**. Normal Anatomic Atlas of Common White Matter Tracts Using DTI. In *Functional Neuroradiology: Principles and Clinical Applications*. Ed. S. Faro and FB Mohammed MD, Springer Science+Business Media, LLC, December 2010.
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7. Franczak M, Ulmer JL, **Klein AP**, Agarwal M, O'Neill D. ACR Case-in-Point "Posterior Cortical Atrophy." 10/15/2018.
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