**Curriculum Vitae**

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| **Date Prepared:** | 2023-03-13 |
| **Name:**  | Jayashree Kalpathy-Cramer |
| **Office Address:** | Department of Ophthalmology University of Colorado School of Medicine 1675 Aurora Court, F731, Aurora, CO 80045 |
| **Work Email:**  | Jayashree.kalpathy-cramer@cuanschutz.edu |

EDUCATION

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| --- | --- | --- | --- |
| **Year** | **Degree** | **Major** | **School/Program** |
| 1987 | B.Tech | Electrical Engineering | Indian Institute of Technology, Bombay, India |
| 1989 | MS | Electrical Engineering | Rensselaer Polytechnic Institute, Troy, NY |
| 1993 | PhD | Electrical Engineering (Prof. SP Murarka) | Rensselaer Polytechnic Institute, Troy, NY |
| 2009 | MS | Biomedical Informatics(Prof. W. Hersh) | Oregon Health & Science University, Portland, OR |

Postdoctoral Training

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| Year(s) | Title | Specialty/Discipline(Lab PI for postdoctoral research) | Institution |

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| 04/1995- 10/1995 | Semiconductor Research Corporation Post Doctoral Research Associate | Semiconductor Research PI: Dr. SP Murarka | Rensselaer Polytechnic Institute, Troy, NY |
| 09/2006-08/2009 | National Library of Medicine Fellowship | Department of Medical Informatics and Clinical EpidemiologyPI: Dr. W. Hersh | Oregon Health & Science University, Portland, OR |

FACULTY ACADEMIC APPOINTMENTS

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| Year(s) | Academic Title | Department | Academic Institution |
| 09/1992-12/1992 | Instructor | Mathematics | Hudson Valley Community College, Troy, NY |
| 09/2009-8/2011 | Instructor | Medical Informatics | Oregon Health & Science University, Portland, OR |
| 11/ 2010- 4/2011 | Visiting Research Scientist | Electrical and Computer Engineering | Northeastern University, Boston, MA |
| 09/2011-12/2013 | Instructor | Radiology | Harvard Medical School, Boston, MA |
| 01/2014- 11/2017 | Assistant Professor | Radiology | Harvard Medical School, Boston, MA |
| 09/2011-present | Adjunct Asst. Professor (non-voting) | Medical Informatics, Radiation Medicine | Oregon Health & Science University, Portland, OR |
| 12/2017- 5/2022 | Associate Professor | Radiology | Harvard Medical School, Boston, MA |
| 6/2022-present | [Visiting] Professor | Radiology | Harvard Medical School, Boston, MA |
| 6/2022-present | Professor | Ophthalmology | University of Colorado, Anschutz Medical Campus |

OTHER PROFESSIONAL POSITIONS

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| Year(s) | Position Title | Institution |
| 10/1995-10/1996 | Senior Process Engineer | LSI Logic, Santa Clara, CA |
| 11/1996-5/2004 | Staff Process and Integration Engineer,Technology owner for 0.18 μm and 0.35 μm LSI Logic (semiconductor chip manufacturer) specific semiconductor processes: managed flow changes and updates, oversaw process improvements and changes as part of the Quality Review Board | LSI Logic, Gresham, OR |
| 2016 | Consultant | INFOTECH Soft, Inc |

MAJOR ADMINISTRATIVE LEADERSHIP POSITIONS

Local

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| Year(s) | Position Title | Institution (note if specific department) |

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| 2010, 2011 | Developed the quantitative research methods course for graduate students in Medical Informatics | Dept. Medical Informatics & Clinical Epidemiology, Oregon Health & Science University |

National and International

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| Year(s) | Position Title | Institution (note if specific department) |

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| 1998 | Organizer/Chair at the 1998 Spring meeting MRS Symposium Q (Materials Issues in Chemical-Mechanical Polishing) | Materials Research Society Spring Meeting, San Francisco, CA, April 1998 |
| 2007-2013 | Co-organizer of ImageCLEF | International Image Retrieval challenge |
| 2010 | Co-organizer for ImageCLEF@ICPR – The CLEF Cross Language Image Retrieval Track | International Conference on Pattern Recognition, Istanbul, Turkey |
| 2011 | Co-chair | International ACM Workshop on Medical Multimedia Analysis and Retrieval (MMAR), Scottsdale, AZ |
| 2012 | Chair of the Bioinformatics and Data Sharing Working Group | Quantitative Imaging Network (a network of 13+ sites funded by the NCI to develop and advance quantitative imaging for cancer) |
| 2013 | Chair of the PET/CT working group | Quantitative Imaging Network (a network of 17+ sites funded by the NCI to develop and advance quantitative imaging for cancer) |
| 2013 | Co-organizer for the NCI-MICCAI 2013 Grand Challenges in Image Segmentation (Multiparametric Brain Tumor Segmentation) | MICCAI 2013, Nagoya, Japan |
| 2013 | Co-organizer for the AMIA-ImageCLEF workshop | American Medical Informatics Association Annual Meeting, Washington, DC, |
| 2014 | Chair of the Image Analysis and Performance Metrics Working group | Quantitative Imaging Network (a network of 21+ sites funded by the NCI to develop and advance quantitative imaging for cancer) |
| 2014 | Co-organizer for the NCI-MICCAI 2014 Grand Challenges in Image Segmentation (Multiparametric Brain Tumor Segmentation) | MICCAI 2014, Boston, MA |
| 2015 | Co-organizer for NCI-MICCAI 2015 Computational Brain Tumor Cluster of events | MICCAI 2015, Munich, Germany |
| 2015, 2016, 2017 | Co-chair National Brain Tumor Society MRI image analysis workgroup | Jump Starting Brain Tumor Drug Development Coalition |
| 2016 | Co-organizer of NCI-MICCAI Precision Medicine Workshop | MICCAI 2016, Athens, Greece |
| 2016-2017 | Co-chair of the technical working group of the Informatics Technology for Cancer Research (ITCR)  | National Cancer Institute Program |
| 2017 | Co-organizer of NCI-MICCAI Precision Medicine Workshop | MICCAI 2017, Quebec City, Canada |
| 2017 | Chair of the Bioinformatics and Data Sharing Working Group | Quantitative Imaging Network (a network of 25+ sites funded by the NCI to develop and advance quantitative imaging for cancer) |
| 2019 -date | Senior Scientist | American College of Radiology, Data Science Institute |
| 2020-date | Co-chair, Federated Learning working group  | MONAI open source project. |
| 2021-2023 | Organizing Committee | MICCAI 2023, Vancouver, Canada |
| 2022 | Organizer, tutorial on “Federated Learning in Medical Imaging” | IEEE ISBI 2022, Calcutta, India |
| 2022 | Organizer, ACR-NCI-NVIDIA Breast density federated learning challenge | MICCAI 2022, Singapore |
| 2023 | Co-chair, Challenges | MICCAI, 2023, Vancouver,  |

COMMITTEE SERVICE

Local

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| Year(s) of Membership | Name of Committee | Institution/Organization |
| Dates of Role(s) | Title of Role(s) |

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| 2009-2011 | Admissions Committee | Dept. Medical Informatics and Clinical Epidemiology, OHSU |
| 2009-2011 | PhD Exam Committee | Dept. Medical Informatics and Clinical Epidemiology, OHSU |
| 2020 | Search Committee for Executive Director | Athinoula A. Martinos Center for Biomedical Imaging, MGH |
| 2019-2021 | Radiology executive committee for research | Dept. Radiology, MGH |

National and International

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| Year(s) of Membership | Name of Committee | Institution/Organization |
| Dates of Role(s) | Title of Role(s) |

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| 2007 | Program Committee member | IEEE Workshop of Data Mining in Medicine |
| 2009 | Publicity chair | MCBR-CDS 2009: Medical Content-based Retrieval for Clinical Decision Support, Medical Image Computing and Computer Assisted Interventions Conference (MICCAI) 2009 |
| 2011 | Program Committee member | First IEEE Conference on Healthcare Informatics, Imaging, and Systems Biology (HISB), San Jose, CA |
| 2011 | Program Committee member | International ACM Workshop on Medical Multimedia Analysis and Retrieval (MMAR), Scottsdale, AZ |
| 2011 | Sponsorship Chair  | First IEEE Conference on Healthcare Informatics, Imaging, and Systems Biology (HISB), San Jose, CA |
| 2012 | Publicity chair | SIGIR, Portland, OR |
| 2012 | Program Committee member | ACM Multimedia 2012, Nara, Japan |
| 2012 | Program Committee member | MICCAI MCBR-CDS 2012: Medical Content-based Retrieval for Clinical Decision Support, Nice, France |
| 2012-date | Invited member | Quantitative Imaging Biomarker Alliance (QIBA) Metrology and PDF committees (RSNA effort) |
| 2015-2018 | Invited member | National Brain Tumor Imaging Standardization Steering Committee |
| 2016 | Program Committee member | MICCAI 2016, Athens, Greece |
| 2017 | Program Committee member | ML-CDS 2017: Multimodal Learning for Clinical Decision Support Workshop at MICCAI 2017 |
| 2017/2018 | Program Committee member | Health on the Web” research paper track at the 27th World Wide Web Conference (WWW) |
| 2017-date | Member, Biomedical Engineering Advisory Council | Rensselaer Polytechnic Institute, Troy, NY |
| 2017-date | Machine Learning Steering Committee | Radiological Society of North America (RSNA) |
| 2018-date  | Research Advisory Council | The Cancer Imaging Archive project |
| 2018 | Program Committee | MICCAI 2018 |
| 2019-date | Advanced Imaging Task Group | National Lung Cancer Roundtable |
| 2019-date | Research Round Table Content Committee | NBTS Research Roundtable Content Committee |
| 2020-date  | External Advisory Committee Co-Chair | NCI Imaging Data Commons |
| 2020 | Program Committee member | RSNA Breast Scientific Program Committee |
| 2020 | Program Committee member | MICCAI Distributed and Collaborative Learning workshop |
| 2020 | Steering Committee | Medical Open Network for AI (MONAI)  |
| 2020 | Working group chair | Federated Learning, MONAI |
| 2020 | Search Committee | AA Martinos Professorship, MIT |
| 2021 | Program Committee member | 2nd MICCAI Workshop on Distributed and Collaborative Learning |
| 2021, 2022 | General chair | Workshop on Interpretability of Machine Intelligence in Medical Image Computing at MICCAI 2021 |
| 2022 | Committee member  | AAO Artificial Intelligence committee |
| 2022-2023 | Program Committee member | SPIE Medical Imaging |
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PROFESSIONAL SOCIETIES

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| Year(s) of Membership | Society Name |  |
| Dates of Role(s) | Title of Role(s) |

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| 1990-1993 | The Electrochemical Society | Member |
| 1998-2000 | The Electrochemical Society | Member |
| 1998-2000 | Materials Research Society | Member |
| 2001-2004 | Institute of Electrical and Electronics Engineers | Member |
| 2007-present | Institute of Electrical and Electronics Engineers | Member |
| 2006- present | American Medical Informatics Association | Member |
| 2007- present | SPIE | Member |
| 2008- present | Association for Computing Machinery (ACM) | Member |
| 2011-present | American Society for Radiation Oncology (ASTRO) | Associate member |
| 2012-present | Radiological Society of North America (RSNA) | Associate member |
| 2013-present | International Society for Magnetic Resonance in Medicine (ISMRM) | Member |

GRANT REVIEW ACTIVITIES

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| Year(s) of Membership | Society Name |  |
| Dates of Role(s) | Title of Role(s) |

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| May, 2014 | Special Emphasis Panel/Scientific Review Group 2014/10 Study section ZCA1 TCRB-Y (O2) | NIH/NCI Ad hoc member |
| October, 2014 | Special Emphasis Panel/Scientific Review Group 2015/01 ZRG1 SBIB-D (57) | NIH/NCI Ad hoc member |
| January, 2015 | Special Emphasis Panel/Scientific Review Group 2015/05 Study section ZCA1 TCRB-Y (M1) | NIH/NCI Ad hoc member |
| May, 2015 | Special Emphasis Panel/Scientific Review Group 2015/10 ZCA1 TCRB-Y (O2), | NIH/NCI Ad hoc member |
| November, 2015 | Special Emphasis Panel/Scientific Review Group 2016/01 ZCA1 TCRB-W (J1) S | NIH/NCI Ad hoc member |
| April, 2016 | Special Emphasis Panel/Scientific Review Group 2016/05 ZCA1 GRB-P (M2) S | NIH/NCI Ad hoc member |
| October, 2017 | Special Emphasis Panel/Scientific Review Group 2017 ZCA1 TCRB – D (J1) | NIH/NCI Ad hoc member |
| July, 2018 | Special Emphasis Pane/Scientific Review Group 2018 ZLM1 YW – C (01) | NIH/NLM Ad hoc member |
| January 2019 | External grant review | Israel Science Foundation |
| May 2019 | External grant review | Singapore Ministry of Health |
| September 2019 | Special Emphasis Panel SPORE program, ZCA1 RPRB – J (J1) | NIH/NCI Ad hoc member |
| September 2019 | Artificial Intelligence in Oncology | Hanarth Fonds, Netherlands |
| March 2020 | External grant review | Singapore Ministry of Health |
| October 2020 | CTIS study section | NIH temporary member |
| July 2021 | External grant review | Health Research Board, Ireland |
| August 2021 | External grant review | MRC council, UK |
| December 2021 | Site view review of NIH Molecular Imaging Branch | Site visit review team |

Editorial Activities

Ad hoc Reviewer

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| Journals for which you serve as a reviewer |

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| Computer Vision and Image Understanding |
| Journal of the American Society for Information Science and Technology |
| International Journal of Computers and Applications |
| Computer Methods and Programs in Biomedicine |
| Pattern Recognition Letters |
| International Medical Informatics Association Yearbook |
| Health Information and Libraries Journal |
| AMIA annual meeting, 2010, 2011 |
| AMIA Clinical Research Informatics Summit, 2011 |
| Medical Journal of Australia |
| Journal of Convergence Information Technology |
| Methods of Information in Medicine |
| Journal of Digital Imaging |
| Computerized Medical Imaging and Graphics |
| IEEE Journal of Biomedical and Health InformaticsMICCAI Annual conference 2016NIPS annual conference 2016, 2017 |
| PeerJ |
| Radiology |
| IEEE Transactions on Medical Imaging |
| NeurIPS conferences 2016, 2017, 2019 |
| The Lancet |
| JAMA Oncology |

Editorial Board

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| Journals for which you serve as a reviewer |

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| Methods of Information in Medicine (since November 2012)Editorial Board Member, Translational Vision Science and Technology (since 2020) |

Associate Editor

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| Journals for which you serve as a reviewer |

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| The British Journal of Radiology (AI section) (since December 2020) |

Deputy Editor

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| Journals for which you serve as a reviewer |

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| Radiology: Artificial Intelligence (since July 2018) |

[Honors and Prizes](http://cv.hms.harvard.edu/index.php?page=honors)

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| Year | Name of Honor/Prize | Awarding Organization | Achievement for which awarded (if unclear from award title) |

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| 1989 | Nominated for teaching award | Electrical Engineering Department, Rensselaer Polytechnic Institute |
| 2010 | Candidate for best poster, “Propensity Score-Weighted Survival Model for the Benefit of Adjuvant Chemoradiotherapy for Gallbladder Cancer” | Medinfo 2010, Cape Town, South Africa |
| 2017 | Co-supervised student paper that won Robert F. Wagner Best Student paper in the SPIE Medical Imaging 2017 | Dicente Cid Y, Mamonov A, Beers A, Thomas A, Kovalev V, Kalpathy-Cramer J, Müller H, Making sense of large data sets without annotations: analyzing age-related correlations from lung CT scans, Proc. SPIE 10138, Medical Imaging 2017: Imaging Informatics for Healthcare, Research, and Applications, 1013809 (March 13, 2017) |
| 2017 | 2017 Marco Ramoni Distinguished paper award, American Medical Informatics Association Translational Bioinformatics Summit  | Saltz J, Almeida J, Gao Y, Sharma A, Bremer E, DiPrima Y, Saltz M, Kalpathy-Cramer J, Kurc T , Towards generation, management, and exploration of combined radiomics and pathomics datasets for cancer research,  |
| 2020  | Council of Distinguished Investigators | Academy for Radiology & Biomedical Imaging Research |
| 2022 | Supervised Image Processing best student paper award runner-up, SPIE Image Processing Conference, 2022 | Hoebel K, Bridge C, Lemay A, Chang K, Patel J, Rosen B, Kalpathy-Cramer J, "Do I know this? segmentation uncertainty under domain shift," Proc. SPIE 12032, Medical Imaging 2022: Image Processing, 1203211 (4 April 2022); |
| 2022 | Thrall Mentoring Award (recognizes and honors mentoring contributions of faculty who have demonstrated sustained interest and success in mentoring junior faculty members and trainees.) | Department of Radiology, MGH |

**Report of Funded and Unfunded Projects**

Funding Information

Current

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| 2019 – 2023 | Partnership for Retinopathy Of Prematurity Evaluation in the Real world (PROPER)Subcontract-PI: $103,886 (direct costs)The long-term goal of this project is to evaluate whether deep learning may be used topredict disease recurrence in retinopathy of prematurity |
| 2020 –2024 | EU2020ProCan -I: An AI Platform integrating imaging data and models, supporting precision care through prostate cancer’s continuumKalpathy-Cramer (sub-contract PI): $508,784 (direct costs)The objective to design, develop and sustain a cloud-based, secure image infrastructure with tools and services for data handling and to develop AI tools for prostate cancer. |
| 2020 –2022 | Robust AI to develop risk models in retinopathy of prematurity using deep learningKalpathy-Cramer (PI): $275,000 (direct costs)The goal of this project is to develop risk models for retinopathy of prematurity using distributed learning approaches. |
| 2020-2025 | NIBIB: Medical Imaging and Data Consortium: Rapid Response to COVID-19 Pandemic (PI: Giger)Kalpathy-Cramer (subcontract/project PI): $396,496 (direct costs), budget for years 3-5 to be amended.The goal of this project is to develop algorithms and infrastructure for image analysis in COVID-19 |
| 12/2020 – 12/2025 | NEI/NIHClinical and Genetic Analysis of Retinopathy of PrematurityKalpathy-Cramer (sub-contract PI), $449,163The long-term goal of this project is to evaluate how deep learning may be used topredict disease recurrence in retinopathy of prematurity |
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Past

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| 2006-2009 | Biomedical Informatics Research Training At Oregon Health & Science UniversityNLM 2T15LM007088 Trainee/fellow  |
| 2009-2011 | Oregon Clinical and Translational Science Institute: To change biomedical research to create a vibrant academic home for clinical/translational research1 UL1 RR024140Informatician, Translational Bioinformatics Program (BMIP) |
| 2009-2011 | Clinical Image Retrieval: User needs assessment, toolbox development and evaluationNLM/K99-R00 1K99LM009889PI ($199,587 total direct costs)The specific aims of this grant are to (1) Understand the image retrieval needs of novice and expert users in radiation oncology and develop gold standards for evaluation; (2) Develop algorithms for semantic, multimodal image retrieval; (3) Perform user based evaluation of adaptive image retrieval in radiation oncology; (4) Extend the techniques developed to create a multimodal image retrieval system in pathology |
| 2011-2014 | Clinical Image Retrieval: User needs assessment, toolbox development and evaluationNLM/K99-R00 4R00LM009889PI: $416,255 (direct costs)The specific aims of this grant are to (1) Understand the image retrieval needs of novice and expert users in radiation oncology and develop gold standards for evaluation; (2) Develop algorithms for semantic, multimodal image retrieval; (3) Perform user based evaluation of adaptive image retrieval in radiation oncology; (4) Extend the techniques developed to create a multimodal image retrieval system in pathology |
| 2011-2016 | Shutter-Speed Model DCE-MRI for Assessment of Response to Cancer Therapy (PI: Wei Huang, PhD, OHSU)NCI 1U01CA154602-01A1Sub PI: $32,689 (direct costs)My role on this grant is to lead the informatics development efforts in Aim 3. I serve as the liaison with the NCI informatics community and the QIN informatics sub-group and work closely with Drs. Huang and Ryan to assist in integration of other data types with the imaging studies. |
| 2011-2017 | Quantitative MRI of glioblastoma response NCI 1U01CA154601-01PI: $1,935,771.00 (direct costs)The goal of this project is to develop advanced MR imaging techniques and tools that are effective in the early prediction of response to therapy in patients with glioblastoma. Through simulations, phantom studies, retrospective analysis as well as advanced imaging in prospective clinical trials, we hope to improve the reliability of advanced MRI methods as potential imaging biomarkers, and pave the way for clinically useful decision-making tool that can be applied in the context of multi-center clinical trials. |
| 2013 | Protocol 6677 Reader MOUACRINPI: $2012 (direct costs)We analyzed 750 datasets, provided by the Imaging Core Lab from the ACRIN 6677 trial, consisting of MR images and DICOM RT structures for a comparative analysis to determine agreement versus discordance between the two central readers. |
| 2013 | A Prototype Quantitative Imaging Network portal using the HubZero collaborative platformNCI ContractPI: $43,593 (direct costs)The scope of this project is to support the requirements analysis, design, and development of a prototype QIN Portal using the HUBzero collaborative platform |
| 2013-2016 | Automated retinopathy of prematurity classification using machine learningNEI 1R21EY022387-01A1PI: $274,158/ $121,696 (direct costs/PI share)Retinopathy of prematurity (ROP) is a leading cause of childhood blindness in the United States and throughout the world. In this project based on the secondary analysis of existing data sets, we will develop a web-based, semi-automated system for identifying severe ROP with “plus disease” from retinal images.  |
| 2014-2016 | MedICI— The Medical Imaging Challenge InitiativeLeidos Contract 14X229Kalpathy-Cramer (PI): $350,034 (direct costs)The goal of this project is to develop and implement infrastructure to conduct pilot challenges in imaging, digital pathology and genomics and to host three such challenges |
| 2013-2018 | Quantitative image informatics for cancer research (QIICR) (PI: Ron Kikinis, MD, BWH)NCI 1U24CA180918-01Sub PI: $346,195 (direct costs)The purpose of this project is to develop and disseminate interoperable image informatics platform for development of software tools for quantitative imaging biomarker discovery. This platform will enable archival, organization, retrieval, dissemination of the data produced by the novel analysis tools and performance evaluation of quantitative analysis methods |
| 2014-2019 | Informatics Tools for Optimized Imaging Biomarkers for Cancer Research & DiscoveryNCI 1U24 CA180927 Kalpathy-Cramer/ Rosen (MPI): $2,672,052/ $696,743 (direct costs/ PI share) The goal of this project is to develop, deploy, and disseminate a Cloud-based Image Biomarker Optimization Platform (C-BIBOP) for the large-scale central analysis of multi-institutional quantitative image data which can be linked to specific cancer types |
| 2015-2020 | Clinical and Genetic Analysis of Retinopathy of Prematurity (PI: Chiang)NEI R01EY019474Site PI: $225,305 (direct costs)The long-term goal of this project is to identify clinical and genetic features of retinopathy of prematurity (ROP) development, and to analyze their relationships. Although biomedical research data are being generated at an enormous pace, much less work has been done to integrate disparate scientific findings across the spectrum from genomics to imaging to clinical medicine. Our overall hypotheses are that genetic factors are involved in the initiation and modulation of ROP, and that analysis of relationships among clinical, imaging, and genetic findings in ROP using bioinformatics approaches will improve understanding of disease pathogenesis and diagnosis |
| 2016 | Informatics Tools for Optimized Imaging Biomarkers for Cancer Research & DiscoveryNCI 1U24 CA180927 (administrative supplement)Rosen/Kalpathy-Cramer (MPI): $50,000(direct costs)This collaborative project, funded by the supplement, performed a pilot study to combine radiology and pathology analysis on brain tumor data from TCIA. Our containerized tools, deployed in the cloud, allowed for easy interoperability between tools being developed at the parent institutions. |
| 2017-2018 | Informatics Tools for Optimized Imaging Biomarkers for Cancer Research & DiscoveryNCI 1U24 CA180927 (administrative supplement) Rosen/Kalpathy-Cramer (MPI): $50,000(direct costs)This collaborative project, funded by the supplement, performed a pilot study to combine radiology and pathology analysis on brain tumor data from TCIA. Our containerized tools, deployed in the cloud, allowed for easy interoperability between tools being developed at the parent institutions. |
| 2017-2020 | Leidos Biomedical Research Inc 17X095Kalpathy-Cramer (PI): $128,387 (direct costs)Leidos contract for MedICI support. An ongoing contract from NCI/CBIIT to support the MedICI platform for challenges. Project has been approved |
| 2018-2019 | DeepROP – a Point-of-care system for Diagnosis of Plus Disease in Retinopathy of PrematurityPartners Innovation Discovery GrantKalpathy-Cramer (PI): $43,275 (direct costs)We developed a system for the diagnosis of ROP. We are currently in the process of seeking FDA approval and commercialization opportunities |
| 2017 – 2020 | Evaluation of metastatic brain tumor heterogeneity and physiological response to immunotherapy using advanced MRI1R01CA211238-01 Investigator (Gerstner PI)The goal of this proposal is to use longitudinal MRI to characterize the biological response of BM to immunotherapy and to improve our understanding of how tumor heterogeneity may influence the response to immunotherapy. |
| 2019-2020 | AWS Machine Learning Research Awards ($50,000 in AWS credits) |
| 2020-2021 | NSF: ImagiQ: Asynchronous and Decentralized Federated Learning for Medical Imaging (PI: Baek)Kalpathy-Cramer (subcontract PI): $41,516 (direct costs) |
| 2016-2021  | Assistive Integrative Support Tool for Retinopathy of PrematurityNSF 1622542Kalpathy-Cramer (PI): $410,839 (direct costs)Retinopathy of Prematurity (ROP) is a leading cause of childhood blindness worldwide. The goal of this project is to develop and deploy a machine learning framework for the assessment and diagnosis of ROP severity. The prototype assistive integrative support tool (ASSIST) for ROP will quantitatively describe disease severity and offer diagnostic estimates, through clinical evidence classifiers trained jointly over expert-generated labels. |
| 2018 – 2023 | Multimodal MR-PET Machine Learning Approaches for Primary Prostate Cancer CharacterizationR01CA218187Investigator (Catana PI)We propose to accelerate the translation of quantitative MR-PET to prostate cancer research and clinical applications. In particular, we will develop and validate an MR-based attenuation correction approach to guarantee that quantitatively accurate PET data are obtained in an integrated MR-PET scanner and then use machine learning approaches to characterize the aggressiveness of the tumors in patients undergoing radical prostatectomy |
| 2019 – 2022 | Minoryx Therapeutics S.L. Investigator (Helmer PI)CRSA: Imaging Centralized Services for the MT-2-02 TrialWe are performing the image analysis for this ALD gene therapy trial. |
| 2020-2022 | GE Health Systems Kalpathy-Cramer (PI): $512,974 (direct costs)Smart Devices Project—MRI Image Artifact CorrectionThe goal is to detect common MRI artifacts during acquisition, then to develop reconstruction algorithms and acquisition strategies that are robust to these artifacts.  |
| 2020-2021 | Microsoft AI for Health grant for COVID research ($75,000 in Azure credits) |
| 2020-2021 | Evergrande Foundation/Harvard CollegeKalpathy-Cramer (PI), $150,000Collaborative AI for Covid-19 (CAI4C)The goal of this collaborative project between MGB and the Guanghzou Institute of Respiratory Health, China is to advanced artificial intelligence (AI) techniques applied to medical imaging, clinical data, and laboratory testing to gain and disseminate knowledge about how to diagnose the pulmonary manifestations of COVID-19, quantify the severity of lung involvement, and predict the disease course and recovery in a variety of settings (in emergency rooms, respiratory clinics, ICUs, and therapeutic trials). |
| 2019-2022 | HHSN2612008000001EKalpathy-Cramer (PI): $182,668 (direct costs)MedICI Help Desk Task Order2 to develop and support medical imaging challenges |
| 2019-2022 | Distributed Learning of Deep Learning Models for Cancer ResearchU01CA242879Rubin/Kalpathy-Cramer (MPI): $420,188 (direct costs)The goal of this project is to develop technology that will enable researchers to create deep learning models for cancer applications without requiring sharing of patient data. Our work will enable development of more robust deep learning models to improve clinical decision making in cancer than models currently built on data from single institutions.  |
| 2019-2025 | DISCOVERY: Determinants of Incident Stroke Cognitive Outcomes and Vascular Effects on RecoverYKey Scientific Leadership, sub-study lead (Rost PI)The major goal(s) of the project (<https://discoverystudy.org/scientific-leadership>) is to develop a collaborative nationwide network of clinical sites with access to diverse acute stroke US populations has the expertise, experience and capacity to execute a large prospective study that will unravel the mechanisms of post-stroke cognitive disability, early recovery after stroke, and potential targets for personalized prevention, intervention, and rehabilitation. |
| Year(s) funded | Role on Project/ Title of Project |
| One sentence description of the purpose of the project |

**Report of Local Teaching and Training**

Teaching of Students in Courses

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| --- | --- | --- |
| 2010 | Quantitative Research Methods | Oregon Health & Science University |
|  | Masters and PhD students | 3 hours/week for 10 weeks |
| 2011 | Quantitative Research Methods | Oregon Health & Science University |
|  | Masters and PhD students | 3 hours/week for 10 weeks |
| 2012 | Lecture on quantitative imaging and image retrieval, Medical Informatics (BMI702) | HMS, 3 hour lecture+ lab, homework and office hours |
| 2013 | Lecture on quantitative imaging and image retrieval, Medical Informatics (BMI702) | HMS, 3 hour lecture+ lab, homework and office hours |
| 2014 | Modules on imaging informatics and data visualization (BMI702) | HMS, 4 weeks of 3 hour lecture +lab, homework and office hours |
| 2015 | Lecture on data visualization, Medical Informatics (BMI702) | HMS, 3 hour lecture+ lab, homework and office hours |
| 2016/2017  | Clinical Imaging Informatics  | MIT, IAP 4week long course with lectures and lab |
| 2017 | Lecture on machine learning in medical imaging | MIT, HST.563 Imaging Biophysics and Clinical Applications |
| 2018 | Lecture on machine learning (BMI702) | HMS, 3 hour lecture+ lab, homework and office hours |
| 2019 | Lecture on machine learning (BMI702) | HMS, 3 hour lecture+ lab, homework and office hours |
| 2020 | Lecture on machine learning (BMI702) | HMS, 3 hour lecture+ lab, homework and office hours |

[Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs)](http://cv.hms.harvard.edu/index.php?page=residents)

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| 2009-20011 | Clinical Image Retrieval | Oregon Health & Science University |
|  | Post-doctoral research fellows | One hour seminar each year |
| 2014-2016 | MRI image analysis | Radiology Resident Advanced MRI Rotation, Martinos Center, MGH |
| 2019-2020 | AI in radiology | Resident lecture |

[Laboratory and Other Research Supervisory and Training Responsibilities](http://cv.hms.harvard.edu/index.php?page=lab)

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| --- | --- | --- |
| 2008 | Mentored a summer intern funded through the NLM summer internship program | Daily mentorship for 10 weeks |
| 2009 | Mentored a summer intern funded through the NLM summer internship program | Daily mentorship for 10 weeks |
| 2010 | Mentored two students funded through the NLM summer internship program. | Daily mentorship for 10 weeks |
| 2010 | Mentored two students funded through my K99-R00 grant  | Daily mentorship for 10 weeks |
| 2010 | External mentor for Capstone project for 4 students at Portland State University. The goal of this project was to create a device for ‘Hand Function Assessment’ for applications in vascular surgery | Bimonthly mentorship for a semester |
| 2010-2012 | Mentored high school students funded through the OHSU’s CURE Program (Cancer Institute’s Minority Summer Internship Program) | Weekly mentorship for 10 weeks |
| 2011-date | Supervised Research fellows, instructors, programmers at the AA Martinos Center for Biomedical Imaging, MGH | Weekly mentorship |
| 2015-2016 | Supervised medical student thesis  | Weekly mentorship, thesis  |

Formally Mentored Medical School and Graduate Students

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| --- | --- | --- | --- | --- |
| Years | Name | Degree, institution | Role in training | Current position |
| 2011-2014 | Pavlina Polaskova | MD | Post-doctoral supervisor, co-authored a number of publications | PhD Student, Czech Republic |
| 2011-2015 | Kourosh Jafari-Khouzani | PhD | Post-doctoral supervisor, co-authored a number of publications | Senior Research Scientist, iCAD |
| 2014-2016 | Yangming Ou | PhD | Post-doctoral supervisor, co-authored a number of publications | Instructor, Harvard Medical School |
| 2016-date | Ken Chang | MD | PhD supervisor (completed) | MD/PhD student, Harvard Medical School |
| 2016-date | James Brown | PhD | Post-doctoral supervisor, MGH | Senior Lecturer (University of Lincoln) |
| 2018 | Szu-Yeu, Hu,  | MD | MS Capstone supervisor, Dept. Biomedical Informatics, HMS | Postdoctoral Fellow, MGH |
| 2018-date | Katharina Hoebel | MD | PhD supervisor, currently working in my lab | PhD student, MIT HST MEMP program |
| 2018-date | Jay Patel | BS | PhD supervisor, currently working in my lab | PhD student, MIT HST MEMP program |
| 2018-2019 | Malika Shahrawat | BS | MS thesis supervisor, MIT EECS | Data Scientist at Munich American Reassurance Company |
| 2018 | Cheng Che Tsai  | MD | MS Capstone supervisor, Dept. Biomedical Informatics, HMS | Postdoctoral Fellow, MGH |
| 2019-date | Praveer Singh | PhD | Post-doctoral supervisor, co-authored a number of publications | Postdoctoral Fellow, MGH |
| 2019-2020 | Sean Ko | MEng | MS thesis supervisor, MIT EECS | MS student, MIT EECS program |
| 2019-2020  | Bryan Chen | MEng | MS thesis supervisor, MIT EECS | MS student, MIT EECS program |
| 2020-date | Mishka Gidwani | BS | PhD supervisor, currently working in my lab | PhD student, Cleveland Clinic |
| 2020 | Lucy Liu | MBI | MS Capstone supervisor, Dept. Biomedical Informatics, HMS | MS student, Dept. Biomedical Informatics, HMS |
| 2020-date | Christopher Bridge | PhD | Post-doctoral supervisor | Senior Data Scientist, MGB |
| 2020-2022 | Charles Lu | MS | Supervisor | Data Scientist, MGB |
| 2020-2021 | Vibha Aggarwal | BS | MS thesis supervisor, MIT EECS | MS student, MIT EECS program |
| 2020-2022 | Eric Yang | BS | Capstone thesis supervisor, HMS | MS student, Dept. Biomedical Informatics |
| 2021-2022 | Sherif Shamseldein | MS | Capstone thesis supervisor, HMS | MS student, MMSCI program, HMS |
| 2020-date | Syed Rakin Ahmeed | BS | PhD supervisor, currently working in my lab | PhD student, Harvard Biophysics |

Other Mentored trainees

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Years | Name | Degree, institution | Role in training | Current position |
| 2011-2015 | Esra Ataer-Cansizoglu | PhD, Northeastern University | External thesis committee member, weekly meetings, co-authored numerous publications | Research scientist, MERL, Boston |
| 2011-2013 | James McKanna | PhD, OHSU | External thesis committee member, quarterly thesis committee meetings | Senior Data Scientist, Wayfair |
| 2015 | Alba García Seco de Herrera | PhD, HES-SO Switzerland | External supervisor for PhD thesis, reviewed thesis, attend thesis defense, provided written critique | Lecturer, School of Computer Science and Electronic Engineering, University of Essex, UK |
| 2016 | Carlos Correa | MS, University of Bern, Switzerland | External reviewer for Master’s thesis, reviewed thesis, provided written critique | Post-doctoral Fellow, University of Bern |
| 2016-2019 | Ryan Swan | PhD, OHSU | External thesis committee member, weekly meetings, co-authored numerous publications | Machine Learning Engineer at Optum |
| 2017 | Kyra Donahue | Middle school student | Weekly meetings | High school student |
| 2018, 2019 | Arthi Nagarajan | High school | Weekly meetings | Undergrad at Carnegie Mellon University |
| 2017, 2018 | Laurel Parsons | High school | Weekly meetings | Undergrad at U. Mass Amherst |
| 2018-date | Aaron Coyner | PhD, OHSU | External thesis committee member, weekly meetings, co-authored numerous publications | PhD student at OHSU |
| 2018-2021 | Manuel Morales | PhD, MIT | External thesis committee member, weekly meetings, co-authored numerous publications | Post doc at HMS |
| 2019-date | Nishanth Arun | MS, CMU | Mentor for internship, thesis supervisor | Graduate student at CMU |
| 2020-date | Ashwin Vaswani | B.Tech, BITS Pilani | Mentor for internship, thesis supervisor | Intern at Google, India |
| 2020-2021 | Mehak Aggarwal | MS, IIT Delhi | Mentor for internship | Data scientist at Sybill, India |
| 2020-date | Sharut Gupta | MS, IIT Delhi | Mentor for internship | IIT, Delhi |
| 2021-date | Andreanne Lemay | MS, Polytechnique Montreal university | Mentor for internship | Graduate student in Montreal |
| 2021 | Abdullah Ahmed | MD, Brown University | Mentor for internship | Medical school at Brown |
| 2020-date | Shruti Raghavan | BTech, IIIT Coimbatore | Mentor for internship |  |
| 2021-date | Sakshi Bhandari | MS, IIT Delhi | Mentor for internship | IIT, Delhi |
| 2021-date | Sourav Kumar | MS, IIT Delhi | Mentor for internship | IIT, Delhi |

Formal Teaching of Peers (e.g., CME and other continuing education courses)

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| 2015 | SNO sunrise session, Neuroimaging, SNO Annual Meeting,  | SNO Annual meeting, San Antonio, TX |
| 2015, 2017  | RSNA Faculty refresher course, Quantitative Imaging/Radiomics, Chicago, IL | RSNA Annual meeting, Chicago, IL |
| 2016 | How to teach a machine, Association of University Radiologists Annual meeting | Hollywood, FL  |
| 2018 | Artificial Intelligence in Medical Imaging | MGH, Charlestown, MA |
| 2019 | Artificial Intelligence in Medical Imaging | MGH, Charlestown, MA |
| 2020 | Artificial Intelligence in Medical Imaging | MGH, Charlestown, MA |
| 2020 | AI in Neuroimaging: Opportunities and Challenges | BWH, Boston, MA |
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Local Presentations

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| --- | --- |
| 4/2012 | Quantitative Imaging to Assess Therapeutic Response in Tumors at the “Imaging Biomarkers in Clinical Trials: Current Practice & Future Trends” CME Course at MGH |
| 10/2011 | Invited talk at the 5th Annual Rubinstein Research Retreat for the Department of Radiation Medicine, OHSU, Portland, OR |
| 3/2012 | “Developing novel biomarkers- Integrating advanced imaging with genomic data” at the Biomedicine in 4D conference, Oregon Health & Science University |
| 4/2012-6/2012 | Quantitative Research Methods (10 week distance/in-class course), Oregon Health & Science University |
| 4/2013-6/2013 | Quantitative Research Methods (10 week distance/in-class course), Oregon Health & Science University |

**Report of Regional, National and International Invited Teaching and Presentations**

Regional

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| 9/24/19 | HMS Neuroradiology Post Graduate Course, Boston, MA, “Assessment of Brain Tumors with Deep Learning Methods” |

National

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| --- | --- |
| 12/2010 | Invited talk on “Multimodal Image Retrieval – ImageCLEF and beyond” at Lister Hill Center, National Library of Medicine, Bethesda, MD |
| 11/2012 | Invited talk on the QIN lung tumor segmentation project, Radiomics Workshop, Moffitt Cancer Center, FL |
| 11/2013 | Invited talk on the QIN lung tumor segmentation project, Radiomics Workshop, Moffitt Cancer Center, FL |
| 12/2013 | Invited talk about “Inter-rater variability in segmentation for glioblastoma multiforme:ACRIN 6677”, ECOG-ACRIN Fall meeting, Hollywood, FL  |
| 5/2014 | Invited talk CI4CC <http://www.ci4cc.org/events/spring2014>  |
| 11/2014 | Invited talk Rubinstein Retreat, Department of Radiation Medicine, OHSU, OR |
| 10/2015 | Invited talk, CI4CC meeting, La Jolla, CA |
| 4/2016 | Invited talk, Quantitative Imaging Network, Annual Face to face meeting, Rock creek, MD |
| 7/2016 | Invited talk, NCI CBIIT Speaker series, Rock Creek, MD |
| 10/2016 | Invited talk, Radiomics Workshop, Moffitt Cancer Center, FL |
| 11/2015 | Invited talk, Society for Neuro Oncology (SNO) annual meeting, San Antonio, TX |
| 11/2016 | CNS Anticancer Drug Discovery and Development Conference Speaker, Scottsdale, AZ |
| 11/2016 | Invited talk, AMIA Biomedical Imaging Informatics Working Group AMIA 2016 pre-symposium |
| 11/2016 | Invited talk, IBIIS Seminar series, Stanford University, Palo Alto, CA |
| 4/2017 | Invited panelist, Quantitative Imaging Network Annual Face to Face meeting, Rockville, MD |
| 5/2017 | Invited talk, Annual meeting of the Association of Academic Radiologist (AUR), Hollywood, FL |
| 5/2017 | Invited panelist, Quantitative Imaging Biomarker Alliance (QIBA) Annual meeting, hosted by RSNA, Alexandria VA |
| 5/2017 | Invited talk, GTC, DC |
| 10/2017 | Invited talk, HubWeek, Boston |
| 11/2017 | Invited talk, Science Council FOReM (Focused Research Meeting): Image Guided Therapy, AAPM, Alexandria, VA |
| 2/2018 | Invited talk, MD Anderson Cancer Center, Houston, TX |
| 4/2018 | Invited talk, Cancer Imaging Steering Committee, NCI, Rock Creek, MD |
| 4/2018 | Invited talk, Marvin Zelen Symposium, Boston, MA |
| 4/2018 | Invited talk, Moffitt Cancer Center, Tampa, FL |
| 7/2018 | Invited talk, NRG Oncology meeting, Philadelphia, PA |
| 6/2018 | Invited talk, Practical Big Data Workshop, Ann Arbor, MI |
| 8/2018 | Invited talk, NIBIB/RSNA Workshop on AI in medical imaging, Bethesda, MD |
| 10/2018 | Invited talk, ISMRM Machine Learning Workshop II, Washington DC |
| 11/2018 | Invited talk, RSNA, Chicago, IL, Special Interest Session: Demystifying Machine Learning and Artificial Intelligence for the Radiologist, “The Reality: Current Application of Machine Learning and Artificial Intelligence in Clinical Radiology and Research” (given by Ken Chang due to travel issues) |
| 11/2018 | Invited talk, RSNA, Chicago, IL, Novel Discoveries Using the NCI's Cancer Imaging Archive (TCIA) Public Data Sets  |
| 11/2018 | Invited talk, RSNA, Chicago, IL, Machine Learning for Radiotherapy Applications, “Machine learning Tumor Classification” |
| 3/24/2019 | Invited talk, MD Anderson Cancer Center, Houston, TX, MRI Educational Seminar, “Machine Learning/ Deep Learning”. |
| 3/29/2019 | Invited talk, AACR, Atlanta, GA, Tools for Deep Learning in Cancer Image Analysis, “Deep Learning in Cancer Imaging: Promises and Challenges” |
| 4/1/2019 | Invited talk, AACR, Atlanta, GA, “Radiomics -Separating the Hope from the Hype” |
| 4/2/2019 | Invited talk, UCSD Grand Rounds, San Diego, CA, “AI in Radiology – a Practitioners’ Perspective” |
| 4/2/2019 | Invited talk, San Diego Radiological Society Meeting, San Diego, CA, “The Hope, the Hype and the Reality of AI in Radiology” |
| 4/8/2019 | Invited talk, World Medical Innovation Forum (WMIF), Boston, MA, “DeepROP: Point of Care System for the Diagnosis of Plus Disease in Retinopathy of Prematurity” |
| 4/26/2019 | Invited talk, Podos Symposium, Vancouver BC, “AI in Retinopathy of Prematurity: Opportunities and Challenges” |
| 5/18/2019 | Invited talk, 2019 Annual Conference of the American Society of Neuroradiology (ASNR), Boston, MA, “Applications of AI to Brain Tumor Imaging” |
| 5/22/2019 | Invited talk, LDV Vision Summit, New York, NY, panelist “Computer Vision Applications in Medicine & Health” |
| 5/31/2019 | Invited talk, RSNA Spotlight course, Radiology in the Age of AI, San Francisco, CA, “AI for multi-institutional collaborations” |
| 6/20/2019 | Invited talk, AAO Board of Trustees, Detroit, MI, “The Hope, the Hype and the Reality of AI in Radiology” |
| 6/25/2019  | Invited talk, 2019 SIIM-ACR Data Science Summit, Aurora, CO, “Mitigating Bias in Algorithm Development” |
| 6/25/2019  | Invited talk, 2019 SIIM-ACR Data Science Summit, Aurora, CO, “Distributed Learning in AI Model Development” |
| 6/25/2019  | Invited talk, 2019 SIIM-ACR Data Science Summit, Aurora, CO, “Ethics in Algorithm Training” |
| 7/15/2019 | Invited talk, AAPM, San Antonio, TX, “AI for Predicting Treatment Outcomes” |
| 9/8/2019 | Invited talk, ACR-RLI Summit, Wellesley, MA, “AI in Medical Imaging” |
| 9/18/2019 | Invited talk, ASTRO, Chicago, IL, Panel of Emerging Career Paths in Radiation Oncology Big Data, “Lessons from the field, building an informatics career with a focus on imaging” |
| 12/1/2019 | Creating Publicly Accessible Radiology Imaging Resources for Machine Learning and AI, RSNA 2019 |
| 12/2/2019 | “Brain Tumors and Other Lesions: How Will AI Help?”, CME Course, RSNA 2019 |
| 12/2/2019 | “Crowds Cure Cancer”, RSNA 2019,  |
| 12/4/2019 | “Machine Learning Tumor Classification”, CME Course, RSNA 2019 |
| 12/5/2019 | “Role of challenges and their requirements”, CME Course, RSNA 2019 |
| 2/1/2020 | Invited talk, “What is AI and how is it changing medicine?”, AUPO, Palm Springs, CAL |
| 2/4/2020 | Invited talk, “A Brief Survey of the AI Validation Landscape and Why We Need It”, IBM Symposium on AI for Biomedical Imaging Across Scales, IBM Research Almaden, CA |
| 4/25/2020 | Invited talk, “Machine Learning and AI in COVID19”, MetroHacks Women (Virtual) |
| 6/16/2020 | SIIM Webinar, “Federated Learning”, SIIM U Online |
| 6/23/2020 | Invited talk, “Science of Evaluation and Explainability”, Virtual 2020 SIIM-ACR data science summit |
| 6/24/2040 | Opportunities and challenges to developing robust AI algorithms, SIIM Annual Meeting (Virtual) |
| 7/24/2020 | Invited talk, Society for Artificial Intelligence and Deep Learning (SAiDL) (Virtual) |
| 8/5/2020 | Invited talk, “Collaborative Learning: Improving Model Robustness Without the Need for Data Sharing”, Stanford Artificial Intelligence in Medicine & Imaging, Symposium (Virtual) |
| 8/27/2020 | Invited Talk, Machine Learning in Glioma Genetics and Stroke, ENRS annual meeting, Burlington, VT (virtual) |
| 10/4/2020 | Keynote, 1st MICCAI Workshop on “Distributed And Collaborative Learning”, MICCAI, Lima, Peru (virtual) |
| 10/5/2020 | Invited Panelist, RSNA & MICCAI 2020 Panel – “Radiology and Machine Learning: from Dialogue to Clinical Practice”, MICCAI, Lima, Peru (virtual) |
| 10/8/2020 | Keynote, “Radiomics & Radiogenomics with Deep Learning in Neuro-oncology”, RNO-AI-2020, MICCAI, Lima, Peru (virtual) |
| 10/24/2020 | Invited talk, “Challenges in AI: brittleness, explainability and bias “,AI-Ophthalmology (Ai-O) Symposium, University of Illinois, Chicago (virtual)  |
| 10/27/2020 | Invited talk, “Collaborative Learning: Improving Model Robustness Without the Need for Data Sharing, ACR Imaging Informatics Summit (virtual) |
| 11/29/2020 | Invited talk, “Creating Publicly Accessible Radiology Imaging Resources for Machine Learning and AI”, RSNA 2020 |
| 3/16/2021 | Invited talk, “The Predictive Value of Deep Learning and Radiomics in Medical Imaging”, APS March 2021, Boston, MA (virtual) |
| 3/24/2021 | Invited talk, ”Challenges in AI: brittleness, explainability and bias”, University of Iowa Seminar Series (virtual) |
| 4/13/2021 | Invited talk, “Collaborative Learning in Medical Imaging: Opportunities and Challenges”, GTC 2021, (virtual) |
| 4/29/2021 | Invited talk “Collaborative Learning in Medical Imaging: Opportunities and Challenges”, Transatlantic AI CAU-USCF: Fighting the Pandemic with Federated Learning, (virtual) |
| 5/24/2021 | Invited talk, “Infrastructure for Machine Learning”, SIIM (virtual) |
| 7/13/2021 | Grand Rounds, “AI  in radiology- opportunities and challenges”, Dept. Radiology, University of Pennsylvania, (virtual) |
| 8/20/2021 | Invited talk, “Distributed Learning and Applications”, ENRS Annual meeting (virtual) |
| 9/16/2021 | Invited talk, “Brain Tumors and AI”, ASFNR Annual meeting, Santa Fe, NM |
| 2/22/2022 | Keynote presentation, “Deep Learning in Medical Imaging: A practical guide to opportunities and challenges”, SPIE medical imaging, San Diego, CA |
| 2/23/2022 | Invited talk, “Facilitating imaging related AI solutions”, ACR National Lung Cancer Round Table - Advanced Imaging Task Group, SPIE medical imaging, San Diego, CA |
| 5/13/2022 | Invited webinar, “Learning from Multi-institutional Data: A Practical Guide”, NIH Data sharing and reuse seminar series. |
| 6/30/2033 | Panelist, Technical Advancements in Clinical Machine Learning - What's New in 2021 , Precision Medicine World Conference, Santa Clara, CA  |
| 7/23/2022 | Invited Speaker, “Principles of Distribution Shift” Workshop at ICML 2022, Baltimore, MD |

International

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| 10/2015 | Invited talk, MICCAI workshop, Munich, Germany |
| 8/2015 | Invited talk, Northeastern University China, Shenyang, China |
| 12/2016 | Invited talk, The 24th annual meeting of the Japanese vascular biology and medicine organization, Nagasaki, Japan |
| 12/2016 | Invited talk, GTC-X Conference, Mumbai, India |
| 9/2017 | Invited talk, A\*STAR, Singapore |
| 4/2018 | Invited talk, ESTRO, Barcelona |
| 10/2018 | Invited talk, ISMRM Workshop on Advances in Multiscale Detection in Cancer, Dublin, Ireland |
| 5/15/19 | Invited talk, The Wizardry of AI and Machine Learning in Cancer Imaging, Champalimaud Centre for the Unknown, Lisbon, Portugal, International Cancer Imaging Society, “Image Annotation and Data Curation” |
| 3/7/2020 | Invited talk, Artificial intelligence in brain imaging- opportunity and challenges, WINNERS ( Women In Neurology – New and Emerging Research Symposium) Conference, Bhubaneswar, Odisha, India |
| 11/23/2020 | First Hessian conference on AI-ready health care, TU-Darmstadt (virtual) |
| 3/16/2021 | Invited panelist, Launching AI platforms for the NHS: 2021-2023, London Medical Imaging & Artificial Intelligence Centre for Value Based Healthcare (virtual) |
| 5/18/2021 | Invited talk “Technical Benchmarking for Image Analysis/Prediction Tools”, ISMRM 2021 (virtual) |
| 5/18/2021 | Invited talk, “The Promise of AI in SARS-CoV-2”, ISMRM 2021 (virtual) |
| 9/27/2021 | Christian Barillot keynote speaker, MICCAI BrainLes 2021 workshop, Strasbourg, France (virtual) |
| 03/24/2022 | Invited panelist, “Democratizing health data for Collaborative Research”, TiE Con Delhi-NCR |
| 06/16/2022 | Keynote Speaker, Robarts Research Retreat, Western University in London, Ontario, Canada |

**Report of Technological and Other Scientific Innovations**

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| --- | --- |
| On the use of non-spherical carriers for substrate chemi-mechanical polishing (1998) | US Patent 5,769,692 |
| Method for determining optical constants prior to film processing to be used improve accuracy of post-processing thickness measurements (1998) | US Patent 5,835,226 |
| Slurry formulation for chemical mechanical polishing of metals (1999) | US Patent 5,866,031 |
| Chemical mechanical polishing pad slurry distribution grooves (1999) | US Patent 5,882,251 |
| Controlling groove dimensions for enhanced slurry flow (1999) | US Patent 5,888,121 |
| Use of ethylene glycol as a corrosion inhibitor during cleaning after metal chemical mechanical polishing (1999) | US Patent 5,893,756 |
| Use of hydrofluoric acid for effective pad conditioning (1999) | US Patent 5,913,715 |
| Chemical-mechanical polishing pad conditioning systems (2000) | US Patent 6,093,280 |
| Modifying contact areas of a polishing pad to promote uniform removal rates (2001) | US Patent 6,254,456 |
| Apparatus and method for linearly planarizing a surface of a semiconductor wafer (2002) | US Patent 6,464,566 |
| Microchannel formation for fuses, interconnects, capacitors, and inductors (2005) | US Patent 6,784,045 |
| Method for SRAM bitmap verification (2008) | US Patent 7,467,363 |
| Target Contour Testing/Instructional Computer Software (TaCTICS): A Novel Training and Evaluation Platform for Radiotherapy Target Delineation (2010) | Software  |
| QTIM Suite, a toolkit for quantitative image analysis in cancer | Software |
| MedICI – a platform for medical imaging challenges to support radiology, pathology and omics challenges | Software |
| C-BIBOP – cloud-based image biomarker optimization platform | Software |
| DeepROP- open-source software for the classification of plus disease in retinopathy of prematurity | Software (Breakthrough status from the FDA), licensed to Boston AI |

**Report of Education of Patients and Service to the Community**

Activities

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| 2009-2012 | Mentored high school students participating in the Intel International Science and Engineering Fair |
| 2016 | Mentored high school students from Belmont high school throughout the year and summer |
| 2017 | Represented MGH at the Women in Data Science Conference, Microsoft, Cambridge |
| 2017 | Judge at Timilty middle school science fair |
| 2018 | Oregon Public Broadcasting, <https://www.opb.org/news/article/artificial-intelligence-ai-childhood-eye-disease/>  |
| 2020 | Presented at the Metrohacks virtual meeting to high school STEAM students |
| 2020 | COVID-19 with technology <https://siliconangle.com/2020/08/10/researchers-deploy-nvidias-latest-ai-systems-battle-covid-19/>  |
| 2020 | WSJ:Covid-19 Pandemic Underscored Importance of IT in Medical <https://www.wsj.com/articles/covid-19-pandemic-underscored-importance-of-it-in-medical-research-11605263401>  |
| 2020  | TechTarget: COVID-19 research generates big data, invaluable info<https://searchstorage.techtarget.com/news/252492333/COVID-19-research-generates-big-data-invaluable-info>  |
| 2020  | Open source project MONAI <https://venturebeat.com/2020/04/21/nvidia-launches-project-monai-ai-framework-for-health-care-research-in-alpha/>  |
| 2020 | Open source project MONAI <https://analyticsindiamag.com/nvidia-launches-monai-framework-to-accelerate-ai-in-healthcare/>  |

PUBLICATIONS

Peer reviewed publications in print or other media

<https://scholar.google.com/citations?user=8JTcfFMAAAAJ&hl=en> (H-index 58)

<https://orcid.org/0000-0001-8906-9618>

<https://www.researchgate.net/profile/Jayashree_Kalpathy-Cramer>

Research investigations

1. **Kalpathy-Cramer J**, Murarka SP, Srikrishnan KV, Patrick W. Sodium passivation dependence on phosphorus concentration in tetraethylorthosilicate plasma-enhanced chemical vapor deposited phosphosilicate glasses. Journal of Applied Physics. 1993;73(5):2458-2461.
2. **Kalpathy-Cramer J**, Murarka SP, Stress-temperature behavior of electron cyclotron resonance oxides and their correlation to hydrogenous species concentration, Journal of Applied Physics. 1995;77(7):3048-3055.
3. Cunningham, **Kalpathy-Cramer J**, Kirchner EJ, Berman M, Process development and monitoring with atomic force profiling for CMP, Solid State Technology, 2000.
4. **Kalpathy-Cramer J**, Hersh WR, Effectiveness of global features for automatic medical image classification and retrieval - The experiences of OHSU at ImageCLEFmed, Pattern Recognit. Lett. 2008;29(15):2032-2038 (PMID: 19884953).
5. Müller H, **Kalpathy-Cramer J**, Hersh WR, Geissbuhler A, Using medline queries to generate image retrieval tasks for benchmarking, Stud. Health Technol. Inform. 2008;136:523-528 (PMID: 18487784)
6. Hersh WR, **Kalpathy-Cramer J**, Müller H, The ImageCLEFmed Medical Image Retrieval Task Test Collection. Journal of Digital Imaging. 2009;22(6):648-655 (PMID:18769965).
7. Müller H, **Kalpathy-Cramer J**, Analyzing the content out of context - features in medical image retrieval, Int. J. on Healthcare Information Systems and Informatics, 2009, 4(1):88-98.
8. **Kalpathy-Cramer J**, Bedrick S, Radhouani S, Hersh W, Eggel I, Kahn CE Jr, Müller H., Retrieving similar cases from the medical literature - the ImageCLEF experience, Stud Health Technol. Inform., 2010;160(Pt 2):1189-1193 (PMID 20841872).
9. Wang SJ, **Kalpathy-Cramer J**, Fuller CD, Thomas CR, An Interactive Tool for Individualized Estimation of Conditional Survival in Rectal Cancer, Annals of Surgical Oncology, 2011;18(6):1547-1552 (PMID:21207162)
10. Wang SJ, Wissel AR, Ord CB, **Kalpathy-Cramer J**, Fuller CD, Holland JM, Gross ND, Individualized Estimation of Conditional Survival for Patients with Head and Neck Cancer, Otolaryngol Head Neck Surg. 2011 Jul;145(1):71-3. (PMID:21493289)
11. Kahn CE, **Kalpathy-Cramer J**, Lam CA, Eldredge C, Kahn CE, Accurate Determination of Imaging Modality using an Ensemble of Text- and Image-based Classifiers, J Digit Imaging. 2012 Feb;25(1):37-42.(PMID:21748413)
12. Wang SJ, Lemieux A, **Kalpathy-Cramer J**, Ord CB, Walker G, Fuller CD, Kim JS, Thomas CR, A Nomogram for Predicting the Benefit of Adjuvant Chemoradiotherapy for Resected Gallbladder Cancer, J Clin Oncol. J Clin Oncol. 2011 Dec 10;29(35):4627-32. (PMID:22067404)
13. Fedorov A, Beichel R, **Kalpathy-Cramer J**, Finet J, Fillion-Robin JC, Pujol S, Bauer C, Jennings D, Fennessy F, Sonka M, Buatti J, Aylward S, Miller JV, Pieper S, Kikinis R. 3D Slicer as an image computing platform for the Quantitative Imaging Network. Magn Reson Imaging. 2012 Nov; 30(9):1323-41.( PMID: 22770690)
14. Awan M, **Kalpathy-Cramer J,** Gunn GB, Beadle BM, Garden AS, Phan J, Holliday E, Jones WE, Maani E, Patel A, Choi J, Clyburn V, Tantiwongkosi B, Rosenthal DI, Fuller CD, Prospective assessment of an atlas-based intervention combined with real-time software feedback in contouring lymph node levels and organs-at-risk in the head and neck: Quantitative assessment of conformance to expert delineation, Practical Radiation Oncology, 20 December 2012 (PMID: 23853674)
15. Ataer-Cansizoglu E, Bas E, **Kalpathy-Cramer J**, Sharp GC, Erdogmus D, Contour-based shape representation using principal curves, Pattern Recognition, 2013 Apr; 46(4): 1140–1150
16. Keck KM, **Kalpathy-Cramer J**, Ataer-cansizoglu E, You S, Erdogmus D, Chiang MF, Plus disease diagnosis in retinopathy of prematurity: vascular tortuosity as a function of distance from optic disk, Retina 2013 Sep;33(8):1700-7. (PMID: 23538582)
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