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UCSF-CAU WORKSHOPS

*Advances in Artificial Intelligence and
Novel Imaging Methods Conference*



OCTOBER 3-5, 2023

Participants will explore the latest advances in artificial intelligence and novel imaging methods with the goal of developing new collaborations within UCSF and between UCSF and CAU.

Advances in Artificial Intelligence and Novel Imaging Methods

We invite you to join us October 3 – 5, 2023 for an international conference convening researchers from UCSF Radiology and Biomedical Imaging; Christian-Albrechts-Universität, Kiel, Germany (CAU); and UCSF's Hyperpolarized MRI Technology Resource Center (HMTRC).

Participants will explore the latest advances in artificial intelligence and novel imaging methods with the goal of developing new collaborations within UCSF and between UCSF and CAU.

Highlights of the conference include two keynote speakers:

- **Akshay Chaudhary, PhD, Stanford University**
Data Efficient Deep Learning in Radiology: From Vision to Language
- **Mirabela Rusu, PhD, Stanford University**
Bridging the gap between real time b-mode ultrasound and pathology images using Artificial Intelligence methods for prostate cancer detection

Scientific sessions include panels and talks on these topics and more:

- AI Using Radiographs/CT
- Hyperpolarized C13
- Advances in AI, Metabolic Imaging and Translation to the Clinic
- Information Commons Showcase
- Natural Language Processing

The conference will be held October 3rd and 5th will be at Helen Diller, Oct 4th will be at Byers Auditorium, Genentech Hall, 1700 4th Street, and attendees are also welcome to attend on zoom.

Please join us!

ITINERARY: TUESDAY, OCTOBER 3RD

Location: Helen Diller Family Cancer Research Building Auditorium, 1450 3rd Street

Start Time	End Time	Presenter(s)	Title
9:30 am	10:00 am	Continental Breakfast	
10:00 am	10:45 am	Sharmila Majumdar, PhD Claus-C. Glüer, PhD Daniel Vigneron, PhD Jan-B. Hövener, PhD	Welcome and Introductions Housekeeping
10:45 am	12:45 pm	Session 1: 10-15-Minute Talks. Moderator: Claus-C. Glüer, PhD	AI Using Radiographs/CT
		Felix Liu, MS	<i>Clinical Validation and Deployment of Hip Fracture Detection Model</i>
		Timo Damm Niklas Koser, Kiel (via Zoom)	<i>Hip Fracture Prediction SOFIA</i>
		Carolina Ramirez, UCSF Martin Goetze Niklas Koser, Kiel (via Zoom)	<i>Updates on Kiel-UCSF Federated Learning Project on Hip Fracture</i>
		Eren Yilmaz	<i>Automated Deep Learning-based CT-Scout View Assessment of Prevalent Vertebral Fractures</i>
		Nicolai Krekiehn	<i>AI BMD Assessment for Prevalent Spine Fx Prediction</i>
		Christopher Hansen	<i>AI Dental Radiographs</i>
12:45 pm	2:15 pm	Lunch Catered	
2:15 pm	4:30 pm	Session 2: 15-Minute Talks, 7-Minute Q&A. Moderator: Dan Vigneron, PhD	Hyperpolarized C13
		Dan Vigneron, PhD	<i>HP MRI Technology Resource Center at UCSF for Technology Dissemination and Collaborations</i>
		Jane Wang, MD	<i>Hyperpolarized 13C MRI Clinical Translation Update</i>
		Michael Ohliger, MD, PhD	<i>Integrating C13 in Prostate and Liver Studies</i>
		Renuka Sriram, PhD	<i>Pre-Clinical HP C13 at UCSF</i>
		Jan-B. Hövener, PhD	<i>Pre-Clinical HP C13 at Kiel University</i>
		Dan Vigneron, PhD and Jan-B. Hövener, PhD	<i>Summary and Future Directions for Collaborations</i>
4:30 pm	5:30 pm	Claus-C. Glüer, PhD	<i>Small Group Breakouts as Needed BH 209 or Sharmila's office BH 203D</i>
5:00 pm	6:30 pm	Reception (light dinner menu)	

ITINERARY, WEDNESDAY, OCTOBER 4TH

Location: Byers Auditorium, Genentech Hall, 1700 4th Street

Start Time	End Time	Presenter(s)	Title
8:30 am	9:15 am	Valentina Padoia, PhD Claus Glüer, PhD Sharmila Majumdar, PhD Kiel Team	<i>SOFIA Paper Discussion</i> Byers Hall 203D/Sharmila's Office
8:30 am	9:10 am	Continental Breakfast	
9:15 am	9:55 am	Christopher Hess, MD, PhD	Welcome Remarks & Pushing Imaging AI Across the Finish Line
10:00 am	10:40 am	Session 2 continued: 15-Minute Talks, 5-Minute Q&A	Hyperpolarized C13
		Josh Peters (Zoom)	<i>Advances in 13C and 15N DNP using the spinAligner</i>
		Andreas Schmidt, PhD (Zoom)	<i>Preclinical metabolic imaging with SABRE polarized pyruvate</i>
10:40 am	11:50 am	Session 3: 15-Minute Talks, 5-Minute Q&A	Advances in AI, Metabolic Imaging and Translation to the Clinic
		Nikhil Deveshwar	<i>Synthesizing MRI Raw Data</i>
		Peder Larson, PhD	<i>Deep Learning Assessments of Prostate and Kidney Cancer Imaging</i>
		Gabbie Hoyer	<i>Self-Supervised Representation Learning for Knee MRI</i>
11:50 am	1:00 pm	Lunch Catered	
1:00 pm	2:00 pm	Mirabela Rusu, PhD	Keynote: Bridging the gap between real time b-mode ultrasound and pathology images using Artificial Intelligence methods for prostate cancer detection
2:00 pm	3:30 pm	Session 4: 10-Minute Talks, 5-Minute Q&A	Information Commons Showcase
		Oksana Gologorskaya	<i>Information Commons - UCSF platform for data-driven discovery</i>
		Brendan Huang, MD, PhD	<i>Multimodal analysis of patients with lung fibrosis using Information Commons</i>
		Drew Lansdown, MD	<i>Who Will Have Meniscus Surgery? Predicting Surgical Treatment with Population-Level Data</i>
		Michelle Tong	<i>Lower Back Pain Cohort Exploration for Prognosis and Treatment Planning</i>
		Reza Eghbali, PhD	<i>Predictive Analytics Using Imaging and Clinical Data for Primary CNS Lymphoma</i>
		Ian Oh	<i>The Fourth Industrial Revolution & Digital Pathology: Leveraging Silicon for Automated Image Segmentation and Registration</i>
3:30 pm	4:00 pm	Break	
4:00 pm	5:00 pm	Akshay Chaudhari, PhD	Keynote: Data Efficient Deep Learning in Radiology: From Vision to Language
5:00 pm	5:30 pm	10-Minute Talks	Natural Language Processing
		Masha Bondarenko	<i>Combined Imaging and Clinical Factors to Predict Growing Pre-neoplastic and Early-Stage Lung Adenocarcinoma</i>

Start Time	End Time	Presenter(s)	Title
		Ashita Tanwar	<i>Analysis of Patients Who Died of Lung Cancer Despite Adherence to CT Lung Cancer Screening Program</i>
		Adrian Dar Serapio	<i>Development and Reader Performance Evaluation of T5 Large Language model to Generate Radiologic Impression from Findings Section of the Report</i>
5:30	6:00	Jesse Courtier, MD Beck Olson Maddie Hess	<i>A Novel Machine Learning Application in Augmented Reality 3D Model Creation</i>
6:30		Faculty + Invited Speakers	Dinner
6:30		Kiel + UCSF Researchers	Dinner

ITINERARY, THURSDAY, OCTOBER 5TH

Location: Helen Diller Family Cancer Research Building Auditorium, 1450 3rd Street

Moderator: Sharmila Majumdar, PhD

Start Time	End Time	Presenter(s)	Title
9:00 am	9:30 am	Continental Breakfast	
9:30 am	10:00 am	Martin Goetze	<i>Federated Learning: Technical Strategies and Data Privacy</i>
10:00 am	10:30 am	Scientific Computing Services (SCS)	<i>Federated Learning Projects</i>
10:30 am	11:00 am	Break	
11:00 am	12:30 pm	Session 5: 10-Minute Talks, 5-Minute Q&A	Midfield Imaging and AI
		Yang Yang, PhD	<i>AI-Powered Advancements in Mid-Field MRI: Unlocking Potential at 0.55T</i>
		Michael Ohliger, MD, PhD	<i>Liver Imaging at 0.55T</i>
		Rupsa Bhattacharjee, PhD	<i>Quantitative Knee Imaging at 0.55T: Aided by Deep-Learning Approaches</i>
		Maddie Hess	<i>AI Has Got Your Back ... and Knees: Opportunities for Inline Deployment of MSK Research Models</i>
		Discussion	<i>Innovations Ahead</i>
12:30 pm	1:00 pm	Sharmila Majumdar, PhD Dan Vigneron, PhD Claus-C. Glüer, PhD Jan-B. Hövener, PhD	<i>Future Collaboration Projects Kiel/SF</i>
1:00 pm	2:30 pm	Lunch catered	
1:30 pm	2:20 pm	Sharmila Majumdar, PhD Dan Vigneron, PhD Claus-C. Glüer, PhD Jan-B. Hövener, PhD Zahar Barth-Manzoori, PhD	<i>Future German-American Cooperation Perspectives - German Center for Research and Innovation (DWIH)</i>
2:30 pm		Excursions	



Christopher Hess, MD, PhD is the Alexander R. Margulis Distinguished Professor and Chair, Department of Radiology and Biomedical Imaging, and the founding director of the Center for Intelligent Imaging (*ci²*) at UCSF. He has served as Chief of Neuroradiology at the San Francisco VA Medical Center, and Fellowship Director and Chief of Neuroradiology at UCSF. His research addresses advanced imaging techniques and applications, especially for disorders where traditional anatomic imaging has fallen short; improved imaging approaches to the diagnosis and treatment of vascular disorders; and development and application of AI techniques for imaging sciences and clinical radiology. He is a Fellow of the American Institute for Medical and Biological Engineering (AIMBE), the American Society for Functional Neuroradiology (ASFNR), and the International Academy of Medical and Biological Engineering (IAMBE).

Learn more about Dr. Hess at <https://profiles.ucsf.edu/christopher.hess>



Sharmila Majumdar, PhD is the Margaret Hart Surbeck Distinguished Professor in Advanced Imaging and vice chair for research in the Departments of Radiology Biomedical Imaging, Bioengineering and Therapeutic Sciences, Orthopedic Surgery at UCSF, Bioengineering at UC Berkeley, and is co-executive director of the Center for Intelligent Imaging (*ci²*). Dr. Majumdar has been recognized with a Distinguished Investigator Award from the Academy of Radiology Research, a Gold Medal from the ISMRM, and is a fellow of the AIMBE and ISMRM. Dr. Majumdar's research focuses on developing machine and deep learning applications for biomedical imaging, magnetic resonance and micro-computed tomography and development of image processing and analysis tools, with a focus on osteoporosis, osteoarthritis, and lower back pain. She earned her MS, MPhil, and PhD in engineering and applied science from Yale.

Learn more about Dr. Majumdar at <https://profiles.ucsf.edu/sharmila.majumdar>



Claus Glüer, PhD is the president of the Deutsche Gesellschaft für Osteologie and president-elect of the European Calcified Tissue Society. He is associate editor of Osteoporosis International and a member of the editorial board of three other professional journals. Working in the field of osteoporosis for more than 25 years, he has contributed specifically to the development of bone densitometry, quantitative ultrasound, and high-resolution computed tomography approaches. He has coordinated several multicenter studies including OPUS, a European project on epidemiology and optimized diagnostic assessment of osteoporosis. Since 2010, he has led the Molecular Imaging North Competence Center (MOIN CC) at Christian Albrechts University in Kiel. After seven years as faculty in the Department of Radiology at UCSF, in 1995, he became a professor of medical physics in the Department of Diagnostic Radiology, University Hospital Schleswig-Holstein in Kiel, Germany. He received his Dr. rer. nat. degree from the University of Hamburg, Germany, in 1986.



Daniel B. Vigneron, PhD is a professor in the Department of Radiology & Biomedical Imaging, Bioengineering & Therapeutic Sciences and Neurological Surgery at the University of California, San Francisco. He is Director of the P41 NIH/NBIBI [Hyperpolarized MRI Technology Resource Center \(HMTRC\)](#), [Advanced Imaging Technologies Specialized Resource Group](#), and the UCSF Research Resource Programs's (RRP) Human Imaging Services Core recharge. He is also the Operations Director of the Surbeck Laboratory for Advanced Imaging, Chair of the Radiology

Research Safety & Compliance Committee, and a core member of the UCB/UCSF Graduate Group in Bioengineering at UCSF. Dr. Vigneron obtained his BA in Chemistry from Wesleyan University in Middletown, Connecticut in 1983, and he received his PhD in Pharmaceutical Chemistry from UCSF in 1988 for his graduate work on applying new MRI techniques for characterizing disease and therapy response. *Learn more about Dr. Vigneron's work at <https://profiles.ucsf.edu/daniel.vigneron>*



Jan-Bernd Hövener is Professor and Emmy Noether Fellow in the Department of Radiology and Neuroradiology at Christian Albrechts University in Kiel. He is the principal investigator of project 10 and leads the Molecular Imaging North Competence Center (MOIN CC) and the Emmy Noether Group Molecular and Metabolic MRI (M3). He specializes in MRI, hyperpolarization, biomedical imaging, and preclinical imaging. Previously, Dr. Hövener was the head of research group at the University Hospital Freiburg.

KEYNOTE SPEAKERS



Mirabela Rusu, PhD is an assistant professor in the Department of Radiology at Stanford University where she leads the Personalized Integrative Medicine Laboratory (PIMed). The PIMed Laboratory has a multi-disciplinary direction and focuses on developing analytic methods for biomedical data integration, with a particular interest in radiology-pathology fusion to facilitate radiology image labeling. Prior to joining Stanford, Dr. Rusu was a lead engineer and medical image analysis scientist at GE Global Research Niskayuna NY where she was involved in the development of analytic methods to characterize biological samples in microscopy images and pathologic conditions in MRI or CT. Dr. Rusu received a master of engineering

in bioinformatics from the National Institute of Applied Sciences in Lyon, France. She continued her training at the University of Texas Health Science Center in Houston, where she received a master of science and PhD degree in health informatics for her work in biomolecular structural data integration of cryo-electron micrographs and X-ray crystallography models.

Learn more about Dr. Rusu at <https://profiles.stanford.edu/mirabela-rusu>



Akshay Chaudhari, PhD is an assistant professor in the Integrative Biomedical Imaging Informatics at Stanford (IBIIS) section in the Department of Radiology and (by courtesy) in the Department of Biomedical Data Science. He leads the Machine Intelligence in Medical Imaging research group at Stanford and has a primary research interest that lies at the intersection of artificial intelligence and medical imaging. His group develops new techniques for accelerated MRI acquisition and downstream image analysis, extracting prognostic insights from already-acquired CT imaging, and developing new multi-modal deep learning algorithms for healthcare that leverage computer vision, natural language, and medical records. Dr. Chaudhari has won the W.S.

Moore Young Investigator Award and the Junior Fellow Award from the International Society for Magnetic Resonance in Medicine. Dr. Chaudhari has also been inducted into the Academy of Radiology's Council of Early Career Investigators in Imaging program. He also serves as the Associate Director of Research and Education at the Stanford AIMI Center and is an advisory board member of the Precision Health and Integrated Diagnostics Center.

Learn more about Dr. Chaudhari at <https://profiles.stanford.edu/akshay-chaudhari>

OTHER SPEAKERS



Adrian Dar Serapio is a senior majoring in Electrical Engineering and Computer Science (EECS) at the University of California, Berkeley. For more than two years, he has worked at the Big Data in Radiology research group at UCSF as an undergraduate research assistant under the supervision of Professor Jae Ho Sohn. He has undertaken multiple research projects in the areas of computer vision, natural language processing, and multimodal models in the context of radiology.



Andreas Schmidt, PhD received his doctoral degree in physics from the University of Freiburg, Germany, where he developed a novel parahydrogen-based technique for liquid-state nuclear hyperpolarization without a polarizer. He holds a diploma in physics from the same university and spent a year studying abroad at Universidad Complutense Madrid, Spain. He also holds a master's degree in public management from the University of Applied Sciences Kehl, Germany.

Dr. Schmidt is currently serving as the Head of the Hyperpolarization Group at the University Medical Center Freiburg, Germany, and as a Principal Investigator at the German Cancer Consortium partner site Freiburg. He has also held research fellowships at the University Hospital Schleswig-Holstein, Kiel, and at Wayne State University in Detroit. He is the overall coordinator of the HYPERBOLIC joint funding project within the German Cancer Consortium (DKTK), which links German research groups from Munich, Tübingen, Heidelberg, and Freiburg in their research activities on hyperpolarization. Since 2023, he is a Junior Fellow of the International Society for Magnetic Resonance in Medicine (ISMRM).

Dr. Schmidt's research focuses on parahydrogen-based polarization methods, singlet states, hyperpolarization phenomena like radio amplification by stimulated emission of radiation (RASER), and chemical shift imaging.



Ashita Tanwar is a second-year medical student at California Northstate University interested in specializing in radiology. She graduated from UCLA with a Psychobiology major and Ethnomusicology minor. As an undergraduate student, she worked in a computational neuroscience lab and is currently researching the intersection between AI and radiology with Dr. Sohn at UCSF. In her free time, she enjoys reading, listening to new music, trying new restaurants, and spending time with family and friends.



Beck Olson, B.S. is a Data Scientist working in the Center for Intelligent Imaging with a focus on Machine Learning in Radiology. He has worked as a scientific software developer with a focus on data visualization, algorithms and image processing for the UCSF Department of Radiology and Biomedical Imaging since 2008. He earned his degree at the University of California, San Diego with a B.S. in Physics with a specialization in Computational Physics.



Brendan Huang, MD, PhD is a Fellow of Pulmonary Medicine at the University of California, San Francisco. He specialized in Internal Medicine, Pulmonology, and Pulmonary Medicine. He completed both his MD and PhD at Yale University.

Learn more about Dr. Huang at <https://profiles.ucsf.edu/brendan.huang>



Carolina Ramirez is an Imaging Data Scientist at UCSF. She works with data and enjoys being involved in projects starting with brainstorming through execution and deployment. Her background is Electrical Engineering with an emphasis in imaging. Her experience includes areas such as security, humanities, and medicine.



Drew Lansdown, MD is an associate professor in the Department of Orthopaedic Surgery at UCSF and specializes in sports medicine and surgery of the knee, shoulder, and elbow. Dr. Lansdown treats a wide-range of conditions, including knee ligament injuries, meniscal injuries, cartilage injuries, rotator cuff tears, shoulder instability, and throwing-related injuries to the shoulder and elbow. Dr. Lansdown has experience in caring for athletes of all skill levels and ages. He has served as the team physician for high school football teams in the Bay Area and Chicago, as well as an assistant team physician for the Chicago White Sox, Chicago Bulls, and Chicago Steel. His interests include using advanced magnetic resonance imaging (MRI) to improve the ability to diagnose and treat conditions of the knee and shoulder. He completed medical residency training at the University of California, San Francisco, where he received the UCSF Exceptional Physician Award in 2015. Following residency, he completed a fellowship in sports medicine, shoulder surgery, and articular cartilage restoration at Rush University Medical Center in Chicago.

Learn more about Dr. Lansdown at <https://profiles.ucsf.edu/drew.lansdown>



Eren Yilmaz is a research associate pursuing a PhD at the University Medical Center Schleswig-Holstein - the second largest hospital in Germany - and at the Ostfalia University of Applied Sciences in Wolfenbüttel. He studied computer science at the Institute of Computer Science in the Faculty of Engineering of the Christian-Abrechts-University in Kiel and finished his bachelor degree in 2018 within five semesters, one less than the regular study period.

He then continued his studies at the CAU, where he obtained the best master's degree of the year in 2020. Eren Yilmaz currently uses Convolutional Neural Networks for his research in Osteoporosis.



Felix Liu, MS graduated from Boston University with degrees in Biomedical Engineering and Biomedical Imaging. He joined UCSF as an Imaging Specialist with the Department of Epidemiology in 2010 and has been with the Department of Radiology as a Computational and Data Science Research Specialist since 2015. He has more than 10 years of experience in musculoskeletal imaging research, managing for several large cohort studies such as Osteoarthritis Initiative (OAI) and Multicenter Osteoarthritis Study (MOST), and clinical deployment of image processing pipelines.

Most recently, Felix has been involved with machine learning model development, validation, and deployment. His current projects include clinical deployment of a radiographic hip fracture detection model, and development of breast MRI cancer detection models.

Learn more about Felix at <https://profiles.ucsf.edu/felix.liu>



Gabbie Hoyer is a graduate research assistant at UCSF's Center for Intelligent Imaging (*ci²*) and is a PhD candidate in the joint UC Berkeley/UC San Francisco joint Bioengineering PhD Program. In her previous research, she specialized in computational neuroscience, particularly exploring the potential of neural prosthetics as a treatment for neurodegenerative diseases. Gabbie has utilized large medical imaging datasets to investigate clinically-relevant quantitative MRI biomarkers and design solutions for optimized radiology workflows. Beyond academia, she is driven

to translate her engineering research into tangible technological innovations with both commercial potential and societal impact.



Ian Oh is a staff research associate for the Grinberg Lab at University of California, San Francisco's Memory and Aging Center. He joined the lab in the fall of 2018 as an undergraduate research assistant due to his interest in neurodegeneration, following years of research experience in behavioral and molecular neuroscience. After graduating from UC Berkeley in 2021 with a degree in Molecular and Cell Biology and Data Science, he continued his work at the lab as a full-time staff research associate. His work ranges from wet lab bench work to imaging and microscopy to data

analysis and scripting. Currently, he is working on multiplex histology projects that evaluate the expression and colocalization of multiple markers across various pathologies and stages. Ian hopes to eventually pursue a research medicine career in neuroscience and is a firm believer in the scientific method. Outside of the lab, Ian enjoys photography (analog/digital), assembling electronics, and skiing.



Jane Wang, MD is a professor, the Associate Director for the T32 Clinician Scientist Training Program, and the Associate Chair for Strategic Planning in the Department of Radiology and Biomedical Imaging at the UCSF. Dr. Wang's research interests primarily focus on identification of novel imaging techniques and their development into practical and clinically useful diagnostic tools. Her research program includes hyperpolarized ¹³C MR spectroscopic imaging (MRSI) to assess renal tumor aggressiveness and diffuse renal disease (nephropathy), as well as quantitative imaging in pancreatic cancer. She received her undergraduate degree in Electrical

Engineering from Brown University, and her medical degree from Northwestern University Medical School. She completed her residency training in Diagnostic Radiology at UCSF in 2007, serving as a Chief Resident from 2006-2007. *Learn more about Dr. Wang at <https://profiles.ucsf.edu/zhen.wang>*



Jason Crane, PhD is the director of the Computational Core in the Center for Intelligent Imaging (*ci²*) in the UCSF Department of Radiology and Biomedical Imaging. The Computational Core aims to improve health care using data science and AI-based research and development. Dr. Crane is an active member of UCSF's Scientific Computing Services and Information Commons. He obtained his MS in Physical Chemistry from University of Chicago, and a PhD in Physical Chemistry at the University of California, Berkeley.

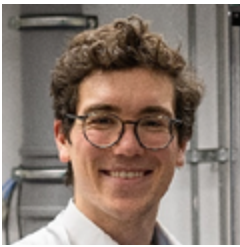
Learn more about Dr. Crane at <https://profiles.ucsf.edu/jason.crane>



Jesse Courtier, MD is the Chief of Pediatric Radiology at UCSF Benioff Children's Hospital in San Francisco, and a clinical professor in the UCSF Department of Radiology & Biomedical Imaging. He directs the Transformational Technologies Pillar of c^2 . He is responsible for the interpretation of pediatric imaging using multiple modalities including CT, MRI, ultrasound, plain film, and fluoroscopy for the thoracic, abdominal/pelvic, and musculoskeletal systems in Pediatric patients. Dr. Courtier obtained his medical degree from the University of Iowa College of Medicine in 2003

and completed his residency in Diagnostic Radiology at the University of Kansas, Wichita in 2008, followed by fellowships in Abdominal Imaging and Pediatric Radiology at UCSF. Dr. Courtier's primary research interests include the investigation of augmented reality applications in medical imaging for use in training and surgical planning, and technique optimization in pediatric body MR applications including MR urography, MR enterography, and fetal MR.

Learn more about Dr. Courtier at <https://profiles.ucsf.edu/jesse.courtier>



Josh Peters started working on hyperpolarization in 2019, doing his bachelor thesis in physics and subsequently advancing his efforts through an MD thesis and future PhD. He is pursuing concurrently full-time studies in both medicine and physics. Over the past years, he played a pivotal role in introducing the dDNP hyperpolarization method to the Kiel imaging laboratory. He is advancing DNP with the aim to develop reliable nitrogen-15 in vivo probes. Also, using state-of-the-art ^{13}C DNP he investigates metabolic phantoms and works on the implementation of metabolic imaging on-site.



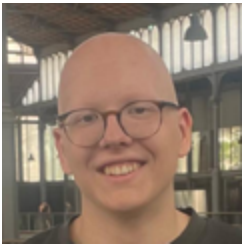
Masha Bondarenko is a fourth-year undergraduate at UC Berkeley, majoring in Electrical Engineering and Computer Sciences. Her passion lies at the intersection of technology and healthcare, particularly the transformative potential of AI in medicine. For the past two years, she has been part of Dr. Jae Ho Sohn's Big Data in Radiology Lab, working on innovative lung cancer imaging risk models. Masha envisions a future in medical school where she can deepen her impact on healthcare through AI-driven solutions.



Michael Ohliger, MD, PhD is an associate professor in residence in the Department of Radiology and Biomedical Imaging at the University of California, San Francisco. He completed his residency in Diagnostic Radiology and fellowship training in Abdominal Imaging at UCSF and joined the UCSF faculty in 2013. Dr. Ohliger received his MD in Medicine from Harvard Medical School in 2007 and obtained his PhD in Medical Physics from the Massachusetts Institute of Technology Harvard/MIT Division of Health Sciences and Technology in 2005. Dr. Ohliger's main research

involves the development and clinical translation of new MRI techniques for the abdomen and pelvis, with a focus on molecular imaging of liver tumors, liver metabolism and liver injury. Current research projects involve using hyperpolarized carbon-13 MRI to image liver tumors as well as fatty liver disease. Dr. Ohliger also has a major research effort (together with Dr. David Wilson and Oren Rosenberg) developing novel methods for imaging bacterial injection.

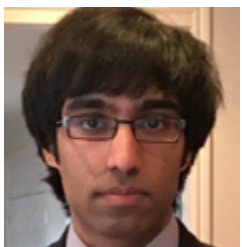
Learn more about Dr. Ohliger at <https://profiles.ucsf.edu/michael.ohliger>



Martin Goetze is a student helper at the UKSH pursuing a bachelor of science in computer science at the RWTH Aachen, working on the technical implementation of Federated Learning.



Michelle Tong is a PhD student specializing in the development of intelligent medical imaging algorithms aimed at enhancing early detection, quantitative biomarkers, and preventative medicine for musculoskeletal diseases. Her research involves the synthesis of MR images with new contrast for more effective osteoarthritis detection. Additionally, she leverages electronic medical records to optimize treatment pathways for individuals experiencing lower back pain. She is a member of the Center for Intelligent Imaging advised by Sharmila Majumdar and Valentina Pedoia.



Nikhil Deveshwar is a PhD candidate in the UC Berkeley-UCSF graduate program in bioengineering. His work is focused on deep generative models for synthetic phase/raw MRI data and designing hardware accelerators for deep learning MRI reconstruction.



Madeline Hess is a Research Data Analyst in the UCSF Department of Radiology and Biomedical Imaging.



Niklas Koser is a PhD student in Dr. Claus Güler's group at Christian Albrechts University in Kiel, Germany. He obtained his bachelor's degree in computer science and his master's degree in medical informatics. Niklas focuses on research on the use of neural networks to detect hip fracture risk on radiographs and the use of GAN architectures to improve the resolution of clinical CTs of the proximal femur. His interests are in GAN architectures, Domain Adaptation, Superresolution and Classification.



Oksana Gologorskaya is associate director, Computational Health Sciences and research technology product manager in the Clinical and Translational Science Institute (CTSI) at UCSF. As a member of the Research Technology and Informatics Innovations team at CTSI, she works with research teams, research administrators, program managers and leadership to help enable clinical research with technology. Oksana serves as a liaison between the users and the technical teams to ensure the research needs are understood and met in the best and most user-friendly way possible. She also has a more technical role where she helps design and test clinical data integration and

data management solutions. Recently, Oksana has joined Bakar Institute's UCSF Information Commons team to help build close connection with the IC users – researchers, data scientists, informatics specialists – to deeply understand their needs and priorities and let this understanding shape the Information Commons roadmap. *Learn more about Oksana at <https://profiles.ucsf.edu/oksana.gologorskaya>*



Peder Larson, PhD is the principal investigator and director of the Body Imaging Research Group in the Department of Radiology and Biomedical Imaging at UCSF. Dr. Larson's research program includes a range of imaging technology development targeting improved clinical outcomes, with projects on metabolic MRI, lung MRI, myelin imaging, PET/MRI, and radiation therapy planning. He is an active member of International Society for Magnetic Resonance in Medicine, the Institute for Electrical and Electronics Engineering, the UC Berkeley and UCSF Graduate Group in

Bioengineering, the California Institute for Quantitative Biosciences, and the Bakar Computational Health Sciences Institute. *Learn more about Dr. Larson at <https://profiles.ucsf.edu/peder.larson>*



Renuka Sriram, PhD is an assistant professor and director of Pre-Clinical Magnetic Resonance Imaging and Spectroscopy Core Leader of TR&D 2, Hyperpolarized Magnetic Resonance Technology Research Center in the Department of Radiology and Biomedical Imaging at UCSF. Her research interests are primarily focused on the application of Magnetic Resonance technology to characterize the underlying metabolic dysregulation in pathologies and use them to develop clinically relevant markers for diagnostic and therapeutic purposes. Specifically, she has been

engrossed with the application of hyperpolarized dissolution dynamic nuclear polarization MRI technique to urologic cancers, renal cell carcinoma and prostate cancer. Recently Dr. Sriram has been exploring the differential metabolism of bacteria to develop specific imaging biomarkers infectious disease.

Learn more about Dr. Sriram at <https://profiles.ucsf.edu/renuka.sriram>



Reza Eghbali, PhD is Data Science Health Innovation Fellow at UCSF. He received his PhD in electrical engineering and master's degree in mathematics from the University of Washington, Seattle. He has a BSc in electrical engineering from Sharif University of Technology, Tehran, Iran. Dr. Eghbali was previously a member of the machine learning and security team at Cisco Tetration Analytics where he developed and implemented online learning algorithms for detecting network security threats in real time. Dr. Eghbali was a Simons Institute Research Fellow at UC Berkeley in the

2017-18 academic year. He visited the institute for the programs on "Bridging Continuous and Discrete Optimization" and "Brain and Computation," where he worked on modeling the corticothalamic feedback in the early visual system. His research interest lies in the areas of optimization algorithms, machine learning, and computational neuroscience.



Rupsa Bhattacharjee, PhD is a post-doctoral associate specialist in the Department of Radiology and Biomedical Imaging at UCSF. She is a medical imaging and image processing researcher with a primary interest in developing algorithms for to improve the utility of MRI imaging as diagnostic and prognostic tool. She obtained her doctoral degree in biomedical engineering working on Susceptibility Weighted MR Imaging (SWI) in human subjects with tumors and acute ischemic stroke. After graduation, in 2021, she joined the Musculoskeletal and Imaging Research Group at

UCSF as post-doctoral fellow to study joint diseases with compositional MRI techniques combined with machine learning tools. In her current role, she is specifically focused on exploring the role of MRI, PET, and machine learning algorithms to extract imaging biomarkers of several musculoskeletal conditions such as knee and hip osteoarthritis. Her primary project involvements are in, but not limited to:

1) Simultaneous Imaging of Tissue Biochemistry and Metabolism (PET-MRI) associated with Biomechanics in Patella Femoral Joint Osteoarthritis.

Learn more about Dr. Bhattacharjee at <https://profiles.ucsf.edu/rupsa.bhattacharjee>



Timo Damm joined the Biomedical Imaging Section of the Department of Radiology, University-Hospital Schleswig-Holstein in 2012. He received his Diploma in Physics from the Free University Berlin and started his scientific career working on joint 2D/3D data interpretation and visualization at the University of Kiel, within an interdisciplinary collaborative research center.

His scientific interest is the development and application of Computational Physics, 3D Image Processing and Artificial Intelligence for Medical Data Interpretation, in particular to the broad field of Quantitative Computed Tomography (QCT), both in clinical and preclinical settings. He is principal scientist for the sections' μ CT scanner and lead programmer of StructurallInsight, an evaluation toolkit for quantitative CT data covering a comprehensive analysis workflow for clinical studies. His special research interests are quantitative evaluation of bone morphometric parameters from CT data using sophisticated, volumetric segmentations and, moreover, as a research associate of the section's Intelligent Imaging Lab (I²Lab), the application of artificial intelligence to medical image data, e.g. covid detection or fracture risk prediction from radiographs.



Valentina Padoia, PhD, holds a double appointment as associate professor in the Radiology and Biomedical Imaging Department at UCSF and leader of Image Analysis at the Altos Labs. She is a computer scientist by training with more than 15 years of experience in Biomedical Imaging. Her primary interest is in developing computer vision and machine learning algorithms to transform biomedical imaging into knowledge. Her research spans across imaging scale and modalities: from understanding fundamental mechanistic phenomena with microscopy to in vivo magnetic resonance imaging, with the common aim of exploring imaging biomarkers of aging.

Learn more about Dr. Padoia at <https://profiles.ucsf.edu/valentina.padoia>



Yang Yang, PhD joined UCSF in 2022 as an associate professor in the Department of Radiology and Biomedical Imaging. Dr. Yang is the director of mid-field MRI at UCSF. Prior to his appointment at UCSF, he was a visiting assistant professor at the University of Virginia from 2019-2022. He completed his postdoctoral fellowship at the University of Virginia and obtained his PhD in biomedical engineering in 2016. Dr. Yang obtained his master's degree in biomedical engineering in 2009 at Xi'an Jiaotong University, Shannxi, China. His main areas of research include magnetic resonance

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