QING DAI

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Education

Ph.D. Candidate in Bioengineering 2020 – Present
University of California, Los Angeles
Topics: *MRI-guided Interventions*
Advisor: Dr. Holden H. Wu

M.S. in Biomedical Imaging 2018 – 2019
University of California, San Francisco
Topic: *Deep Learning-Based Tumor Grade Prediction*
Advisor: Dr. Peder E. Z. Larson

B.S. in Biochemistry, Minor in Bioinformatics 2013 – 2017
University of California, Los Angeles

Professional Experience

University of California, Los Angeles 2020 – Present
Graduate Student Researcher
- Developing real-time MRI and MR thermometry techniques for MRI-guided minimally invasive interventions.
- Developing MR-guided nanoparticle drug delivery platforms and cancer theranostics.
- Leading experimental design, execution, and advanced data analysis across benchtop phantom, pre-clinical animal models (mouse and pig), and human subjects.
- Collaborating with a multi-disciplinary team of radiologists, physicians, engineers, chemists, veterinarians, and industrial collaborators toward clinical translation.

University of California, Los Angeles 2025
Technology Fellow, UCLA Technology Development Group
- Drafting technology non-confidential disclosures and identifying marketing targets to facilitate university technology licensing and commercialization.

University of California, San Francisco 2018 – 2019
Research Specialist
- Developed quantitative models for renal tumor cells detection, classification, and aggressiveness prediction from contrast-enhanced CT and clinical metadata.
- Built kinetic models and metabolic quantification methods for dynamic hyperpolarized carbon-13 pyruvate MRI.

University of California, Los Angeles 2016 – 2018
Research Assistant
- Developed a high-throughput image processing and cell counting pipeline for immunohistochemistry using machine learning techniques.

Research Interests

MRI-guided Interventions	MR Thermometry	Thermal Ablation
Computational Modeling	Image Reconstruction	Nano Theranostics

Academic Societies

International Society in Magnetic Resonance in Medicine **(ISMRM)**
Institute of Electrical and Electronics Engineers**(IEEE)**
Focused Ultrasound Foundation **(FUS)**
International Society for Therapeutic Ultrasound **(ISTU)**

Honors

Bioengineering Graduate Fellowship, UCLA Graduate Division	2026
Trainee Travel Award, Jonsson Comprehensive Cancer Center	2025
AMPC Selected Abstracts (top 1% of abstracts), ISMRM	2024–2025
Summa Cum Laude Merit Award (top 5% of abstracts), ISMRM	2023–2025
Educational Stipend, ISMRM	2023–2025
Interventional MR Study Group Award (2nd Place), ISMRM	2023
Bioengineering Department Fellowship, UCLA Graduate Division	2020
Outstanding Poster Award, Hyperpolarized Carbon-13 MRI Workshop	2020

Professional Service

Code Reviewer, Magnetic Resonance in Medicine	2024 - 2026
Reviewer, ISMRM Annual Meeting Abstracts	2023 - 2026
Organizer, MRI Research Journal Club	2022 - 2026

Journal Publications

1. **Dai Q**, Chiang J, Shih SF, Zhou W, Lu DSK, Wu HH. Active electromagnetic interference suppression for MR thermometry during MR-guided microwave ablation. *Magnetic Resonance in Medicine*. (In Revision)
2. Sahin S, Diaz E, Rajagopal A, Abtahi M, Jones S, **Dai Q**, Kramer S, Wang Z, Larson PEZ. UCSF RMaC: A University of California San Francisco 3D Multi-Phase Renal Mass CT Dataset with Tumor Segmentations. *Scientific Data*. (Under Review). Preprint available at *medRxiv*. doi:10.1101/2026.02.11.26346096.
3. Zhou W, **Dai Q**, Curiel O, Tsao TC, Chiang J, Lu DS, Wu HH. Keypoint detection network for needle localization on intra-procedural MRI in MRI-guided liver interventions. *International Journal of Computer Assisted Radiology and Surgery*. 2026. doi:10.1007/s11548-026-03592-5.
4. **Dai Q**, Shih SF, Curiel O, Tsao TC, Lu DS, Chiang J, Wu HH. Volumetric thermometry in moving tissues using stack-of-radial MRI and an image-navigated multi-baseline proton resonance frequency shift method. *Magnetic Resonance in Medicine*. 2026;95(2):803-819. doi:10.1002/mrm.70074.
5. Deng T†, **Dai Q**†, Estabrook DA, Chapman J, Sletten EM, Wu HH, Zink JI. Thermoresponsive polymer-modified SiO_2 / gadolinium-diethylenetriamine pentaacetic acid composite nanoparticles for magnetic resonance imaging-guided ultrasound-modulated contrast enhancement at human body temperatures. *ACS Applied Nano Materials*. 2025;8(47):22835-22844. doi:10.1021/acsanm.5c04320 († equal contribution).
6. Sahin S, Haller AB, Gordon J, Kim Y, Hu J, Nickles T, **Dai Q**, Leynes AP, Vigneron DB, Wang ZJ, Larson PEZ. Spatially constrained hyperpolarized ^{13}C MRI pharmacokinetic rate constant map estimation using a digital brain phantom and a U-Net. *Journal of Magnetic Resonance*. 2025;371:107832. doi:10.1016/j.jmr.2025.107832.
7. Zhong X, Nickel MD, Kannengiesser SAR, Dale BM, Han F, Gao C, Shih SF, **Dai Q**, Curiel O, Tsao TC, Wu HH, Deshpande V. Accelerated free-breathing liver fat and R_2^* quantification using multi-echo stack-of-radial MRI with motion-resolved multidimensional regularized reconstruction: Initial retrospective evaluation. *Magnetic Resonance in Medicine*. 2024;92(3):1149-1161. doi:10.1002/mrm.30117.1.

Conference Papers

8. Li J, Hou Q, Pang K, Miao Q, Hung ALY, Aygun E, Shih SF, **Dai Q**, Wu HH, Sung KH. CoDe: A Self-Supervised Consistency Model Framework for MRI Denoising. *2026 IEEE 23rd International Symposium on Biomedical Imaging (ISBI)*, 2026. (Accepted)
9. Pham B, Gaonkar B, Whitehead W, Moran S, **Dai Q**, Macyszyn L, Edgerton VR. Cell counting and segmentation of immunohistochemical images in the spinal cord: Comparing deep learning and traditional approaches. *2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 2018. pp. 842-845. doi: 10.1109/EMBC.2018.8512442.

Patents

1. Wu HH, **Dai Q**. Active Electromagnetic Interference Suppression for Magnetic Resonance Imaging-Guided Intervention. U.S. Provisional Patent Application, filed March 2026. (Patent Pending)
2. Wu HH, Zhou W, **Dai Q**, Lu DS. Keypoint Detection Network for Device Localization on Intra-procedural MRI. U.S. Provisional Patent Application, filed March 2026. (Patent Pending)

Conference Abstracts

1. **Dai Q**, Chiang J, Zhou W, Lu D, Wu HH. Characterizing the spatiotemporal thermal effects of pulsed microwave ablation with computational modeling and MR thermometry. *International Society for Magnetic Resonance in Medicine Annual Meeting, 2026, Cape Town, South Africa.* (Accpeted)
2. Zhou W, **Dai Q**, Kerr CR, Shih SF, Delgado T, Tsao TC, Lu DS, Chiang J, Wu HH. End-to-end framework for real-time image reconstruction, device and tissue tracking in MRI-guided liver interventions. *International Society for Magnetic Resonance in Medicine Annual Meeting, 2026, Cape Town, South Africa.* (Accepted)
3. **Dai Q**, Shih SF, Chiang J, Lu DS, Wu HH. Active electromagnetic interference suppression for real-time MR thermometry during MR-guided microwave ablation. *International Society for Magnetic Resonance in Medicine Annual Meeting, 2025, Honolulu, HI, USA.* p0677. **(Summa Cum Laude & AMPC Selected)**
4. **Dai Q**, Chiang J, Nyborg G, Shih SF, Lu DS, Wu HH. Real-time MR thermometry to monitor microwave ablation and predict the ablation zone: Validation in an oncopig cancer model using immediate post-ablation MRI and gross pathology. *International Society for Magnetic Resonance in Medicine Annual Meeting, 2025, Honolulu, HI, USA.* p2189.
5. Zhou W, **Dai Q**, Curiel O, Lu DS, Chiang J, Tsao TC, Wu HH. 3D keypoint-based neural network for rapid needle localization on multislice 2D MRI. *International Society for Magnetic Resonance in Medicine Annual Meeting, 2025, Honolulu, HI, USA.* p2040.
6. **Dai Q**, Nyborg G, Shih SF, Pham J, Lu DS, Chiang J, Wu HH. MR-guided hepatic microwave ablation with real-time MRI guidance and MR thermometry: Initial experience in an oncopig cancer model. *14th Interventional MRI Symposium, 2024, Annapolis, MD, USA.*
7. **Dai Q**, Shih SF, Curiel O, Chiang J, Lu DS, Tsao TC, Wu HH. Dynamic 3D thermometry in moving tissue using accelerated stack-of-radial MRI and an image-navigated multi-baseline PRF method. *International Society for Magnetic Resonance in Medicine Annual Meeting, 2024, Singapore.* p1277. **(Summa Cum Laude & AMPC Selected)**
8. **Dai Q**, Shih SF, Zhou J, Zhang L, Wu HH. Dynamic 3D stack-of-radial multi-baseline PRF MR thermometry using compressed sensing reconstruction and image-based navigation. *International Society for Magnetic Resonance in Medicine Annual Meeting, 2023, Toronto, ON, Canada.* p4987. **(Summa Cum Laude)**
9. **Dai Q**, Zhang L, Li X, Yu P, Tsao TC, Wu HH. Dynamic 3D stack-of-radial PRF MR thermometry to monitor high-intensity focused ultrasound heating: Validation in a tissue motion phantom. *International Society for Magnetic Resonance in Medicine Annual Meeting, 2022, London, UK.* p4084.
10. **Dai Q**, Tang S, Meng MV, Slater JB, Gordon JW, Vigneron DB, Larson PEZ, Wang ZJ. Initial experience of hyperpolarized ^{13}C pyruvate MRI in patients with renal tumors. *Hyperpolarized Carbon-13 MRI Technology Development Workshop, 2020, San Francisco, CA, USA.*

11. **Dai Q**, Kramer SP, Leynes AP, Magudia K, Wang ZJ, Larson PEZ. Deep learning-based prediction of renal cancer grading from contrast-enhanced CT. *UCSF Annual Imaging Research Symposium, 2019, San Francisco, CA, USA*.

Selected Talks & Presentations

Accelerate Medical Imaging Research with AI Tools: From Ideas to Publication. Joint Journal Club (MRRL × CVIB), Department of Radiological Science, University of California, Los Angeles, CA, 2026.

Volumetric Thermometry in Moving Tissues using Stack-of-Radial MRI. International Youth Scholars Forum, Ruijin Hospital, Shanghai, China (Online), 2026.