Alan Qingran Wang

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Education

Cornell University and Cornell Tech **2024**
Ph.D., Electrical and Computer Engineering *Ithaca and New York, NY*
- Focus: Machine Learning for Biomedical Imaging
- Advisor: Mert Sabuncu
- Thesis Committee: Chris Xu, Jayadev Acharya

University of Illinois at Urbana-Champaign **2019**
B.S., Computer Engineering *Champaign, IL*
- Thesis: Structural Consistency for Diverse Video Colorization
- Advisor: Alexander Schwing

Journal Publications

* indicates equal contribution.

Hyper-Convolutions via Implicit Kernels for Medical Imaging T Ma, AQ Wang, AV Dalca, MR Sabuncu. *Medical Image Analysis 2023*

A Flexible Nadaraya-Watson Head Can Offer Explainable and Calibrated Classification AQ Wang, MR Sabuncu. *Transactions on Machine Learning Research 2023*

Computing Multiple Image Reconstructions with a Single Hypernetwork AQ Wang, AV Dalca, MR Sabuncu. *Machine Learning for Biomedical Imaging 2022*

Deep-learning-based Optimization of the Under-sampling Pattern in MRI. CD Bahadir*, AQ Wang*, AV Dalca, MR Sabuncu. *IEEE Transactions on Computational Imaging, 2020*

Conference and Workshop Publications

* indicates equal contribution.

KeyMorph: Robust Multi-modal Affine Registration via Unsupervised Keypoint Detection E Ma, AQ Wang, AV Dalca, MR Sabuncu. *Medical Imaging with Deep Learning 2021 (Oral)*

Joint Optimization of Hadamard Sensing and Reconstruction in Compressed Sensing Fluorescence Microscopy AQ Wang*, AK LaViolette*, L Moon, C Xu, MR Sabuncu. *International Conference on Medical Image Computing & Computer Assisted Intervention 2021*

HyperRecon: Regularization-Agnostic CS-MRI with Hypernetworks. AQ Wang, AV Dalca, MR Sabuncu. *Machine Learning for Medical Image Reconstruction 2021 (Oral)*

Neural Network-based Reconstruction in Compressed Sensing MRI Without Fully-sampled Training Data. AQ Wang, AV Dalca, MR Sabuncu. *Machine Learning for Medical Image Reconstruction, 2020 (Oral)*

Extending LOUPE for K-space Under-sampling Pattern Optimization in Multi-coil MRI. J Zhang, H Zhang, AQ Wang, QZ, MR Sabuncu, P Spincemaille, TD Nguyen, Y Wang. *Machine Learning for Medical Image Reconstruction, 2020*

Research and Work Experience

Google - Display Ads Engineering, Modeling, and Optimization **2022**
Software Research Intern *Mountain View, CA*
- Designed neural network architectures for ad price prediction in first-price auctions
- Efforts led to 5% improvement in statistical metrics, and 2% improvement in downstream surplus metrics.

Google - Cloud AI Vision **2021**
Software Research Intern *Sunnyvale, CA*
- Designed algorithms for visual inspection, specifically anomaly detection and localization
- Used one-class classification deep neural network models.
- Improved performance by 5% overall, with up to 20% in specific settings.

MIT Lincoln Laboratory **2019**
Research Intern *Boston, MA*
- Developed deep learning algorithms for modeling coding and modulation in wireless communication channels

Amazon - AWS S3 **2018**
Software Development Intern *Seattle, WA*
- Designed a centralized database for S3 throttle rules using a NoSQL, eventually-consistent model
- Implemented cross-platform web console for CRUD operations of database entries, using Spring Boot MVC framework for dependency injection, server-side scripting, and auto-wired components

Teaching

ECE 5415 - Applied Digital Signal Processing and Communications **2022**
Teaching Assistant *Cornell Tech*
- Held office hours, answered online forum questions, and conducted recitations/lectures

ECE 4250 - Digital Signal and Image Processing **2021**
Teaching Assistant *Cornell University*
- Held office hours, answered online forum questions, and conducted recitations/lectures

CS 446 - Machine Learning **2019**
Undergraduate Teaching Assistant *University of Illinois*
- Responsible for grading assignments and holding office hours

Awards

Microsoft PhD Fellowship Nominee 2021

MICCAI 2021 Student Travel Award

Cornell Fellowship Award

Technical Skills

Languages: Python, Java, C/C++
Frameworks: PyTorch, Keras, Tensorflow