Angela F. Gao

Contact Information

California Institute of Technology
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Research Interests

Computational imaging, computational photography, computer vision, image processing, inverse problems, and machine learning.

Education

California Institute of Technology, Pasadena, CA, USA — Oct 2019 - Present
Ph.D. in Computing and Mathematical Science
- Advisor: Katherine L. Bouman

Carnegie Mellon University, Pittsburgh, PA, USA — 2015 - 2018
B.S. in Electrical and Computer Engineering with University Honors, Additional Major in Biomedical Engineering
- GPA: 3.84 (overall), 3.88 (ECE), 3.90 (BME)
- Dean's List: F16, F17, S18, F18

Research Experience

California Institute of Technology - Pasadena, CA — 2019 - present
Graduate Research Assistant with Dr. Katherine Bouman

National Institutes of Health, NHLBI - Bethesda, MD — Summer 2019
Summer Research Intern mentored by Dr. Peter Kellman and Dr. Hui Xue

Carnegie Mellon Unversity - Pittsburgh, PA — 2018-2019
Undergraduate Researcher mentored by Dr. Aswin Sankaranarayanan

École Polytechnique Fédérale de Lausanne - Lausanne, Switzerland — Summer 2018
Summer@EPFL Intern mentored by Dr. Elisa Celis

Princeton University - Princeton, NJ — Summer 2017
Summer Research Intern mentored by Dr. Adam Finklestein and Dr. Szymon Rusinkiewicz

Honors and Awards

Graduate Research Fellowship Program Honorable Mention — 2020
National Science Foundation

Graduate Research Fellowship Program Honorable Mention — 2019
National Science Foundation

Mary Louise Brown Graham Memorial Scholarship — 2018
Carnegie Mellon University

Conference Publications

* **denotes equal contribution**

AF Gao, JC Castellanos, Y Yue, ZE Ross, KL Bouman. "DeepGEM: Generalized Expectation-Maximization for Blind Inversion". *Proceedings of the 35th Conference on Neural Information Processing Systems (NeurIPS)*, 2021. (Selected for oral presen-

tation at AGU 2021).

AF Gao, B Rasmussen, P Kulits, EL Scheller, R Greenberger, BL Ehlmann. "Generalized Unsupervised Clustering of Hyperspectral Images of Geological Targets in the Near Infrared". *Proceedings of the Conference and Workshop of Computer Vision and Pattern Recognition: Perception Beyond the Visible Spectrum Workshop*, 2021. (Invited for oral presentation at AGU 2021).

Journal Publications

Y Yang*, **AF Gao***, JC Castellanos*, ZE Ross, K Azizzadenesheli, and RW Clayton. "Seismic wave propagation and inversion with Neural Operators," *The Seismic Record*, 2021.

Teaching Experience

Teaching Assistant

CS 166: Computational Cameras, Caltech	Spring 2022
CS 101: Projects in Machine Learning, Caltech	Fall 2021
18-290: Signals and Systems, CMU	Fall 2018
18-290: Signals and Systems, CMU	Spring 2018
15-151: Mathematical Foundations of Computer Science, CMU	Fall 2017
21-127: Concepts of Mathematics, CMU	Spring 2018
21-127: Concepts of Mathematics, CMU	Fall 2017

Talks and Workshops

DeepGEM: Generalized Expectation-Maximization for Blind Inversion, Harvard Medical School Laboratory of Computational Neuroimaging, virtual. January 2022
Deep Expectation-Maximization for Joint Source-Structure Inversion, Caltech Seismological Laboratory Seminar, Pasadena, CA. November 2021
DeepGEM: Generalized EM for Blind Seismic Tomography, Beyond Limits, Pasadena, CA. June 2021
KISS Study on "Beyond Interstellar: Extracting Science from Black Hole Images" Part 2, Pasadena, CA, March 2021
KISS Study on "Beyond Interstellar: Extracting Science from Black Hole Images" Part 1, Pasadena, CA, October 2019

Projects

Baby Got Track: Baby Health Monitoring Suite 2018
ECE Capstone Design Project, Carnegie Mellon University.

Medtronic Positional Stabilizer for Image Guidance Trackers 2017–2018
Biomedical Engineering Senior Project, Carnegie Mellon University, Medtronic Inc.

Industry Experience

Morsel - New York, New York 2016
Software Engineering Intern

Academic Service

Committee, Engineering and Applied Sciences Division Committee on Diversity, Inclusion, and Equity, Caltech 2021-Present

Committee, Computing and Mathematical Sciences Steering Committee on Diversity, Inclusion, and Equity, Caltech 2020-Present

Steering Committee, Women in CMS, Caltech 2019-Present

President, Biomedical Engineering Society, Carnegie Mellon University 2018–2019

Social Chair, Biomedical Engineering Society, Carnegie Mellon University 2017–2018

Outreach

Caltech Y Rise Tutoring, California Institute of Technology, Pasadena, CA 2019-2021

Alpha Phi Omega, Carnegie Mellon University, Pittsburgh, PA 2016-2019
250+ volunteer hours