MICHAEL YAO	michaelsyao.com michael.yao@pennmedicine.upenn.edu
RESEARCH STATEMENT	My research focuses on trustworthiness and robustness for deep learning, offline optimization, meta-learning, and bandit problem formulations. I am broadly interested in developing methods that leverage prior knowledge and data to help algorithms better generalize to new distributions. I explore these problems in the setting of generative design, minority health disparities, and medical imaging.
EDUCATION	University of Pennsylvania, MD-PhD Program HHMI-NIBIB Interfaces Fellow 2021 – 2027 Advised by <u>James Gee</u> and <u>Osbert Bastani</u> MD-PhD, Bioengineering (in progress) MS, Computer Science (in progress) California Institute of Technology Salutatorian 2017 – 2021 Advised by <u>Mikhail Shapiro</u> BS, Applied Physics
EXPERIENCE	 Health VC Fellow, 25madison New York City, NY February 2024 – Present Led analysis and proof-of-concept software implementation of LLMs-as-a-service for use cases in cybersecurity and dynamic scheduling. Assisted in healthtech incubation efforts and seed/series A deal sourcing Al Clinical Fellow, Glass Health Remote November 2023 - Present Draft and review clinical guideline article contexts for medical LLM fine-tuning Medical LLM Consultant, Scale AI Remote June 2023 - August 2023 Evaluated use cases of large language models (LLMs) for healthcare applications. Red teaming testing of LLMs for clinical accuracy and trustworthiness in patient care Research Intern, Microsoft Research Redmond, WA June 2022 - August 2022 Developed ML methods for accelerated MRI image reconstruction using undersampled datasets. Investigated techniques for sequential learning and fine-tuning of image reconstruction models. Advised by Michael Hansen Software Engineer, Hyperfine Research Guilford, CT May 2021 - August 2021 Implemented and validated algorithms for more robust MRI signal acquisition and image post-processing implemented into MR software across 25+ hospital sites
PUBLICATIONS	 Yao MS, Zeng Y, Bastani H, Gardner J, Gee JC, Bastani O. Generative adversarial Bayesian optimization for surrogate objectives. arXiv Preprint. (2024). Link Wu Y, Liu Y, Yang Y, Yao MS, Yang W, Shi X, Yang L, Li D, Liu Y, Gee JC, Yang X, Wei W, Gu S. A concept-based interpretable model for the diagnosis of choroid neoplasias using multimodal data. arXiv Preprint. (2024). Link Chae A⁺, Yao MS⁺, Sagreiya H, Goldberg AD, Chatterjee N, MacLean MT, Duda J, Elahi A, Borthakur A, Ritchie MD, Rader D, Kahn CE, Witschey WR, Gee JC. Strategies for implementing machine learning algorithms in the clinical practice of radiology. (2024). Link

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TEACHING	 TA, Imaging Informatics (EAS 5850, Penn) Spring 2024, Summer 2024 Head TA, Health, Healthcare and Technology (CIS 7000, Penn) Fall 2023, Fall 2024 TA, Diagnostic Ultrasound for Medical Students (Penn) 2023 – Present TA, Pre-Clinical Medicine (Penn) 2023 – Present Head TA, Applied Mathematics (ACM 95a, Caltech) Winter 2021 TA, Graduate Classical Physics (Ph 106a, Caltech) Fall 2020 TA, Applied Mathematics (ACM 95b, Caltech) Spring 2020 TA, Applied Mathematics (Ph 12b, Caltech) Spring 2020 TA, Quantum Physics (Ph 12b, Caltech) Winter 2020 TA, Electrodynamics and Magnetism (Ph 1c, Caltech) Spring 2019 TA, Waves and Oscillations (Ph 12a, Caltech) Fall 2019 TA, Electrodynamics and Magnetism (Ph 1c, Caltech) Spring 2019 TA, Special Relativity and Electrostatics (Ph 1b, Caltech) Winter 2019
SERVICE	Ongoing Board Member, Radiology Interest Group, University of Pennsylvania SOM Admissions Committee, University of Pennsylvania SOM Peer Tutor, University of Pennsylvania SOM Technology Committee Vice-Chair, <u>American Physician Scientists Association</u> Director of Data Science & AI, <u>MDplus</u> Peer Mentor, <u>University of Pennsylvania Step-Ahead Mentorship Program</u> Prior Service Editor-in-Chief, <u>Caltech Undergraduate Research Journal</u> Volunteer Tutor, <u>Caltech RISE Tutoring Program</u> Peer Tutor, Caltech Deans' Office Student Body Representative, <u>Caltech Academics and Research Committee</u>