JIAMING ZENG

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EDUCATION

Stanford University — **Stanford, CA**
- M.S in Management Science and Engineering — *June 2018*
- Ph.D. Candidate in Management Science and Engineering — *Sept. 2016 – June 2021*

Massachusetts Institute of Technology — **Cambridge, MA**
- B.S. in Mathematics with Computer Science — *Feb 2015*
- Minor in Applied International Studies/Concentration in German

WORK EXPERIENCE

AKASA — **South San Francisco, CA**
Senior Machine Learning Researcher / AI Tech Lead — *Sept. 2022 - Present*
- Leading generative AI R&D for healthcare applications from inception to business impact
- Building ML model pipeline from data processing, pretraining, fine-tuning, evaluation, to launch
- Pitching product to customers and incorporating human feedback into product

IBM Research, Computational Health Group — **Cambridge, MA**
Postdoctoral Researcher — *Sept 2021 — Sept. 2022*
- Researched fairness and bias in healthcare treatments through analysis of clinical notes in MIMICIII (paper)
- Collaborated across industry and academia to research fairness through synthetic healthcare data (paper)

X, The Moonshot Factory [Google X] — **Mountain View, CA**
AI Residency — *June 2019 – Sept. 2019*
- Developed technology to protect the ocean and improve sustainable fishing
- Delivered ML models to gain insights into fishing practices from limited data

NVIDIA, AI Infrastructure — **Santa Clara, CA**
AI Research Intern — *June 2018 – Sept. 2018*
- Optimized Bayesian neural networks to capture model uncertainty in active learning (NeurIPS 2018) (paper)
- Contributed Bayesian neural network training code to the official TensorFlow Probability repository

Altamont Pharmaceutical Holdings, LLC — **Palo Alto, CA**
Data Science Consultant — *Oct. 2017 – Jan. 2018*
- Delivered a preliminary analysis of AACT Clinical Trials Database to understand its limitations and capabilities
- Streamlined findings in a detailed report with current findings and future recommendations

Oracle, Storage SW Quality Engineering — **Burlington, MA**
Software Engineer — *Mar. 2015 – Sept. 2016*
- Optimized machine learning models for the quality assurance process
- Ensured the quality and stability of the ZFS Storage Appliance device

NOAA Southwest Fisheries Science Center — **San Diego, CA**
Ernest E. Hollings Scholar — *May 2014 – Aug. 2014*
- Contributed to development of machine vision app in C# for fish detection and tracking in underwater videos
- Paper published in the IEEE Applications and Computer Vision Workshop 2015 (doi:10.1109/WACVW.2015.11)

BMW, R&D ConnectedDrive Group — **Munich, Germany**
Software Engineer — *May 2013 – Aug. 2013*
- Programmed a particle filtering system for the driver intent inference system to predict the driver's gaze direction
- Designed a calibration GUI for SmartTrack, a device used in data gathering for driver intent inference

RESEARCH EXPERIENCE

Stanford, School of Medicine, Laboratory of Quantitative Imaging and Artificial Intelligence — **Stanford, CA**
Advisor: Prof. Daniel Rubin — *Sept. 2018 – June 2021*
- Built AI tools to adjust for selection bias in retrospective cancer treatment studies with causal inference and ML
- Developed NLP models to identify and extract treatment information from EMR data (student abstract)
- Project funded by the Stanford Human-Centered Artificial Intelligence Institute Seed Grant (proposal)

Stanford Graduate School of Business, Athey Lab — **Stanford, CA**
Advisor: Prof. Susan Athey — *June 2017 – June 2021*
- Implemented Gaussian Process regression to automate parameter tuning for causal inference
- Researched literature of applying reinforcement learning and Bayesian optimization for parameter tuning
- Simulated causal inference datasets and experiments to test various parameter tuning methods

Stanford, Management Science and Engineering, Decision Analysis Group — **Stanford, CA**
Advisor: Prof. Ross Shachter — *Sept 2016 – June 2021*
- Modeled a radiologist's decision threshold for mammography screening with Bayesian networks
- Developed a decision support tool to assess radiologists' decision making and improve practice consistency
- Paper published to *Medical Decision Making* (doi: 10.1177/0272989X19832914)

MIT Sloan School of Management, Prediction Analysis Lab — **Cambridge, MA**
Advisor: Prof. Cynthia Rudin — *Feb. 2014 – Feb. 2015*
- Developed interpretable models using machine learning algorithms to predict the probability of prisoner recidivism

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- Mined the 1994 Prisoner Recidivism data for essential features that can be used in model development
- Paper published in the *Journal of Royal Statistical Society, Series A* (doi: 10.1111/rssa.12227)

MIT, Department of Mechanical Engineering **Cambridge, MA**
Advisor: Prof. Alexie Kolpak *Sept. 2012 – May 2013*

- Developed a theoretical "green" engine model that produces its own fuel by converting CO_2 into methanol
- Analyzed theoretical processes for heat transfer during carbon dioxide to methanol reaction

Tsinghua University, Department of Computer Science **Beijing, China**
Advisor: Prof. Wang Xiaoge *June 2012 – Aug. 2012*

- Optimized the performance of the Conjugate Gradient Solver in Los Alamos Lab's Parallel Ocean Program (POP)
- Operated experiments on supercomputers such as Tianhe1A and BlueLight through remote control

LEADERSHIP & TEACHING

Decision Analysis Working Group Seminar **Stanford, CA**
Seminar Organizer *Jan. 2020 – June 2021*

Women in Mathematics, Science, and Computational Engineering (WiMSCE) **Stanford, CA**
Events Chair *Sept. 2019 – Jun 2020*

MS&E 152/252: Introduction to Decision Analysis **Stanford, CA**
Course Assistant for Prof. Ross Shachter *Spring 2017, 2019; Winter 2021*

MS&E 120/220: Probabilistic Analysis **Stanford, CA**
Course Assistant for Prof. Ross Shachter *Fall 2018*

MISTI-Israel & MISTI-Italy, MIT Global Teaching Labs Program **Northern Israel; Crema, Italy**
Entrepreneurship and Leadership, Mathematics Teacher *January 2014, 2015*

AWARDS, GRANTS, & SCHOLARSHIPS

- Stanford Institute of Human-Centered Artificial Intelligence Seed Grant Recipient (2019)
- 1st Place, USPROC Undergraduate Statistics Research Project Competition (2015)
- NOAA Ernest E. Hollings Scholarship (2013-2015)

PRESENTATIONS

Presenter, AAAI Doctorial Consortium 2020 **New York, NY**
Proposal Title: Developing a Machine Learning Tool for Dynamic Cancer Treatment Strategies [proposal]

Plenary Speaker, USPROC First Electronic Undergraduate Statistics Research Conference 2015 **E-Conference**
Presentation Title: "Interpretable Classification Models for Recidivism Prediction" [video]

PUBLICATIONS

- Bhanot, K., Baldini, I., Wei, D., **Zeng, J.**, & Bennett, K. (2023, August). Stress-Testing Bias Mitigation Algorithms to Understand Fairness Vulnerabilities. In Proceedings of the 2023 AAAI/ACM Conference on AI, Ethics, and Society (pp. 764-774).
- **Zeng, J.**, Gensheimer, M. F., Rubin, D. L., Athey, S., & Shachter, R. D. (2022). Uncovering interpretable potential confounders in electronic medical records. Nature Communications, 13(1), 1014.
- Adam, H., Yang, M. Y., Cato, K., Baldini, I., Senteio, C., Celi, L. A., **Zeng J.**, Singh M & Ghassemi, M. (2022, July). Write it like you see it: Detectable differences in clinical notes by race lead to differential model recommendations. In Proceedings of the 2022 AAAI/ACM Conference on AI, Ethics, and Society (pp. 7-21).
- **Zeng, J.**, Banerjee, I., Henry, A. S., Wood, D. J., Shachter, R. D., Gensheimer, M. F., & Rubin, D. L. (2021). Natural language processing to identify cancer treatments with electronic medical records. JCO Clinical Cancer Informatics, 5, 379-393.
- **Zeng, J.** (2020). Developing a Machine Learning Tool for Dynamic Cancer Treatment Strategies. *Proceedings of the AAAI Conference on Artificial Intelligence*, *34*(10), 13742-13743.
- **Zeng, J.,** Gimenez, F., Burnside, E. S., Rubin, D. L., & Shachter, R. (2019). A probabilistic model to support radiologists' classification decisions in mammography practice. *Medical Decision Making*, *39*(3), 208-216.
- **Zeng, J.,** Lesnikowski, A., & Alvarez, J. M. (2018). The Relevance of Bayesian Layer Positioning to Model Uncertainty in Deep Bayesian Active Learning. In *3rd Annual Bayesian Deep Learning Workshop, NeurIPS 2018*.
- **Zeng, J.,** Ustun, B., & Rudin, C. (2017). Interpretable classification models for recidivism prediction. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, *180*(3), 689-722.
- Cutter, G., Stierhoff, K., & **Zeng, J.** (2015). Automated detection of rockfish in unconstrained underwater videos using Haar cascades and a new image dataset: labeled fishes in the wild. In *Applications and Computer Vision Workshops (WACVW), 2015 IEEE Winter* (pp. 57-62). IEEE.
- [Non-academic] **Zeng, J.** (2019). My day as a double major. Firehose, *MIT Technology Review*. March 2019.

LANGUAGES

English (Native), Chinese (Native), German (Advanced)**,** Python, PyTorch, R, Java, MATLAB, C#, LaTeX, bash