

# ANDY (ZEHAO) ZHAO

Cambridge, MA

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## EDUCATION

### MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Cambridge, MA

*Candidate for Master of Science in Business Analytics & Operations Research, GPA:5.0/5.0* 2022 – Expected Dec 2023

- Course: Hands-on Deep Learning, Reinforcement Learning, Efficient Computing & Large Language Model, Law of AI
- A-Lab Project: Developed deep-learning models for refugee relocations in Columbia by collaborating with United Nations
- Projects: Interpretable ML models on cardiovascular disease detection; Optimal allocation of Shared Bikes at Boston
- Awards: 2<sup>nd</sup> place in MIT Analytics Lab Contest out of 40 teams, 1<sup>st</sup> place in MIT Crypto Finance Showcase

### UNIVERSITY OF CALIFORNIA, BERKELEY (4 MAJORS WITH HIGH HONOR)

Berkeley, CA

*Bachelor of Science in Computer Science, Statistics, Math, and Data Science, GPA:3.9/4.0, Dean's List 8 Semesters 2018 – 2022*

- Coursework: Algorithms/Data Structures, Robotics/Control/CV, NLP, Deep Learning, Signal processing, Computer Architecture, Real/Complex Analysis, Probability/Statistics theory, Matrix Computation, Game Theory, Stochastic Processes
- Awards: 1<sup>st</sup> place in California actuarial league competition; Finalist for Mathematics Contest in Modeling
- Honors Thesis: Data Science Honors: Time series modelling on Finance; EECS honors: PCA & Facial Recognition
- Teaching: Taught >300 undergraduate students in Discrete Mathematics, Data Structure, and Number Theory

## TECHNICAL SKILLS

- Python, R, Julia, C, C++, MATLAB, SQL, LISP, Java, SpringMVC, Visual Basic, Scheme, RISC-V, Logisim/CPU Design, HTML, CSS, JavaScript, LaTeX, TensorFlow, Pytorch, ArcGIS, Git, Photoshop, Arduino, AutoCAD, Onshape, Excel

## EXPERIENCE

### LLM STEALTH STARTUP

Boston, MA

*Founding Engineer*

*Aug 2023 – Now*

- Fine-tuning of large language models for a social platform aimed at fostering friendships and dating experiences
- Developed edge device features for tailored event recommendation and user interaction using NLP
- Pioneered an AI platform enhancing user connection and setting benchmarks in social networking personalization

### AMERIPRISE FINANCIAL

Boston, MA

*Data Scientist Intern (Python, SKlearn, Deep Learning, Reinforcement Learning)*

*Feb 2023 – Aug 2023*

- Built predictive models to forecast geographical location growth (500m grid level) within Europe for real estate investment
- Employed DNNs to increase the model performance by 50%, and employed Boosting Algorithms for interpretability
- Developed data-specific training metrics to enhance model performance advised by Professor Rama Ramakrishnan

### MIT OPERATIONS RESEARCH CENTER

Boston, MA

*Research Assistant to Professor Dimitris Bertsimas (Python, Julia: Gurobi, IAI, Pytorch)*

*Sep 2022 – April 2023*

- Proposed and implemented Mixed integer programming algorithms: works better on some problems than the Gurobi Solver
- Developed ML scheme and employed optimal policy trees to maximize cancer patient survival time for various treatments
- Performed data imputation, risk stratification, resampling, and scoring criteria, and improved AUC to 80%

### MIT SLOAN: UNITED NATIONS

Remote

*Data Scientist, Analytics Lab Member, UN Mine Action Service (Python, ArcGIS)*

*Sep 2022 – Dec 2022*

- Built 8 models to identify new buildings, roads, human settlements, and land cover on satellite imagery
- Evaluated effects of Columbian mine clearance projects by creating random forest, XGBoost, logistic regression models
- Incorporated deep neural work and classification and regression tree and improved accuracy to 99% and 0.93 AUC

### ALPHA SQUARE GROUP

New York, NY

*Quantitative Research Intern (Python, Java, TensorFlow, Pytorch)*

*Jun 2022 – Aug 2022*

- Developed smart web scraping algorithm to maintain investment portfolio and detect abnormal trends
- Created NLP model to summarize alternative data including customer review and quantify keywords
- Constructed smart scoring system for primary market investment based on around 500 historical investment data

### BERKLEY INSTITUTE OF DATA SCIENCE

Berkeley, CA

The public editor project addresses misinformation crisis online by crowdsourcing news evaluation

*Sep 2019 – Dec 2021*

*Full Stack Developer Intern (Python, HTML, CSS, JavaScript, Pytorch)*

- Implemented Public Editor Forum, Website Redesign, Triage Extension, and Visualizations
- Collaborated with linguistic department to construct a BERT model for text analysis

## Publication and Thesis:

1. Hossain, Md Sakaouth, Muhammad Yasir, Ping Wang, Saleem Ullah, Maftuha Jahan, Sheng Hui, and Zehao Zhao. "Automatic shoreline extraction and change detection: A study on the southeast coast of Bangladesh." *Marine Geology* 441 [2021]: 106628.
2. Zhao, Zehao, Xiongfeng Ma, and Hongyi Zhou. "Performance Optimization on Practical Quantum Random Number Generators: Modification on Min-entropy Evaluation and Acceleration on Post Processing." arXiv preprint arXiv:2011.04130 [2020].
3. Zehao Zhao *et al* 2017 *J. Phys.: Conf. Ser.* **887** 012078 DOI 10.1088/1742-6596/887/1/012078
4. Zehao Zhao, Javi Ocampo.(2023). On-Device Augmented Image Training and Inference utilizing the TinyEngine Library on a STM32F746G-DISCO Microcontroller. DOI: 10.13140/RG.2.2.34074.21447.
5. Zhao, Z. (2023). A Study on Recommendation System. DOI: 10.13140/RG.2.2.25685.60644.
6. Zhao, Z. Ren, J. (2023). Boston Bluebikes Dock Optimization. DOI: 10.13140/RG.2.2.32396.49280.
7. Zhao, Z., Jiang, M. (2022). Prediction of Cardiovascular Disease via Tree-Based Models. DOI: 10.13140/RG.2.2.22330.16324.
8. Zhao, Z. (2020). Principal Component Analysis and Implementation on Image Classification. DOI: 10.13140/RG.2.2.31263.23204.
9. Zhao, Z. (2022). Analysis of two Portuguese secondary school students' academic performance.

## Links:

<https://scholar.google.com/citations?user=vd1CoNIAAAAJ&hl=en>

<https://www.researchgate.net/profile/Zehao-Zhao-3>

<https://www.linkedin.com/in/zehao-zhao/>