

# Zhongxia “Zee” Yan

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## Education

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### Massachusetts Institute of Technology

Ph.D. in Computer Science, minor in Robotics

GPA: **5.0/5.0**

*Expected Jun 2024*

### University of California, Berkeley

M.S. in Electrical Engineering and Computer Science

GPA: **3.92/4.0**

*May 2018*

B.S. in Electrical Engineering and Computer Science

GPA: **4.0/4.0**

*May 2017*

## Selected Research (6 first-author publications + 2 under review)

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### MIT – PhD Candidate, advised by **Prof. Cathy Wu**

*Sep 2019 – Present*

- ∴ Focus: multi-vehicle scheduling and path planning problems in **transportation, operations research, and robotics**
- ∴ Integrated **deep learning and reinforcement learning (Python, PyTorch)** to improve solution qualities and computation times of **search and optimization (C++)**, especially in large-scale problems

Yan, Z, Wu, C. Neural Neighborhood Search for Multi-agent Path Finding. *ICLR 2024*. Accepted.

Yan, Z, Kreidieh, A R, Vinitzky, E, Bayen, A M, Wu, C. Unified Automatic Control of Vehicular Systems with Reinforcement Learning. *IEEE TASE, IROS 2022*.

Li, S\*, Yan, Z\*, Wu, C. Learning to Delegate for Large-scale Vehicle Routing. *NeurIPS 2021 (Spotlight, top 3%)*. [mit-wu-lab.github.io/learning-to-delegate](https://mit-wu-lab.github.io/learning-to-delegate)

### MIT – Research Assistant, advised by **Prof. Phillip Isola**

*Feb 2019 – Sep 2019*

- ∴ Trained **transformers** for **language modeling** with long range memory and contrastive learning
- ∴ Compressed transformer-based language model by 60x with distillation, pruning, and quantization

Yan, Z, Wang, H, Guo, D, Song, H. MicroNet for Efficient Language Modeling. *NeurIPS 2020 MicroNet Competition 1<sup>st</sup> place*. [micronet.mit.edu](https://micronet.mit.edu)

## Work Experience (6 total: 2 research + 4 engineering)

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### DeepMind (Google) – Research Scientist Intern

*May 2022 – Aug 2022*

- ∴ Designed and deployed an **AlphaZero**-based method for optimizing the construction of sorting networks
- ∴ Improve the performance and scalability of **learning-guided Monte Carlo Tree Search (Python/C++)** by 8x

### Amazon Robotics – Applied Scientist Intern

*June 2021 – Sep 2021*

- ∴ Designed and implemented a **multi-agent reinforcement learning** algorithm to optimize movement of hundreds of agents on a **Java** simulated Amazon warehouse floor
- ∴ Built significant **AWS** infrastructure for job submission, parallel training, and interactive visualization
- ∴ Demonstrated significant improvement in system throughput over heuristically designed baselines

### Google – Software Engineering Intern

*May 2017 – Aug 2017*

- ∴ Created prototypes with architectural changes for the **Android** Auto product, involving both application-level (e.g. threading / synchronization, binders, lifecycles, JNI) and platform-level (e.g. processes, package installation)
- ∴ Involved in US Patent 1,009,7684 for new user feature termed “Passenger Mode”

**Others:** Intern at Bloomberg 2018, Veeva Systems 2016, Broadcom 2015

## Other Experience

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TA: 6.883 Meta-Learning, 6.246 Reinforcement Learning, 6.867 Machine Learning, CS176 Algs for Comp Bio

- ∴ 2020 Frederick C. Hennie III Teaching Award, MIT EECS

2020 David Dwight Eisenhower Transportation Fellowship Program (DDETFP) Fellow

2014 USA Biology Olympiad Bronze Medalist (**top 12 in USA**)

Expert skills: **Python, PyTorch, Numpy, Pandas, Matplotlib, C++, Pybind11, Java, Git, Linux, Slurm**

Proficient skills: AWS, Tensorflow, Jax, SQL, Javascript, React, Node.js, MongoDB, HTML, CSS, Gurobi, Android

**Other projects:** AlphaZero-Gomoku (Python, multiprocessing), video prediction (CNN+LSTM), 3D reconstruction (OpenSFM), apartment rental website (React, Node.js), Berkeley solar vehicle dashboard (C++ firmware, circuit design), household finance website (PHP, LAMP), Super Gitlet (Java, allows merge, rebase, remote), Project Euler (up to level 143)