

EDUCATION

ETH Zürich

MSc. in Data Science • Department of Computer Science (D-INFK)

Zürich, Switzerland

Sep 2021 – Mar 2024

- **GPA:** 5.26/6.0 **Award:** ETH Scholarship

The Chinese University of Hong Kong, Shenzhen

BSc. in Statistics • Stream in Data Science • School of Science and Engineering

Shenzhen & Hong Kong, China

Sep 2017 – Jul 2020

- First Class Honours. Completed the four-year undergraduate program in three years.
- **Cumulative GPA:** 3.764/4.0 (Top 3% of School) **Major GPA:** 3.847/4.0 (Top 3% of Department)
- **Awards:** Academic Performance Scholarship; Dean's List (both 3 consecutive years)

University of California, Berkeley

Summer Session • Non-degree

Berkeley, CA, USA

Jun 2019 – Aug 2019

- **GPA:** 4.0/4.0 **Courses:** Machine Learning, Game Theory

PUBLICATIONS & PREPRINTS

- [1] [Yilei Tu](#), Jiaoda Li, and Ryan Cotterell. Complex probes are favored: A revisit of probe complexity. Manuscript submitted to EACL 2024.
- [2] Susie Xi Rao, [Yilei Tu](#), and Peter H. Egger. SAINE: Scientific Annotation and Inference Engine of Scientific Research. In *IJCNLP-AACL 2023 System Demonstrations*, 2023.
- [3] Yuan Wang, Weilin Cai, [Yilei Tu](#), and Jianfeng Mao. Reinforcement-Learning-Informed Prescriptive Analytics for Air Traffic Flow Management. *IEEE Transactions on Automation Science and Engineering*, pages 1–15, 2023.
- [4] Lechen Wang, Jianfeng Mao, Lishuai Li, Xuechun Li, and [Yilei Tu](#). Prediction of estimated time of arrival for multi-airport systems via “Bubble” mechanism. *Transportation Research Part C: Emerging Technologies*, 149:104065, 2023.

RESEARCH EXPERIENCE

ETH NLPED Lab

Master's Thesis • Supervisor: Prof. Mrinmaya Sachan

Zürich, Switzerland

Jul 2023 – Present

- Designing a routing mechanism that evaluates the unique characteristics of each LLM, the complexity and type of the given prompt to identify the most suitable LLM, thus facilitating efficient and high-quality response generation.

Chair of Applied Economics, ETH Zürich

Research Assistant • Part-time • Supervisor: Prof. Peter Egger, Dr. Susie Xi Rao

Zürich, Switzerland

Jan 2023 – Present

- Building retrieval-augmented Llama2 with OpenAlex knowledge graph to support meta-science research.
- Developed an open-source and cross-discipline scientific annotation and inference engine that allows user to annotate features easily and to fine-tune downstream tasks in meta-science studies. [[📄 Repository](#)]
- Explored the application of LLMs for classification and keyword extraction of literatures.
- Conducted post-processing of annotation results and finetuning our base classification model by MLflow.

Rycolab & ETH AI Center

Research in Data Science Project • Supervisor: Prof. Ryan Cotterell

Zürich, Switzerland

Sep 2022 – Oct 2023

- Investigated the probing accuracy of probes across varying complexities on different representations; Concluded that a probe which is more complex than necessary is preferred, challenging the common wisdom of favoring low-complexity probes.
- Explored the impact of probe's architectures on probing performance.

Shenzhen Research Institute of Big Data & CUHK-Shenzhen

Research Assistant • Supervisor: Prof. Jianfeng Mao, Dr. Yuan Wang, Dr. Lechen Wang

Shenzhen, China

Sep 2020 – May 2021

- Contributed to the development of a new two-stage medium-term data-driven model that combined various algorithms such as ARIMA, DBSCAN, LSTM and random forest, to predict the estimated time of arrival in a multi-airport system.
- Developed a three-staged online decision-making framework with colleagues to optimize sector-wise air traffic flow with multi-agent reinforcement learning and combinatorial programming.
- Crawled and analyzed flight trajectories and statistics in China, especially in Greater Bay Area, with visualization on maps.

INTERNSHIPS

Tencent

Algorithm Engineer • Financial Technology (FiT) • Supervisor: Liang Chen

Shenzhen, China
Jul 2021 – Sep 2021

- Collaborated with colleagues to propose a new algo-trading based on neural models (XGBoost and LSTM) and modern portfolio theories (CAPM, Black-Litterman). Backtested the strategy and achieved a 12% outperformance over S&P 500.
- Collected and analyzed US stock indicators and designed their calculation methods or alternatives in China's stock market.

Huawei

Software Development Engineer • Intelligent Automotive Solution (IAS)

Shenzhen, China
Jun 2020 – Aug 2020

- Developed audit-log module by Golang to concurrently monitor and report crucial behaviors of the administrators and users.
- Completed a set of APIs' design, development and deployment of the IAS cloud identity management system.
- Wrote white- and black-box test cases, and undertook daily work of deploying and optimizing automated test cases.

Morningstar

Data Research Analyst • Operations Asia Dept.

Shenzhen, China
Dec 2019 – Mar 2020

- Maintained database tracking 9,000+ China's funds; Categorized and calculated indicators for new funds; Tailored fund reports.

TEACHING

Department of Mathematics, ETH Zürich

Teaching Assistant • Part-time • Institute for Operations Research

Zürich, Switzerland
Sep 2023 – Jan 2024

- 401-0647-00L Introduction to Mathematical Optimization; Lecturer: Dr. David Adjiashvili

SKILLS

Programming Languages & Tools: Python (PyTorch, Hugging Face), R, Golang, SQL, Git, Unix, JetBrains, Docker, Tex
Natural Languages: English (Advanced, TOEFL 109); Mandarin Chinese, Sichuanese (Native); Cantonese (Intermediate), Standard High German (Elementary), Japanese (Elementary)

EXTERNAL LINKS

All the text and icons in Cadet Blue are hyperlinked. However, in case the PDF reader does not support the clicking of links, the specific URLs are provided explicitly below.

- Paper [2]: <https://arxiv.org/abs/2302.14468>
- GitLab Repo of Paper [2]: <https://gitlab.ethz.ch/raox/science-clf/-/tree/labelstudio>
- Paper [3]: <https://ieeexplore.ieee.org/abstract/document/10258410>
- Paper [4]: <https://www.sciencedirect.com/science/article/pii/S0968090X23000542>
- Personal Website: <https://yileitu.github.io/>
- Google Scholar: <https://scholar.google.com/citations?user=jPeyGn4AAAAJ&hl=en>
- GitHub Profile: <https://github.com/yileitu>
- LinkedIn: <https://www.linkedin.com/in/yileitu/>