Nan Li

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Education

University of Zurich (UZH) *Zurich, Switzerland*

MSc in Computer Science (Major: Artificial Intelligence) Sep. 2022 - Oct. 2024

- **Master thesis**: Interpretable Machine Learning Algorithm for Drunk Driving Detection
- **Master project**: Explainability method for Recommender Systems
- **Related courses**: Probabilistic Artificial Intelligence(ETHz), Introduction to Machine Learning(ETHz), Deep Learning, Planning and Decision Making for Autonomous Robots(ETHz), Foundations of Data Science, Advanced Topics in Artificial Intelligence, Systems for Data Science

Beihang University (BUAA) *Beijing, China*

BEng in Software Engineering Sep. 2016 - Jun. 2021

- **GPA**: 87/100 (Top 20%)
- **Thesis**: Project Review Assistant System Based on BlockChain
- **Related courses**: Algorithm Analysis and Program, Mathematical Analysis, Foundation and application of intelligent computer, Data Structures, Compiler Theory, Operating System and Linux Kernel Practice

Projects

Visual-Assisted Workflow for Locomotion Learning *Zurich*

AI Center Projects in Machine Learning Research - ETHz Mar. 2024 - Present

- **Objective**: Develop effective visualization methods to facilitate quadrupedal locomotion learning.
- **Contributions**:
  - Researched and integrated state-of-the-art quadrupedal locomotion learning algorithms.
  - Leveraged platforms like RaiSim for simulation and experimentation.
  - Built a visualization website for interpretation.

Interpretable Machine Learning Algorithm for Drunk Driving Detection *Zurich*

Bosch IoT Lab | ETH Zurich | University of St. Gallen Dec. 2023 - Present

- **Objective**: Develop interpretable machine learning algorithms to detect drunk driving using CAN bus data.
- **Contributions**:
  - Analyzed Can Bus and other related data from real vehicles to create accurate models.
  - Developed and trained interpretable time-series classification models including logistic regression, CNNs, RNNs, and state-of-art multivariate time-series classification models.
  - Explored techniques for comprehensive explanations of model predictions.

An AI player for 3D Pinball Space Cadet *Zurich*

Independent Project Sep. 2023 - Present

- **Objective**: Build an AI player that learns to play '3D Pinball Space Cadet' and achieves high scores.
- **Contributions**:
  - Used OpenCV for real-time recognition of game data, including coordinates and speed vectors.
  - Trained AI through reinforcement learning and optimized performance in each game.
  - Implemented a genetic algorithm to improve players' performance using crossover and mutation strategies.

Explainability Method for Recommender Systems *Zurich*

Dynamic and Distributed Information Systems Group - UZH Feb. 2023 - Present

- **Objective**: Research and implement explainable methods for recommender system outputs.
- **Contributions**:
  - Extended the Cornac Python package with new explainable recommend models, explanation algorithms, and evaluation metrics.
  - Developed a pipeline to facilitate the workflow and documented a detailed report.
  - Specialized in matrix factorization-based models and explanation methods.

GPT-Generated Text Detection *Zurich*

Essentials in Text and Speech Processing - UZH Sep. 2023 - Oct. 2023

- **Objective**: Differentiate paragraphs written by humans vs. those by ChatGPT.
- **Contributions**:
  - Gather datasets of Wikipedia articles and text generated by GPT-3/3.5.
  - Developed models using the datasets and achieved high accuracy (>0.8) across all models through careful feature engineering.

Influence Maximization in Twitter Network *Zurich*

Network Science - UZH Sep. 2022 - Dec.2022

- **Objective**: Identify the most influential users in the Twitter network using various algorithms.
- **Contributions**:
  - Researched information diffusion and modeled the diffusion process to propagate information by adapting four well-established diffusion models.
  - Developed and implemented the Independent Cascade Model and Decreasing Cascade Model.
  - Designed and implemented a naive greedy algorithm to maximize information influence.

On-Campus Works

Practical Tutor *Zurich*

Lecture: Foundations of Data Science (Graduate Level) Sep. 2023 - Present

- Graded practical assignments and written exams.
- Collaborated with fellow tutors to provide comprehensive student support by addressing questions.

Teaching Assistant *Beijing*

Lecture: Compiler Theory (Undergraduate Level) Sep. 2020 - Jan. 2021

- Graded assignments and assisted in providing skeleton code support for programming projects.

Leader of Teaching Assistant *Beijing*

Lecture: Object-Oriented Programming (Java) (Undergraduate Level) Feb. 2020 - Jun. 2020

- Coordinated the activities of teaching assistants, ensuring effective development of assignments, exercises, and all exams.
- Assisted the professor in managing the online course.

Teaching Assistant *Beijing*

Lecture: Algorithm Analysis and Design (Undergraduate Level) Sep. 2019 - Jan. 2020

- Conducted bi-weekly tutorial sessions and provided assistance to students during tutorials.
- Crafted and graded programming exercises and final exam questions.

Awards and Honors

Jun. 2021	**Honor Certificate**: Outstanding Graduate of Beihang University	*Beijing*
2020, 2019, 2018	**Scholarship**: Excellent Scholarship for Academic Performance (3 times)	*Beijing*
2019, 2018	**Scholarship**: Excellent Scholarship for Social Work (2 times)	*Beijing*
2019, 2017	**Honor Certificate**: Merit Student (2 times)	*Beijing*
Jan. 2019	**Scholarship**: Lee Kum Kee Innovation Scholarship	*Beijing*

Skills

Programming Languages	Python, Java, C++, C, JavaScript, TypeScript, SQL, Kotlin, Golang, Matlab, LaTeX
Machine Learning	PyTorch, TensorFlow
Application Development	React, Vue, QT, Spring Boot, MySQL, MongoDB
Version Control and Other Tools	Git, SolidWorks
Languages	Chinese (Native), English (C1)
Soft skills	Problem-Solving, Time Management, Collaboration, Adaptability, Leadership