

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

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.

Visual-Assisted Workflow for Locomotion Learning

Zurich

AI Center Projects in Machine Learning Research - ETHz

Mar. 2024 - May. 2024

- **Objective:** Develop effective visualization methods to facilitate quadrupedal locomotion learning.
- **Result:** Visualization website on GitHub.
- **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.

Explainability Method for Recommender Systems

Zurich

Dynamic and Distributed Information Systems Group - UZH

Feb. 2023 - May. 2024

- **Objective:** Research and implement explainable methods for recommender system.
- **Result:** Paper submitted to the ACM Conference on Recommender Systems (RecSys)
- **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.

An AI player for 3D Pinball Space Cadet

Zurich

Independent Project

Sep. 2023 - Dec. 2023

- **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.

Project Review Assistant System Based on Block Chain

School of Software - BUAA

Beijing

Nov. 2020 - Jun. 2021

- **Objective:** Develop a project review web application utilizing blockchain technology and distributed storage.
- **Contributions:**
 - Developed the frontend using JavaScript and TypeScript with React and backend with Java and Kotlin using SpringBoot, and MongoDB.
 - Integrated blockchain technology using Hyperledger Fabric and Go-lang, with IPFS for distributed storage.
 - Enabled functionalities such as project uploads, reviews, ratings, and reviewer suggestions.

Interactive Instrument Dombra: Blending Tradition with Technology

National Innovation and Entrepreneurship Training Program

Beijing

Mar. 2017 - Oct. 2018

- **Objective:** Facilitate Dombra learning and practicing without the need for an actual human teacher.
- **Contributions:**
 - As the team leader, spearheaded project coordination, facilitated collaboration among teachers and students, and established connections with instrument crafters.
 - Transformed the traditional musical instrument Dombra into an interactive instrument by integrating sensors and controlling it with a microcontroller.
 - Designed and developed a user-friendly mobile application to support learning and practice for students.

On-Campus Works

Practical Tutor

Lecture: Foundations of Data Science (Graduate Level)

Zurich

Sep. 2023 - Present

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

Teaching Assistant

Lecture: Compiler Theory (Undergraduate Level)

Beijing

Sep. 2020 - Jan. 2021

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

Leader of Teaching Assistant

Lecture: Object-Oriented Programming (Java) (Undergraduate Level)

Beijing

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

Lecture: Algorithm Analysis and Design (Undergraduate Level)

Beijing

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