Yuanluo Wu

B.Sc. Informatik + Math @ LMU | ML · CV · RL · Optimization
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Summary

B.Sc. student in Informatik with integrated Mathematics at LMU Munich.
Interested in **software engineering, algorithms, and data-driven problem solving**.
Experienced with **Python, Rust, and Java**, building modular, reproducible projects with clean architecture.

Experience

McDermott Will & Emery Rechtanwälte Steuerberater LLP — **February 2020 - March 2020**
Data Analysis Internship — Munich
https://www.mwe.com/de/

- Applied **statistical methodologies** to assess data trends and support decision-making processes.
- Developed expertise in **data visualization**, transforming intricate datasets into comprehensible charts and graphical representations.

LMU Munich's Computer Vision & Learning Group — **October 2024 - April 2025**
UNI PRACTICAL

- Trained and compared **CNNs, ViTs, and hybrid architectures** for facial expression recognition on **FER2013** and **AffectNet**.
- Built an end-to-end pipeline including **data cleaning, augmentation, hyperparameter tuning, and ablation-style model comparison**.
- Achieved **72% accuracy on FER2013** and **~70% on AffectNet** with reproducible experiment tracking.

LMU Software and Computational Systems Lab — **Summer Semester 2024**
Softwareentwicklungspraktikum Java

- Implemented JUnit test suites and applied GoF patterns in a team-based Java project.
- Used Git + Gradle for CI-like build workflows and collaborative version control.

Education

Ernst-Reisinger-Schule Schondorf staatl. anerk. Gymnasium — **Sep 2019 - Jul 2022**
Allgemeine Hochschulreife(Abitur)
2.5
https://www.landheim-ammersee.de/

Technische Universität München — **October 2022 – October 2023**
Bachelor of Science
Elektrotechnik und Informationstechnik
(first year / program change)

LUDWIG-MAXIMILIANS UNIVERSITÄT MÜNCHEN — **October 2022 - Present**
Bachelor of Science
Computer Science plus Mathematic
2.5(current)
Selected coursework: ML, CV, Optimization, Probability & Statistics, Numeric Algorithms

Projects

Facial Expression Recognition using Deep Learning — **October 2023 - April 2025**
https://github.com/ndrohrich/CVDL_Practical

Group Project of the Winter 2024 **Computer Vision and Deep Learning Practical at Ommer Lab. Group**
We developed a system to **classify human facial expressions** by training various deep learning models. Our approach utilized multiple architectures, including **Convolutional Neural Networks** , **Vision Transforme**, and **hybrid models combining CNNs and ViTs**.

NLHE 6-Max Poker Engine (Reinforcement Learning Platform)
Research-grade NLHE engine in Python/Rust with Gymnasium environments for reproducible multi-agent RL.
https://github.com/42logos/RL_NLHE

- Built a **research-grade, deterministic 6-max No-Limit Texas Hold'em engine** for reinforcement learning in imperfect-information games.
- Designed a **modular Python + Rust architecture** with Gymnasium-compatible environments and optimized hand evaluation.
- Implemented **complete rules, legal-action generation, betting-round progression, and side-pot showdown resolution** for realistic multi-player dynamics.
- Enabled **reproducible RL experiments** via fixed seeds, structured logging, and standardized environment interfaces.

AI/ML, RL, multi-agent systems, game theory

UAMOCF — Uncertainty-Aware Multi-Objective Counterfactuals (Bachelor's Thesis)
Official PyTorch implementation of uncertainty-aware multi-objective counterfactual explanations using NSGA-II with GPU-accelerated objective evaluation.

- **Role:** Author | **Status:** Official implementation of Bachelor's Thesis
- Developed the **official implementation** of my Bachelor's thesis on **uncertainty-aware, multi-objective counterfactual explanations** in PyTorch.
- Formulated counterfactual generation as a **multi-objective optimization problem** using **NSGA-II**, producing a **Pareto front** of diverse, non-dominated explanations.
- Integrated **predictive uncertainty** as explicit objectives, separating **aleatoric and epistemic** components via model ensembles.
- Implemented **GPU batch evaluation** of objectives to improve efficiency and support scalable experimentation.
- Optimized multiple objectives including **validity**, **uncertainty**, **sparsity**, and **similarity/plausibility** under a unified, research-friendly framework.

PyTorch, pymoo (NSGA-II), model ensembles, GPU-accelerated objective evaluation, multi-objective optimization.

Skills

Python · Rust · Java · HTTP · CSS · Java Script · PyTorch · Computer Vision · Reinforcement Learning · Multi-objective Optimization · FastAPI/Flask · Streamlit · SQL/SQLite · Linux · Docker · Git · CICD