Yaolin Ge

Ranheimsvegen 127, 7053 Ranheim | +47 92526858 | https://yaolinge.github.io | geyaolin@gmail.com

Summary

"Machine Learning Engineer specializing in real-time anomaly detection and multi-sensor AI systems. Experienced in deploying GPU-optimized models (CUDA, ONNX) within embedded systems and collaborating with cross-functional teams to deliver customer-focused solutions. Skilled in ML infrastructure and continuously engaged with the latest technological advancements."

Experience

Sandvik Coromant Trondheim **Trondheim,Norway**
Software engineer, Dept. Sensorized Tools Sept. 2023 – present

- **Real-time Multi-Sensor Anomaly Detection**: Developed and deployed a multi-channel anomaly detection system using LSTM Autoencoder models. Enhanced model performance on embedded systems by deploying via ONNX on a Blazor server app.
- **Hardware-Accelerated Training**: Leveraged CUDA with PyTorch for high-performance GPU training, streamlining ML model deployment and inference for embedded applications.
- **Cross-Functional Collaboration**: Worked with mechatronics, firmware, hardware, and product management teams, ensuring customer-oriented design and functionality.
- **Continuous Learning**: Actively engages with advancements in AI/ML technology to keep applications aligned with industry standards.

Norwegian University of Science and Technology **Trondheim,Norway**
Ph.D, Dept. Mathematical Sciences Aug. 2020 – Sept. 2023

- **AI-Driven Remote Sensing System**: Designed multi-scale machine learning systems for autonomous robotic data collection. Adapted ML models for deployment on low-power embedded devices, optimizing through OpenCL, CUDA, and MPI.
- **Large-Scale Simulation Expertise**: Managed simulations on NTNU's IDUN cluster using OpenMP and MPI, supporting multi-scale model testing and optimization.
- **Customer Collaboration**: Engaged with stakeholders such as SINTEF Ocean and LSTS for knowledge transfer and project alignment. Authored 5 research papers.

Peking University **Beijing, China**
Summer research student at AI+Art Lab, PKU Jul. 2019 – Aug. 2019

- Applied computer vision (OpenPose) to enhance motion capture capabilities for robotics, culminating in a real-time interactive robot performance.
- Gained foundational knowledge in ML and deep learning principles, which supported future academic and industrial applications [video]
- Demonstrated the performance of the algorithms with a robot dance show. [video]

Education

Norwegian University of Science and Technology **Trondheim, Norway**
Ph.D. candidate, Dept. Mathematical Sciences Aug. 2020 – Sept. 2023
Thesis: Developed multi-scale machine learning systems to enable autonomous robotic data collection in oceanographic environments.

KTH Royal Institute of Technology **Stockholm, Sweden**
MSc, Maritime Engineering, G.P.A. 4.625/5.00 Aug. 2019 – Jul. 2020
Thesis: Created embedded software for autonomous robotic location estimation and prediction.

Norwegian University of Science and Technology **Trondheim, Norway**
MSc, Marine Technology, G.P.A. 3.93/4.00 Aug. 2018 – Jun. 2019
Developed predictive models for lifting forces on propellers, contributing to autonomous marine applications.

University of Strathclyde **Glasgow, United Kingdom**
International Student Exchange Program, G.P.A. 3.85/4.00 Sept. 2017 – Jan. 2018
Relevant project: Focused on structural behavior analysis using finite element methods.

Skills & Interests

Programming Languages: Python, C#, C/C++, JavaScript, Bash, Matlab, SQL, R, Julia, Git
Frameworks & Libraries: PyTorch, OpenCL, CUDA, ONNX, Blazor, Django, Flask, .NET
Tool: Visual Studio, Nsight, PyCharm, Anaconda, Pytorch Profiler
Language: English (professional), Norwegian (professional), Mandarin (native)
Interests: Rowing, sailing, skiing, hiking, Taekwondo, dance, music, and traveling.

Awards & Competitions

- Taekwondo WT – Norges Cup, 2nd in 68kg, Heimdal, Norway
- Smart City Hackathon 2024, 1st place, Warsaw, Poland
- NTNUI Yngling Sailing Cup, 2nd out of 12, Norway
- Taekwondo WT – NM 2021, 3rd in KAMP, 4th in Poomsae, Norway
- Best Popular Prize, AI + Art in Robot Dancing Competition, PKU, China

Extra-curricular

Taekwondo instructor - *NTNUI Taekwondo,* Jan. 2020 – present
Plan training sessions and provide guidance to all members, competing nationally.

Salsa line instructor - *NTNUI Dans,* Sept. 2021 – Sept. 2023
Organize and lead weekly dance classes, enhancing community involvement.

Certificates

Deep Learning Specialization – Coursera, Apr. 2022
Fundamentals of Accelerated Computing with CUDA Python – NVIDIA, Apr. 2022
CS50 Introduction to Computer Science - Harvard University, Mar. 2023

Reference

Jo Eidsvik (jo.eidsvik@ntnu.no) – Professor, Dept. of Mathematical Sciences, NTNU
Tore Mo-Bjørkelund (tore.mo-bjorkelund@ntnu.no) – Head of Operations, Skarv Technologies AS

Publication

[1] Yaolin Ge, André Julius Hovd Olaisen, Jo Eidsvik, R. Praveen Jain, and Tor Arne Johansen. Long-horizon informative path planning with obstacles and time constraints. IFAC-PapersOnLine, 55(31):124–129, 2022. 14th IFAC Conference on Control Applications in Marine Systems, Robotics, and Vehicles CAMS 2022.

[2] Yaolin Ge, Jo Eidsvik, Tore Mo-Bjørkelund. 3D Adaptive AUV Sampling for the Classification of Water Masses. IEEE Journal of Oceanic Engineering, 2023.

[3] Berild, Martin Outzen, Yaolin Ge, Jo Eidsvik, Geir-Arne Fuglstad, and Ingrid Ellingsen. "Efficient 3D real-time adaptive AUV sampling of a river plume front." Frontiers in Marine Science 10 (2024): 1319719.

[4] Yaolin Ge, Jo Eidsvik, André Julius Hovd Olaisen. RRT*-enhanced long-horizon path planning for AUV adaptive sampling using a cost valley. Knowledge-Based Systems, 2025.