**Yaolin Ge**

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**A picture containing person, posing

Description automatically generatedSummary**

# "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 developer, 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.
* **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](https://www.youtube.com/watch?v=kmty0bGUTb8)]
* Demonstrated the performance of the algorithms with a robot dance show. [[video](https://www.youtube.com/watch?v=LG3HtLOEfPs)]

**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. 3.85/4.00Sept. 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](https://www.sportdata.org/kampsport/set-online/popup_main.php?popup_action=results&vernr=557&active_menu=calendar) 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. 202

**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](mailto: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. Robotic exploration of a river plume system using a flexible cost valley concept. Knowledge-Based Systems, 2024 [under review]