Joakim Olsson, PhD

ML Research Engineer

PROFESSIONAL SUMMARY

Seasoned ML Research Engineer with over a decade of foundational and practical experience in big data and modern machine learning at leading academic institutions and fast-paced startups. Passionate about training large neural nets and building ML infra.

EXPERIENCE

Machine Learning Engineer Feb 2022 – present
Machina Labs (Robotics startup) *Los Angeles, CA*

- Developed ML forecasting models using RNNs with attention and Transformers to predict forces on robot end effectors.
- Onboarded company on modern DE/ML tools, such as Apache Spark, Apache Kafka, Databricks, MLflow, PyTorch, ONNX, etc.
- Streamlined engineering workflows by creating end-to-end data pipelines and dashboards used daily by the engineering team.
- Boosted accuracy of 3D scanning system by 5x through an advanced method combining automated data collection and Bayesian optimization (PyTorch, BoTorch).
- Developed multithreaded software for real-time processing of sub-mm precision point cloud data (C++, ROS2).
- Led hiring and onboarding initiatives as the inaugural MLE.

Postdoctoral Researcher Oct 2018 – Feb 2022
The University of California, Irvine *Irvine, CA*

- Optimized deep ML regression models for fast FPGA inference utilizing quantization and pruning, achieving latencies of 100 ns.
- Researched applications of modern DL such as GANs, VAEs, Diffusion, and deep RL in particle physics.
- Directed a multinational team of 20 physicists, utilizing ML and A/B testing for big data analysis.
- Supervised and mentored multiple student thesis projects.

Graduate Researcher Jun 2012 – Sep 2018
The University of Chicago *Chicago, IL*

- Achieved 5-8x improvement in particle shower classification using modern CNNs (ATL-PHYS-PUB-2020-018).
- Analyzed petabytes of data using distributed computing clusters.

EDUCATION

Doctor of Philosophy, Physics Sep 2012 – Sep 2018
The University of Chicago, Chicago, IL

Master of Science, Theoretical Physics Aug 2010 – Jun 2012
Chalmers University, Sweden

Bachelor of Science, Engineering Physics Aug 2006 – Jun 2009
Chalmers University, Sweden

CONTACT

Phone: 312-780-9260
E-mail: j.mr.olsson@gmail.com
LinkedIn: linkedin.com/in/jmrolsson
GitHub: github.com/jmrolsson
Personal website: joakimolsson.com

TECHNICAL SKILLS

Programming Languages

- Python (Numpy, Pandas, Dask, PySpark, Plotly, Matplotlib, etc.)
- C, C++ (11/14+), CUDA, Java
- Bash Scripting, Linux

Machine Learning

- PyTorch, Tensorflow, Keras
- Scikit-learn, XGBoost
- Ray, Ax, BoTorch, Optuna
- MLOps, MLflow, ONNX

Data Engineering

- Apache Airflow, Spark, Kafka, Flink

DevOps / App Infra

- Git, GitHub/GitLab, CI/CD
- Docker, Kubernetes, Terraform
- Azure, AWS, GCP

Dashboards / Data apps

- Plotly Dash, Streamlit
- FastAPI, Next.js, CSS/HTML/JS

Databases

- SQL (PostgreSQL, Databricks)
- NoSQL (Cassandra, InfluxDB, Redis, MongoDB)

Other

- ROS2, Embedded Linux, Yocto
- Xilinx HLS, FPGA prototyping

INTERESTS

Skiing, Running, Hiking, Woodworking