

Software engineer and machine learning researcher working on a 500 M\$ physics experiment with 4000 scientists. Cooperating in multi-disciplinary teams to integrate state-of-the-art deep learning in the production code. Research interests include computer vision, anomaly detection, model sparsity and optimization for inference. Published in high-impact factor journals and conferences: ICLR, NeurIPS PS, Nature Machine Intelligence.



EXPERIENCE

- Princeton University** Princeton, NJ, United States
Postdoctoral Research Associate (Python, C++) from February 2022
 - Leading a team of 5 on data-driven anomaly detection of rare physics events in the Large Hadron Collider.
 - Improved model sensitivity to novelties by 3x for the same false positive baseline rate using deep autoencoders.
 - Reduced network inference latency to 80 ns by using knowledge distillation and deploying the model on FPGA.
 - Conducted research on novel heuristics for network pruning and heterogeneous quantization, accepted to ICLR.
 - Communicated CERN's mission to over 50 groups visiting the CMS experiment as an official CERN guide.
- CERN** Meyrin, Switzerland
Senior Fellow / Doctoral Student (Python, C++) October 2016 - January 2022
 - Implemented and integrated the first ConvNet in the CMS experiment's production code, currently in use.
 - Improved sensitivity to detecting hardware failures from 26% to 98% and reduced detection delay by half.
 - Developed particle detection model using YOLO framework and accelerated its inference by 8x with TensorRT.
 - Co-authored the *Artificial Intelligence for High Energy Physics* book with the foremost experts in particle physics.
 - Convened group's journal club to exchange ideas and stay updated with machine learning research.
- Mendix** (Siemens) Rotterdam, the Netherlands
Software Engineer (JavaScript, Python, Scala, C#) March 2016 - August 2016
 - Enhanced the usability and security of Mendix mobile applications, removing 60% of loading time by optimizing the data fetching process and simplifying the login process by introducing PIN-based access.
- CERN** Meyrin, Switzerland
Software Engineering Intern (Python, JavaScript) October 2014 - November 2015
 - Saved 6000 yearly person-hours by designing and deploying a web-based interactive visualization monitoring tool.
- IBM** Amsterdam, the Netherlands
Software Engineering Intern (Java, JavaScript) June 2014 - September 2014
 - Enhanced customer experience by designing and developing a mobile application for content recommendations that used a blend of content-based and collaborative filtering.

TECHNOLOGIES

Python, JavaScript, TensorFlow, Keras, PyTorch, ONNX, TensorRT, Scikit, Pandas, React, Flask, Node

EDUCATION

- University of Paris-Saclay** Orsay, France
PhD in Computer Science; Thesis:  October 2016 - June 2020
- Technical University of Denmark** Kongens Lyngby, Denmark
MSc in Telecommunications Engineering; Thesis:  September 2012 - January 2016
- Lodz University of Technology** Lodz, Poland
BEng in Electrical Engineering October 2008 - February 2012