Siddhartha

Machine Learning/FPGA Engineer

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Personal Statement

Experienced mid-career software engineer with a FPGA-focused research background looking for a fresh challenge. Especially interested in applied AI and machine learning engineering projects, with/without hardware acceleration (e.g. FPGAs/ASICs) as an auxiliary goal.

Software ────────

- Experienced with UNIX and CLI
- Strong Python developer
- PyTorch/Tensorflow + Tensorpack machine learning frameworks
- Product development with ReactJS / Redux / SASS
- Data analysis/visualizations in R
- C/C++ programming
- Typesetting with LaTeX

Hardware ────────

- Possess foundational knowledge
- Proficient with (System)Verilog
- Familiar with FPGA tools
- VivadoHLS / PYNQ Framework
- RF communication (Ettus RFNoC Framework)

Deployment ────────

- Hands-on experience with AWS cloud products
- Serverless Application Framework
- Cortex.dev for ML inference deployment and monitoring

Work Experience

| Jun'20 – Present | **Machine Learning Engineer (Contract)** | SAP Asia Pte Ltd |

- Part of the machine learning engineering team to build scalable and production-ready ML-driven applications for internal stakeholders.
- Worked with/on ElasticSearch, Docker, FastAPI, Agile, ReactJS, etc.

| Feb'20 – Present | **Founder & CTO** | inPact.ai |

- Led product development across all aspects of machine learning, frontend, backend, and deployment.
- Hired and managed contractors and an intern to meet product development targets regularly. Enforced good development practices such as version control, linters, code reviews, etc.
- Hands-on experience with ReactJS, the serverless framework, and services provided by the AWS cloud infrastructure.
- Handled business functions such as customer acquisition, corporate partnerships, investor relations, fundraising, marketing, and more.
- Raised S$75K pre-seed from Entrepreneur First, an international VC firm funded by Reid Hoffman (founder of LinkedIn), founders of DeepMind and PayPal, and some of the top investors in the world.

| Oct'17 – Dec'19 | **Postdoctoral Research Associate** | University of Sydney |

- Conducted research on: next-generation FPGA (overlay) architectures, low-precision deep neural networks, on-chip machine learning, and RF communication systems (Ettus RFNoC framework).
- Core team member on a project (High-Speed Machine Learning for RF Communication) commissioned by the Australian Defense Force.
- (Co-)Authored 5 peer-reviewed research papers/posters.
- Supervised final year undergraduate projects, assisted with teaching/invigilation, and undertook sysadmin duties over lab resources.

Education

| 2013 – 2019 | **Doctor of Philosophy** | Nanyang Technological University, Singapore |

Dissertation: Dataflow Optimized Overlays for FPGAs
Supervisor: Dr. Nachiket Kapre

- Introduced DaCO, a Dataflow Coprocessor Overlay optimized for Arria 10 FPGAs.
- Key research contributions: (1) custom dataflow scheduling circuit that enables large-scale out-of-order instruction execution at runtime, (2) priority-aware NoC packet routing for criticality-aware dataflow communication, and (3) compiler support to optimize dataflow graphs for better runtime performance.
- (Co-)Authored a total of 15 research papers/posters/journals at top-tier IEEE conferences during the candidacy.

| 2009 – 2012 | **Bachelors of Engineering (BEng)** | Imperial College London |

Faculty of Electrical & Electronics Engineering, graduated with a second-upper class honors degree.

Certifications

| Ongoing | *Machine Learning Engineering for Production (MLOps) Specialization* |

Coursera MOOC offered by DeepLearning.AI

4-module specialization focusing on best in-industry practices for building and deploying end-to-end production-ready machine learning systems. Instructors include Andrew Ng (founder DeepLearning.AI and Coursera), Robert Crowe (Tensorflow Developer Engineer, Google), Laurence Moroney (Lead AI Advocate, Google), and more.

| Apr 2016 | *Data Science Specialization* |

Coursera MOOC offered by John Hopkins University

10-module specialization that covers concepts and tools essential for building effective data science pipelines. Instructors include Jeff Leek, Roger D. Peng, and Brian Caffo, all of whom are professors at John Hopkins university.