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Derui Yang

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Education

University of Toronto **Jul. 2020 - April. 2025(expected)**

Bachelor of Applied Science in Computer Engineering + PEY Co-op

Relevant Courses: C/C++ programming, Operating Systems, Deep Learning, Logarithms and Data Structure, Digital Systems, Engineering Strategies and Practice I & II, Software Engineering, Control Systems

Technical Skills

Applications and programming: C/C++, Python, Java, Git, Verilog, ModelSim, MATLAB, Linux

Adobe: Photoshop, Premier Pro, After Effects, Audition

Microsoft Office: PowerPoint, Excel, Word, Outlook, Teams

Work Experience

ML Engineer, Low Power AI Team, Qualcomm **May 2023-May 2024**

- Studied on model quantization and transformed pytorch model to ONNX and team internal format, and applied nolmman Json library to speed up tokenizer of transformer decoder, for the purpose of offloading floating-point model onto fixed-point field and deploy transformer on phone chip, successfully speed up the deployed ASR transformer models on device by 50% and lower the power by 90%
- Researched on forward forward algorithms and FastRPC API, aim to deploy low power model training on phone chip, resulting in successfully demonstrating end to end face detection model training showcase, from data collection to model training on device

Researcher, Brain Computer Interface Research Project, U of T **May 2022-Aug 2022**

- Demonstrated understanding to SPI protocol and GPIO configuration, for the propose of soldering between the chip and wires according to the device tree, resulted in updating microcontroller systems between nRF5340 board and ADS1299 converter using C
- Researched on fat file system and wrote a file system in C between Nordic nRF52840 development kit and standard SD card, enabling the file system to create files containing signal information from development kit
- Reviewed current art of seizure detection technology from interference platform, sensitivity, latency aspects, collected data from more than 50 papers, demonstrating advantage of implanted platform on sensitivity and presented to the professor

Projects & Programs

Programmer, Machine Learning News Classification Project, U of T **May 2022-Aug 2022**

- Planned and created a news classification machine learning model in groups of 4, utilizing python library including PyTorch, sklearn and numpy to realize the function of the machine learning model
- Researched on RNN models for textual classifications including LSTM, GRU and transformers and designed a machine learning LSTM model, successfully increase accuracy of a news classification model to over 85%
- Designed an ANN baseline model as a benchmark to evaluate efficiency and accuracy of the LSTM model designed by the team, helped the team to learn how well the model works and where to improve

Programmer, Map Application Project, U of T **Jan 2022-April 2022**

- Developed large C++ GIS application similar to Google Map working in groups of 3, utilized OSM (OpenStreetMap) database and API to draw graphic locations
- Collaborated with teammates using Git, learned design skills for developing large scale software projects
- Used STL data structures such as hash table, map and algorithms including Dijkstra and A* search to enhance performance, speed up the program more than ten times faster