BENJAMIN GOEL

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SUMMARY

University of Toronto Computer Engineering student with experience in AI Acceleration and deep learning application development. (**Current GPA** = 3.46 / 4.00)

SKILL HIGHLIGHTS

- Clear, concise, and effective communicator, very curious and eager to learn
- Python, PyTorch, Tensorflow, NumPy, C++, C, Matlab, Git, Bash, Linux/Unix

EXPERIENCE

AI Accelerator Software Engineering Intern **Toronto, ON**

Untether AI – Neural Networks (toolchain & customer development) *May 2022 – Sept 2023*

- Wrote user-facing, production-level code for front end APIs
- Supported state-of-the-art object detection in model ingestion portion of toolchain
- Developed custom NMS algorithm and implementation for object detection inference
- Led testing efforts for functional testing and quantized accuracy evaluation
- Created automatic partitioning framework for splitting models across Untether AI tsunAImi devices

Custom fixed-point arithmetic simulation for ML training and inference **Markham, ON**

Qualcomm – DSP Compute & AI research and algorithm development Summer 2021

- Simulate effects of quantized on-device performance with fixed-point arithmetic simulation in python with PyTorch framework
- Enabled almost perfect accuracy compared to FP32 vs. UINT8 inference results
- Implemented quantization-aware training for PyTorch framework (simulates rounding inaccuracies and activation thresholding)

R&D for multi-frame super resolution algorithm **Markham, ON**

Qualcomm – DSP Compute & AI research and algorithm development Summer 2021

- Utilized temporal information from video to perform AI upscale (increase quality of video)
- Leveraged state-of-the-art academic techniques: bidirectional propagation, optical flow, spatial alignment (in feature space) and depth to space to enhance existing AI super resolution algorithm
- Implemented improvements with respect to hardware and power constraints

EDUCATION

University of Toronto – St. George Campus **Toronto, ON**

Bachelor of Applied Science in Engineering Science (4 Year + PEY) 2019 - Present

- **Relevant Coursework:** Computer Algorithms, Data Structures, Linear Algebra, Digital Signal Processing, Embedded Systems, Computer Organization, Introduction to Machine Learning, Complex Analysis, Energy Systems, Semiconductor Devices