# Ryan Senanayake

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*Education*

**Massachusetts Institute of Technology (5.0 GPA)** — **Cambridge, MA**
Candidate for Masters of Engineering with a concentration in Computer Systems — Sept 2018 - Dec 2019
Relevant Coursework: Distributed Systems, Computer Systems Security, Multicore Programming, and Operating Systems

**Massachusetts Institute of Technology (4.9 GPA)** — **Cambridge, MA**
Candidate for Bachelor of Science in Computer Science and Engineering — Sept 2015 - May 2019
Relevant Coursework: Performance Engineering of Software Systems, Computer System Engineering, Computer Vision, Computation Structures, Design and Analysis of Algorithms, Introduction to Neuroscience, Artificial Intelligence, Linear Algebra, Mathematics for Computer Science, and Introduction to Probability

*Skills*

**Languages**: CUDA, C++, C, Go, Python, Java, x86 Assembly, node.js, Matlab, Javascript, SQL, bash
**Platforms**: Tensorflow, CNTK, Keras, Android, Unity

*Experience*

**MIT Compiler Research Group (Prof. Saman Amarasinghe)** — **Cambridge, MA**
*Research Assistant* — December 2017 – Present

- Added support for complex numbers and dynamically typed tensors for the Tensor Algebra Compiler project
- Designed a high-performance general algorithm for reordering dimensions of a tensor with any sparsity pattern

**NVIDIA Corporation** — **Santa Clara, CA**
*AI Developer Technology Intern* — May 2018 – August 2018

- Investigated persistent kernels for RNNs by building and comparing 6 different approaches
- Worked with client to show 100x throughput improvement by using GPUs instead of CPUs for real-time ASR task
- Created complex optimizations at the thread, warp, block, and stream level
- Utilized advanced features of CUDA, such as cooperative groups, tensor cores, and warp-level primitives
- Achieved 3x the throughput of cuDNN implementation for batch size 1 inference
- Gave two hour-long presentations to a total of 50+ engineers and presented at a company-wide poster session

**Singular Computing LLC** — **Cambridge, MA**
*Software Engineer* — June 2016 – December 2017

- Built several projects in C and Assembly to run on a massively-parallel approximate-arithmetic SIMD mesh
- Developed a framework to run neural networks and perform real-time ImageNet classification in .04W/fps
- Designed and implemented an algorithm to parallelize neural network training for speech recognition
- Built a genetic programming framework that included manipulating genome trees in Assembly
- Created a real-time optical flow computer vision demo that ran at 50 FPS, only using 0.25W

**Meta Company** — **Redwood Shores, CA**
*Prototype Engineer Intern* — January 2016

- Prototyped interactions and computer vision algorithms for augmented reality

**Prose LLC** — **Seattle, WA**
*Android Developer* — June 2015 - January 2016

- Built Android app based on existing iOS app, including infinite scrolling, socket-based messaging, push notifications, and offline caching

**RSenApps Inc** — **Seattle, WA**
*CEO, Founder* — January 2012 – August 2015

- Developed 12 published Android apps between ages 14-17
- Generated $60k+ in revenue from app sales, advertising, and in-app purchases
- Open Mic+ has 4 million downloads and was featured on XDA and LifeHacker
- Commandr has 1.5 million downloads and was featured on CNET, XDA, and LifeHacker
- Commandr was selected for Android Authority's 10 Best Android Apps of 2014

*Awards*

**Binance Decentralized Exchange Competition $60k prize** — **Global**
*Project:* Novel multi-chain consensus implementation to allow trading cryptocurrencies — April 2018 – June 2018

**Facebook Global Hackathon Finalist** — **Menlo Park, CA**
*Project:* Facial recognition and Eulerian Video Magnification for heart rate detection in AR — November 2015

**Stanford TreeHacks 2nd Place and Best Augmented Reality Hack** — **Stanford, CA**
*Project*: Android as a hologram with the Meta Augmented Reality goggles — February 2015

**University of Washington Dubhacks 2nd Place and Best Microsoft Hack** — **Seattle, WA**
*Project*: Background traffic rerouting utilizing geofencing, context detection, and route matching — October 2014