

Maxim Mints

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OBJECTIVE

I am interested in designing low-level computer system software, building powerful foundations for wide arrays of applications.

EDUCATION

Georgia Institute of Technology

Atlanta, GA

- **Bachelor of Science in Computer Science** (Threads: Systems & Architecture / Information Internetworks)
- **GPA: 4.0; Started: Aug 2015; Expected Graduation: Dec 2018**
- **Relevant Courses Taken:** Operating Systems, Compilers & Interpreters, Processor Design, Computer Networking

WORK EXPERIENCE

Amazon (amazon.com)

Seattle, WA

Software Development Engineer Intern

Period: May 2018 – Aug 2018

- Assisted with integrating Alexa Smart Home with security panel systems by improving Alexa's voice control capabilities.
 - Enhanced voice commands by creating an extensible plugin-based architecture where one can define strategies of different priority that attempt to algorithmically match the processed input to some specific voice control target type.
 - Used the plugin-based architecture to add support for targeting security panels by brand name with voice commands.
 - Designed and proposed a more powerful long-term solution for targeting by brand name, directly using the Alexa natural language processing system for analyzing input, but sacrificing some flexibility.

Hughes Network Systems (hughes.com)

Germantown, MD

Software Engineering Intern

Period: May 2017 – Aug 2017

- Assisted with the development of a novel algorithm for classifying network flows using throughput-based metrics.
 - Wrote an efficient tool in C++ that converted each flow in several packet capture files into a throughput time series.
 - Fully implemented the network flow classification algorithm in Python, and tested it on throughput time series from videos of different resolutions, reaching 73.3% classification accuracy.
- Created a complex tool to detect potential sources of interference in the signals received by satellite dish terminals.
 - Used Python to efficiently automate multi-threaded collection of signal-to-noise values from over 52000 terminals.
 - Developed an algorithm for approximating potential locations of interference sources and implemented it with Java.

Georgia Institute of Technology (gatech.edu)

Atlanta, GA

Undergraduate Research Assistant – Trustable Programming Group

Period: Aug 2017 – Ongoing

- Implemented, in Haskell, an efficient and configurable rewrite-rule simplifier for quantifier-free linear integer arithmetic formulas (github.com/Mints97/rewrite-simplifier), to be used as an optimization strategy in a model-checking algorithm.
- The model-checking algorithm, created by Professor William R. Harris and his Trustable Programming Group, uses relational invariants between program states to prove or disprove partial functional equivalence (gt-pequod.github.io).
- On certain benchmarks, the formula simplification optimization produced a 200% speed gain.

Undergraduate Teaching Assistant – Design & Analysis of Operating Systems

Period: Aug 2018 – Ongoing

- Creating reference implementations for the project assignments; grading, helping the students understand the material.

SKILLS

- **Programming Languages:** Haskell, C, C#, Java, C++, Python, SWI-Prolog, Assembly (x86: GAS, FASM)
- **Hardware:** Verilog, VHDL, Altera Cyclone V FPGA, Arduino
- **Spoken Languages:** Russian – native, English – fluent, Spanish – basic

PERSONAL PROJECTS

Alcolang (May 2015 - Ongoing) github.com/Mints97/alcolang

- An in-development, interpreted, pure, reactive, prototype-oriented, strongly and dynamically-typed, lazy, pattern-matching, multi-paradigm programming language. A implementation in Haskell is currently a work-in-progress.
- A powerful programming platform over extremely simplistic abstractions and the smallest number of lexical elements.
- This is achieved by parsing expressions lazily and performing a text equivalence check during pattern matching: so, an unparsed element can be a comment, string, numeric literal, keyword, or a name, erasing boundaries between these concepts.

Y Window System (Apr 2018) github.com/Mints97/yws

- Tile-based window system for the xv6 operating system with mouse-controlled resizing and image display capabilities.

CControlFlow (Feb 2015 - Jul 2015) github.com/Mints97/CControlFlow

- C# library that helps find errors in code by generating control-flow graphs of programs written in C (C89).

tinyObject (Mar 2014 – Dec 2014) github.com/Mints97/tinyObject

- C framework which enables writing object-oriented code with true inheritance in lieu of the regular composition approach.