Alex Dutton

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EDUCATION

UNIVERSITY OF MICHIGAN

BS in Computer Science
Expected Apr 2019
College of LSA

BS in ID Physics
Expected Apr 2019
Conc. in Quantum Computing
College of LSA

LINKS

Github: **alxdttn**
LinkedIn: **alxdttn**
BitBucket: **alxdttn**

COURSEWORK

Advanced Object-Oriented Programming
Operating Systems
Artificial Intelligence
Machine Learning
Database Management Systems
Quantum Info. Theory & Computation
Modern Physics
Methodology of Theoretical Physics
Intermediate/Advanced Mechanics
Quantum Mechanics I/II
Solid State Physics
Calculus I/II/III/IV
Matrix Algebra
Partial Differential Equations
Differential Geometry
Japanese (2 years)

LANGUAGES & SKILLS

C++ • C • Python • Java
VimL • Soar • LaTeX • Bash
Elm • JavaScript • FORTRAN
Unity • C# • HTML • CSS
jQuery • Swift • Tensorflow

MS Office (Word/Excel/Powerpoint)
MSSQL • MSVS • MS Reporting
vim • Android Studio • Eclipse
Windows 8/10 • UNIX/Linux
(RedHat/Ubuntu/Arch)
Gradle • Maven

EMPLOYMENT

FRIEDMAN REAL ESTATE | IT Intern -> IT Specialist
Farmington Hills, MI | May 2018 - Current

- Created a cross-platform app for managing mobile sign-on of multiple business-related sites [Android Java, XML, Swift]
- Built a website to host and display aforementioned app [HTML, CSS, JavaScript]
- Implemented a Machine Learning Engine to predict HVAC system failures across hundreds of different buildings using Weather API's, Service Requests, and Maintenance Notes [Python, MSSQL, Azure, Zendesk]
- Currently coordinating a large-scale move from multiple disjoint databases into a single data warehouse [MSSQL, MS Reporting Tools, FetchXML, PowerBI]

SOAR TECHNOLOGY & AUTOMOTIVE | Software Dev Intern
Ann Arbor, MI | May 2017 - Aug 2017

- Developed and tested a real-time workload monitoring/analysis/balancing system using multiple biometric trackers [Java]
- Ran data analysis on large biometric data sets using a variety of statistical and ML techniques [Excel & Python]
- Debugged machine vision application for use on autonomous robotic vehicle [C]
- Made multiple map-based Augmented Reality demos for ODG R6 Smart Glasses [Unity & C#]
- Worked on an online interface that communicated the vehicle AI's current knowledge base, predictions, and reasoning in an easily human-accessible manner in real-time. [Elm & JavaScript]

GLOTZER GROUP | Research Assistant
Ann Arbor, MI | May 2016 - Apr 2017

- Implemented a novel ML algorithm for point clustering on n-dim manifolds homeomorphic to a sphere [Python]
- Extended existing visualization software to allow for custom mouse & keyboard interfaces [Python]
- Implemented custom templated containers library optimized for space efficiency for use in highly parallelized particle simulations [C++]

PROJECTS & RESPONSIBILITIES

COURSE PROJECTS | Student

- Implemented an AI that solves Geometric Analogy Problems using Machine Vision combined with basic AI techniques [C++ & Python]
- Implemented various components of Operating Systems such as:
  - A threading library built off of the ISO C's ucontext type
  - A pager that managed an applications' virtual address space
  - A threaded file server using C-style sockets to manage file read/write requests from multiple clients at once

ESCHER HOUSE CO-OP | Head of Maintenance
Ann Arbor, MI | May 2016 - Jan 2018

- Led and managed a small team of peers to fix any issues relating the appliance failure, utility issues, and plumbing, heating and electrical problems for a house of approximately 140-150 people
- Planned and led a $3k renovation of 500ft^2 communal recreation area, including subfloor replacement, drywall replacement, and ceiling repair