Dastan Abdulla

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Education

B.S. in Computer Science, University of Pittsburgh   Aug 2020 - Apr 2024
- Relevant courses: Data structures & Algorithms, Discrete Structures, Computational Linguistics, Computer Vision, Computer Organization & Architecture, Compiler Design, and Systems Software.

B.S. in Mathematics, University of Pittsburgh   Aug 2020 - Apr 2024
- Relevant courses: Differential Calculus, Integral Calculus, Multivariable Calculus, Theoretical Mathematics, Abstract Algebra, Linear Algebra, Game Theory, and Differential Equations.

Minor in Linguistics, University of Pittsburgh   Aug 2020 - Apr 2024

Experience

Accipiter Systems   May 2022 - Present
Software Engineering Intern - Carried out research and driver development for PCIe NIC devices.
- Developed and documented Linux driver modules for PCIe switch devices in tandem with Linux Non-Transparent Bridge (NTB) modules utilizing Direct Memory Access (DMA) using C, x86 Assembly, and Bash.
- Developed AI/ML using PyTorch and OpenCV for classification and detection in distributed systems.
- Researched and implemented multi-threaded architectures for network and distributed applications.
- Adopted Six Sigma and Agile processes for development and continuous improvement.
- Performed network analysis and vulnerability testing using Wireshark, Scapy, NumPy, Pandas, and Iperf3.

University of Pittsburgh   Aug 2021 - Present
Undergraduate Teaching Assistant - Organized labs, recitations, tutoring services, and class activities.
- TA for three courses: Discrete Structures, Intermediate Programming, and Computer Organization & Architecture.
- Directed office hours to aid more than 100 students with homework and assignments for class.
- Taught MIPS assembly, digital logic schematics in Logisim, and object-oriented programming in Java.

Skills

Programming - Java, C/C++, Rust, Python, x86 Assembly, MIPS Assembly, Javascript, SQL, NoSQL, and Matlab.
Libraries/Frameworks - Wireshark, Iperf, CUDA, PyTorch, Tensorflow, Scikit, OpenCV, NLTK, Pandas, and NumPy.
Version Control - GitLab, Github and Subversion (SVN).   **Writing** - LaTeX, HTML, CSS, XML, and Markdown.
Languages - Kurdish (native), English (fluent), and Arabic (fluent).   **Software** - Linux, Office 365, Blender, and Adobe.

Projects

Advanced Calculus Solver
Wrote a Java functional calculator capable of graphing functions in a terminal and compute derivatives and integrals.
- Modelled a recursive Quadrature Method to compute definite integrals of transcendental functions.
- Completed an adaptive time-step Fourth-Order Runge-Kutta algorithm to solve ordinary differential equations.

Truss Toy Compiler
Designed a compiler for a toy programming language that has a derived x86 assembly calling convention
- Used Recursion and top down/bottom up parsing for the lexing and parsing phases of compilation.
- Created a semantic analyzer and code generation to the target language of MIPS assembly.

Digital CPU Core Emulator
Created a 16 bit Harvard CPU architecture design using a Simple Sequential Execution (SSE) model in Logisim.
- Designed the schematics for the arithmetic logic unit (ALU), Control, Program Counter, Register File, and Memory.
- The project is equipped with memory read/write functionality and executing jump/branch conditional instructions.

Extracurricular

Math in CS Branch   Jan 2021 - Present
Founded the Math in CS Branch of the Computer Science Club at the University of Pittsburgh
- Invented a responsive website for the branch using JavaScript, CSS, and HTML with support for advanced animations.
- Introduced resources and opportunities to the 80+ members by scheduling events and inviting guest speakers.

Vex Robotics Competition   Sep 2017 - Mar 2020
Managed and directed team members for 3 seasons of the Vex Robotics Competition working on hardware and software.
- Programmed an A9 Cortex controller using C and C++ for robot functionality, control, and movement.
- Developed and documented an odometry system for the autonomous phase using PIDs and Control Theory.