Derrell Downey Jr.

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EDUCATION

Skidmore College, B.A. in Computer Science, 3.5 GPA, Expected Graduation: May 2025

RELEVANT EXPERIENCE

PROGRAMMING CAPTAIN | ROBOTICS CLUB – WESTWOOD HIGH SCHOOL | SEP '19 – JUN '21

- Led the programming team to code our VEX robot for competitions in the C programming language
- Participated in the STEAM Tank competition

CASHIER | MONTVALE WINE, LIQUOR AND BEER | BP WINE CORPORATION | APR '21 – AUG '21

- Provided quality customer service, answered questions, and resolved issues
- Opened and closed registers, handled accurate cash operations and cash transactions
- Developed strong product knowledge and understood customers' needs while providing friendly and efficient service

COUNSELOR | LITTLE IVY ACADEMY | JUN '22 – AUG '22

- Helped design and implement various projects geared at teaching tech skills to children ages 4-14
- Taught dozens of children foundational computer science and robotics skills
- Expanded on existing curriculum using knowledge base

NOTABLE PROJECTS

BANKING SYSTEM | '21

- Utilized existing bare-bones banking system application and assigned a team to analyze and improve
- Worked with team to understand and log given classes
- Used popular design patterns (Singleton, Factory, Facade, Template, Observer, Dependency Injection) to improve application
- Utilized Spring framework to improve application infrastructure

SIMULATED COMPUTER | '22

- Built a simulation of a simple computer similar in design to ARMv8 architecture operating on 32-bit integers
- Programmed an Assembler which translates assembly program into machine code
- Developed a CPU to simulate a single cycle data path which correspond with phases of pipelined data path

SCHOOL ADMIN SOFTWARE | '22

- Created a software that utilized a mySQL database to store the information of students, teachers, and administration
- GUI and back-end is programmed using Java
- Utilizes a login window that connects to database to verify user type

SKIDNET | '23

- Implemented a Simple Reliable Transport imitating a TCP connection between client and Server protocols
- Build a Simple Network Protocol that allowed messages to be sent across application along with the setup and teardown of transport layer imitating the classic Go-Back-N protocol
- Implemented data exchange on network layer using a routing table with link-state algorithm

B-MINOR COMPILER | '23

- Designed and implemented the lexical analyzer, which efficiently tokenized the input source code and handled various language constructs
- Implemented various semantic checks, such as type checking, scoping, and symbol table management
- Employed industry-standard tools and technologies, such as Lex and Bison to facilitate the development process and enhance the maintainability of the compiler

RELEVANT CLASSES

SOFTWARE DESIGN | CS226 | FALL '21

- Read and created UML diagrams and translated between UML and Java,
- Learned and applied common design patterns,
- Applied effective debugging and testing techniques,
- Created sophisticated Java single-threaded programs

DATA STRUCTURES AND MATHEMATICAL FOUNDATIONS | CS209 | FALL '22

- Introduced to fundamental data structures used in computer science, including linked lists, stacks, queues, priority queues, search trees, and hash tables.
- Learned and implemented searching and sorting algorithms including binary search, selection sort, merge sort, quick sort, and Dijkstra's algorithm
- Introduced to mathematical concepts used in the design and analysis of algorithms, including mathematical induction and asymptotic analysis

PROGRAMMING LANGUAGES | CS230 | SPRING '22

- Explored various types of programming languages, including imperative, object-oriented, functional, and logical
- Developed a deep understanding of compiler construction principles while building a compiler for a programming language, including lexical analysis, syntax parsing, semantic analysis, and code generation
- Utilized industry-standard tools and techniques, such as Lex and Bison, to build a robust compiler that effectively translated source code into executable machine code

COMPUTER NETWORKS | CS327 | SPRING '23

- Became familiar with different network protocols along with exploring real data as it passes through the network
- Learned how data is interpreted and forwarded from source machines to destination machines
- Developed a semester long project which had up building a chat application running on our own mini-internet

SKILLS

Languages: English (native), Italian (intermediate)
Programming Languages: Java, Python, C, Rust, SQL
Technologies: VSCode, Eclipse, Apache NetBeans, Git, Mathematica, Microsoft Office, mySQL