NATHAN NAKKAPALLI

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I like working in a bash terminal and creating simple solutions

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University of Michigan, Ann Arbor, MI | **College of Engineering** | GO BLUE! c.o. *2024*
Major: Computer Engineering B.S.E & **Minor: Physics** | Cumulative GPA: 3.6
Coursework: EECS 281 (Advanced Data Structures & Programming), EECS 270 (Logic Design), EECS 215 (Circuits), EECS 370 (Computer Architecture), Entrepreneurship Hour, Discrete Math,
Hobbies: basketball and cybersecurity ("breaking" technology)

HOW I CAN HELP YOU:

Communication & Coordination: I can work with team members to ask questions and gather information to develop steps toward a solution and ultimately get the job/deliverable done

Spark Electric Racing | UMICH Electric Motorcycle Project Team Sept. *2021 – Present*

- Conducted code review of CAN bus data parsing script written in Python, assessing the correctness of the bit shifting and adding comments to the script to make it easier to maintain and understand
- Met and communicated with the leads to verify that the correct bytes were being assigned to the right data values and accurate plots were being made
- Looking forward to bettering data storage and analysis from the "bike's" subsystems and sensors

Interned at Over Zero | Qualitative Content Coder *Nov. 2021 – Mar. 2022*

- Code (categorize) qualitative survey data (350+ survey responses) using Dedoose analytics software
- Achieved sufficient levels of intercoder reliability by meeting with a colleague and discussing our reasoning behind our categorizations, allowing our client to analyze survey data accurately

Technical Proficiency: I can employ Object Oriented Programming principles, data structures, and proper testing to develop programs and functionality in languages like C++

Personal projects including Prime Factorizer: **https://github.com/nat3058**

- Implemented C++ program from scratch using recursion and a built-in double-checking mechanism, allowing for the prime factorization of 9 figure numbers in under 3 seconds and guaranteed accuracy

Programmed the underlying implementation of a SQL-like database in C++ (1000+ lines of code) *Nov. 2022*

- SQL-like commands CREATE, REMOVE, PRINT, INSERT INTO, DELETE, JOIN will store and retrieve data from tables represented by a 2D vector containing TableEntry (an enum type encompassing ints, strings, bools, doubles)
- The GENERATE … INDEX command allows for faster Big O(1) data retrieval rather than O(n) by using a binary search tree or a hash table under-the-hood (ordered or unordered map respectively in C++)
- Testing: my program yielded correct output given a large input script (95 MB) of data and commands

Implemented the famous card-game Euchre in C++ (play against robot players too!) *Apr. 2022*

- Programmed modularly using OOPs (Card, Player, Game classes), runtime polymorphism (to distinguish between the human and robot players), and dynamically allocated memory.
- Using a unit test framework, I created my own specific and targeted test cases for those different classes (20 tests for Player class, 43 tests for Card class), allowing my virtual version of Euchre to perform correctly for edge cases

Completed C lectures/problem sets in Harvard's CS50x course *Dec. 2021*

- Implemented a spell-checker program in C which first loads words from a dictionary into an array of linked lists; then, hashes every word in a given text file to find any matches (check spelling accuracy)

Completed ENGR101 (Introduction to Computers and Programming) with A+ grade *Oct. 2021*

- Implemented MATLAB program that read environmental data to produce multiple visual plots and evaluated data given certain restrictions

Notable Skills: Familiar with Word, Excel, PowerPoint, SQLite, MATLAB, Python, Verilog, Git, Command Line

Research & Execution: I can write reports/memos and present technical and non-technical info to teammates and clients in an approachable and understandable way

AP Research | Researcher and Self-published **(**https://nat3058.github.io/research.pdf**)** *May 2020*

- Conducted literature review, executed survey research methods, and analyzed the results
- Culminated into formal 30-page paper regarding marching band retention to assist marching band directors

Online Tutoring: Weekly volunteered tutoring elementary/middle school students *Mar. 2020 – Nov. 2021*

- Reinforced reading/writing/math skills through Zoom by creating my own lesson plans/interactive games & using Quizlet resources, allowing the kids to strengthen academic abilities despite pandemic

Campus Involvement/Other:

MSAIL (Michigan Student Artificial Intelligence) | Member and Mentee *2021 – Present*

Creativity in the Wayfair Employer Challenge (Honorable Mention) *March 2022*

College of Engineering Dean's Honor List *2021 & 2022*