Tanya Singh

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EDUCATION

University of Maryland, College Park **College Park, MD** **Graduation Date: May 2027**

Bachelor of Science in Computer Science, Minor in General Business *GPA: 4.00, Dean's List*

- Relevant Coursework: Object-Oriented Programming II, Applied Probability and Statistics I, Discrete Structures, Introduction to Computer Systems, Introduction to Linear Algebra, Organization of Programming Languages, Algorithms
- Clubs/Activities: Committee Member at Association for Women in Computing, Marketing Lead at Google Developer Student Club, Developer and Secondary Lead at Campus Coders Crew, Researcher in the First-Year Innovation & Research Experience

SKILLS

- **Languages and IDEs:** Java, C, Assembly, R, Ocaml, Rust, MATLAB, Python, Eclipse, JGrasp, RStudio, VS Code, GitHub, Jupyter Notebook
- **Certifications:** PowerPoint Office 2019 MOS Certification, Word Office 2019 MOS Certification, Excel Office 2019 MOS Certification, Microsoft Specialist - Associate
- **Workspaces and Applications:** Google Workspace, Microsoft, Mathematica, Windows and Macintosh Systems
- **General:** Research, Data/Statistical Analysis, Microscope Operation, Lab Equipment, Collaboration, Critical Thinking, Teamwork, Strong Work Ethic, Problem Solving, Trilingual: English (Expert), Hindi (Expert), French (Beginner)

WORK EXPERIENCE

Lavner Education **Washington, DC** **June 2025 - August 2025**

Intern/Instructor

- Delivered quality instruction to students regarding Coding topics, STEM & Medicine, All-Girls STEAM, Robotics and more.
- Mastered a hands-on curriculum in order to provide a one-on-one learning experience to 40+ students regarding STEM subjects.
- Led set-up and maintenance of the on-site check-in software, computer software, computer hardware, and camp inventory.

Easy Dynamics **McLean, VA** **January 2025 - January 2025**

Intern

- Conducted a research project regarding the ability of various LLMs to efficiently help researchers find and collect information regarding payroll threat/fraud.
- Prompted and modified various research questions regarding payroll threat/fraud to analyze each LLM model and determine the strengths and weaknesses of each one.
- Developed a proposal presentation on our findings regarding the use of LLMs to conduct payroll threat/fraud research using various Microsoft applications.

Sylvan Learning Center **Leesburg, VA** **December 2023 - August 2024**

Part-time employee and lead math tutor for the Digital SAT

- Assisted 30+ students from K-12th grade with various math concepts, ranging from addition to statistics and discrete mathematics.
- Led two 7-week sessions for Digital SAT by learning a completely new curriculum in order to provide one-on-one tutoring.

Code Ninjas **Leesburg, VA** **November 2022 - November 2023**

Part-time employee (Code Sensei)

- Encouraged students ages 5-14 to explore and understand programming concepts such as Scratch, JAVA Script, and C#.
- Learned a hands-on curriculum in order to master platforms such as Roblox Studio, MCreator, and Unity.
- Led two summer camp workshops on creating personalized Unity games as well as YouTube videos.

PROJECTS

Maze Solver with Breadth-First Search | *C* **2025**

- Implemented a maze solver in C that uses breadth-first search (BFS) to compute the shortest path between points in a grid-based maze. This project emphasized graph theory concepts, traversal algorithms, and structured input parsing while reinforcing algorithmic problem-solving in a systems programming context.

Bit Manipulation, Debugging & Hashsets | *C* **2025**

- Wrote C programs that manipulate data at the bit level, including building a scale display using bitwise operations to represent values in a compact format. Strengthened system-level debugging skills through GDB and implemented hashset operations, gaining a deeper understanding of data representation and efficient storage.

Assembly Programming & PuzzleBin | *Assembly, C* **2025**

- Translated bit manipulation in C into optimized x86-64 assembly code to better understand how high-level operations map to machine instructions. Reverse-engineered a compiled binary called PuzzleBin using GDB, which required analyzing control flow and applying assembly-level reasoning to uncover hidden logic.

Going Commando | *C* **2025**

- Built a command-line interpreter in C that replicates core shell behavior, including job control, process creation, and I/O redirection. This project explored operating system concepts such as process management, concurrency, and system calls, providing hands-on experience with low-level systems programming.

EL Malloc: Performance Optimization & Multithreading | *C* **2025**

- Designed and implemented a custom dynamic memory allocator (EL Malloc) in C to explore explicit memory management and system-level optimization. Applied multithreading with pthreads to build a matrix normalizer that benchmarked allocator performance, gaining experience with concurrency, synchronization, and cache efficiency in computational workloads.