Tanya Singh

Sterling, Virginia | tanya.singh89200@gmail.com | (202)-945-8651 | www.linkedin.com/in/tanya-singh8920

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, Applied Probability and Statistics, Discrete Structures, Computer Systems, Linear Algebra, Organization of Programming Languages, Algorithms, Data Science, Advanced Data Structures
- Leadership: Committee Member at Association for Women in Computing, Marketing Lead at Google Developer Student Club, Committee Head at Campus Coders Crew, Researcher in the First-Year Innovation & Research Experience

SKILLS

- **Languages and IDEs:** Java, C, Assembly, R, Ocaml, MATLAB, Python, HTML, CSS, JavaScript, React, Eclipse, RStudio, VS Code, GitHub
- **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, Collaboration, Critical Thinking, Teamwork, Strong Work Ethic, Problem Solving, Communication

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

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

Lead Math Tutor

- 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**

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

Memory Management & Garbage Collector | *Rust* **2025**

- Implemented a garbage collector in Rust over simulated stack and heap structures, incorporating three memory management strategies: reference counting, mark-and-sweep, and stop-and-copy. This project emphasized systems programming principles, ownership and borrowing semantics, graph reachability analysis, and safe pointer manipulation while reinforcing memory safety.

MicroCaml Lexer, Parser, and Interpreter | *Ocaml* **2025**

- Developed an OCaml-like dynamically typed programming language by building a full lexer, recursive-descent parser, and interpreter. This project emphasized language design principles, grammar-based parsing, lexical scoping, closure formation, and environment-based evaluation while reinforcing core concepts in programming language implementation.

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.

Personal Portfolio | *HTML, CSS, JavaScript, React* **2025**

- Created a fully responsive and interactive personal website that was built from scratch using HTML, CSS, JavaScript, and React. Features modern design principles, smooth animations, and dynamic content presentation to showcase professional experience and skills, gaining hands-on expertise in front-end development and UI/UX design.

RESEARCH

Effectiveness of Large Language Models (LLMs) in Weather Forecasting for Arlington, VA | *R* **2025**

- Conducted an independent research study evaluating the effectiveness of Large Language Models (GPT-5, Claude Sonnet 4, and Gemini 2.5 Pro) in predicting weather patterns in Arlington, VA. Prompted each model to generate daily forecasts, compiled and cleaned the resulting data, and performed paired t-tests in R to assess accuracy against actual weather outcomes. Gained experience in experimental design, data-driven analysis, and statistical evaluation of AI model performance.