Walid Habibi

walidh24@vt.edu | (571) 269-3908 | Blacksburg, VA | U.S Citizen

EDUCATION

Virginia Tech, *Junior*, Blacksburg, VA — August 2024 – December 2026

- B.S Candidate *Computer Engineering, Computer Science Minor*
- *Clubs*: AI/ML Club, IEEE, Data Structures Club

Northern Virginia Community College, Woodbridge, VA — June 2023 – August 2024

- A.S in Engineering, Concentration in Computer Engineering
- *Honors*: Dean's list, Presidential Scholars' list, Honors College nominee

RELEVANT COURSEWORK

- ***Embedded Systems, Intro to Data Analytics and Visualization, Computer Architecture, Circuits and Devices, Fundamentals of Computer Engineering, Data structures and Analysis of Algorithms, Engineering Design, Object Oriented Programming, Circuits I, Foundations of Engineering****, Physics 1, Calculus 1, 2, and 3, Discrete Mathematics, Differential Equations, Nanoscience*

SKILLS

Languages: Fluent Urdu.

Skills: Proficient in Java, Python, C, C++, MATLAB, Microsoft Office Suite, CAD, SOLIDWORKS, Quartus ii, NI Multisim, MIPS

PROFESSIONAL EXPERIENCE

AA&W Properties LLC, *Intern*, Fairfax Station, VA — August 2022 – Present

- Partnered with a senior electrician to diagnose and resolve complex technical issues, leveraging analytical skills to improve troubleshooting efficiency.
- Applied electrical theory principles to assist in the installation, repair, and optimization of electrical systems, including lighting, outlets, switches, and circuit breakers, ensuring safety and code compliance.
- Integrated and configured advanced home technologies such as HVAC automation, Bluetooth-enabled monitoring, and smart-home control systems bridging electrical work with modern IoT solutions.
- Learned and applied real estate investment and property management tactics, connecting engineering solutions to business value in residential properties.
- Demonstrated rapid mastery of new technical concepts, combining academic knowledge in circuits, embedded systems, and electronics with hands-on field experience.

PROJECTS

Centrifuge — April 2024

- Designed and implemented a functional centrifuge system, starting with CAD modeling and progressing through electrical integration.
- Used a combination of Java and Python to integrate a Raspberry Pi device to control the motors of the system.
- Developed a User Interface to allow for seamless interaction and control from a computer, enabling real-time input and monitoring of the centrifuge's performance.

Embedded Systems Projects — March – May 2025

- *RGB Mixer with LCD Interface – Designed and implemented an interactive embedded application using TI's MSP432 LaunchPad and BoosterPack modules. Developed C firmware to:*
  - Interface with ADC for potentiometer input calibration and live color mixing.
  - Implement a UI (including title, menu, instructions, game) using a 128x128 LCD.
  - Handle real-time user inputs through push buttons, joystick tap detection, and hardware interrupt.
  - Optimize for low power operation by entering LPM0 sleep mode between events
  -
- *Color Jump Game – Designed and programmed an embedded game using C firmware to:*
  - Implement an FSM for handling multiple game titles
  - Render custom graphics on an LCD
  - Process real time user inputs via joystick
  - Implement physics based gameplay with adjustable gravity, jumping mechanics, and color-matching collision detection
  - Manage difficulty modes, high score tracking with leaderboard, and response menu navigation
- *MazeRunner – Designed and implemented an embedded application to:*
  - Implemented a full game FSM (main menu, instructions, play, high scores, win/loss) and game logic using DriverLib and HAL layer
  - Developed UART terminal control: live ASCII rendering, move counter, instruction and high score output, input parsing UDLR with feedback for invalid input
  - Player/enemy mechanics and collision handling

Cooling Pillow Design (Northern Pillow) May 2024

- Designed and developed an innovative cooling pillow as part of the Fundamentals of Engineering course utilizing a fan to circulate air over a thermal ice gel pack through strategically placed holes in a memory foam pillow.
- Achieved superior thermal comfort, resulting in high remarks from instructors and earning the highest grade in the class.
- Positive feedback from users who tested the pillow, highlighting its effectiveness and comfort.

Java Projects

- *Course Management System* May 2024
  - Created a course management system to track completed and required courses for a degree, using the List Abstract Data Type.
  - Implemented both array-based and node-based list structures to store course data, allowing for flexibility in list operations.
  - Developed functionality to add, remove, and compare course lists, ensuring accurate tracking of degree progress.
  - Developed a user-friendly console application for students to add, remove, and view course progress.
- *Printer Queue Management System* April 2024
  - Developed multiple custom to manage edge cases like invalid paper colors, insufficient paper, and queue underflow.
  - Utilized a linked list to implement an unbounded queue for managing print jobs, ensuring efficient enqueue and dequeue operations with constant time complexity.
  - Integrated an unbounded queue interface with custom linked list-based implementation to handle print job requests, maintaining robust data integrity through dynamic memory allocation.
  - Implemented methods to monitor and update paper levels in the program, including the ability to load paper and check available amounts, with built-in safeguards against overloading or underflow.

HONORS AND AWARDS

TSA, VEX Robotics' 2nd place Winner, Hayfield, VA April 2023

- Excelled in robotics competitions, showcasing not only technical expertise but also collaboration, critical thinking, and project management skills, leading to a 2nd place regional award.
- Design Innovation: Received high remarks for innovative robotics design, reflecting my passion for creativity and attention to detail in design-related competitions.

Key Club, Excellence in Volunteering, Lorton, VA June 2023

- Accumulated over 100 hours of volunteer service, showcasing a consistent and substantial contribution to the community.
- Proved to be a dependable and responsible volunteer, consistently showing up for service events and fulfilling assigned tasks.