Cordell A. Palmer

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Education

Georgia Institute of Technology | Atlanta, GA *June 2020 – Fall 2024*
Bachelor of Science in Mechanical Engineering | Minor in Computer Science

Skills

Programming and Software Development: C, C++, MATLAB, Python, Assembly, NumPy, Java, C#, HTML, CSS, JavaScript, PHP; GitHub, Linux (Ubuntu), Android Studio
Data Analysis and Modeling: PyTorch, TensorFlow, NI LabVIEW, Microsoft Excel
Hardware and Embedded Systems: Raspberry Pi, Arduino, ESP32, Oscilloscope, Function Generator
Design and Manufacturing Tools: SolidWorks, Autodesk Inventor, Mill, Machine Shop Tools, Soldering, Ultimaker Cura (3D Printing), Laser Cutting/Engraving, Technical Drawings

Projects

Heating/Cooling Temperature-Controlled Bed *Fall 2024*
Design Specialist / Capstone Project, Georgia Institute of Technology
Developed a temperature-regulated bed system with integrated heating and cooling functionality, controlled via an ESP32 microcontroller in C++ (team project).

- Developed a model of the electrical subsystem used to control the bed.
- Prototyped the electrical assembly to regulate temperature and control user interfaces.
- Designed and implemented software for real-time temperature monitoring, fan control, and TEC (thermoelectric cooler) functionality.
- Collaborated with team members on the bed's functionality to best optimize performance and user comfort.

HTTP Server in Modern C++ *Summer 2025*
Independent Project
Designed and implemented a lightweight multithreaded HTTP server from scratch in C++ using socket programming.

- Built custom classes for connection and server sockets, address management, and logging.
- Implemented a thread pool to efficiently handle concurrent client requests.
- Added support for static file serving with secure path handling using <filesystem>.
- Integrated the server as the backend powering my personal portfolio site.

Portfolio Website *Summer 2025*
Independent Project
Designed and deployed a futuristic tech-themed personal portfolio website with HTML, CSS, and JavaScript.

- Integrated custom animations, advanced CSS masking, and responsive layouts for a futuristic UI.
- Implemented a terminal-style landing page with dynamic text rendering and interactive navigation.
- Deployed on a self-hosted Raspberry Pi home server with Caddy for HTTPS to demonstrate systems programming and web deployment expertise.

Unsupervised Learning Algorithms Implementation *Fall 2024*
Implemented K-means, DBSCAN, and Gaussian Mixture Model (GMM) algorithms from scratch in Python using NumPy to gain a deeper understanding of clustering and density-based techniques (individual project).

- Developed and optimized K-means clustering for image segmentation, effectively reducing file size by testing across various k values.
- Built a DBSCAN implementation to detect arbitrary-shaped clusters, improving clustering accuracy in high-density data regions with sample datasets.
- Implemented and applied Gaussian Mixture Models to probabilistically assign data points to clusters, validating accuracy through sample compression algorithms.