Mathias Labuszewski

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Education

University Of Colorado Boulder 2021 - 2025
B.S. in Electrical and Computer Engineering *3.98 Major GPA, 3.6 Cumulative GPA*

Relevant Coursework : High Speed Signal Integrity, Real Time Operating Systems, Computer Organazation, Digital Logic, Circuits, Embedded Software, Microelectronics, Advanced Computer Graphics, Wireless Systems, PCB Design, High Speed Digital Design

Work Experience

Physical Design Engineer Intern May 2024 – August 2024
AMD *Fort-Collins, CO*

- Ran 8 major function design blocks' through place and route to timing, globally optimizing paths by 3%.
- Performed regressions on newly introduced timing and data corners across full design.
- Contributed to physical design methodology improvements with TCL scripts to increase productivity.
- Performed detailed timing analysis on scan chains and functional paths, improving setup and hold timing margins.

Teaching Assistant December 2022 – Current
Embedded Software Engineering *University Of Boulder*

- Assisted over 250 students in the development and debugging of embedded software applications.
- Gave guidance in embedded C programming on the STM32 and EFM32 micro controllers.

Undergraduate researcher August 2023 – Current
High-Speed Digital Engineering *University Of Boulder*

- Developed novel methods within FDTD electromagnetics for injecting current sources.
- Used matlab to visualize findings in team meetings, contributing to a collaborative research environment.

Teaching Assistant August 2023 – November 2024
Digital Logic *University Of Boulder*

- Provided guidance and support to students in Verilog programming in the Vivado environment.
- Troubleshooted and resolved technical issues related to the Basys3 FPGA trainer board, Vivado, and Verilog.

Technical Skills

Languages: TCL, Pearl, Python, Lua, C/C++, JavaScript, GLSL
Software:Synopsys PrimeTime and FusionCompiler, Vivado, ANSYS HFSS, Keysight ADS, HyperLynx, Altium
Developer Tools: Perforce, Git, Svn, Docker, OpenGL
Analytical and problem-solving skills Ability to work independently and as part of a team
Ability to manage time effectively Effective communication of complex technical concepts

Projects

Mesh network Biosensor soil microbial monitoring system

- Served as system architect and lead firmware engineer, designing and implementing a robust mesh network for real-time soil microbial monitoring.
- Developed and optimized data collection and transmission protocols to ensure efficient communication.

RISC-V 5 stage pipelined processor

- Implemented the RISC-V ISA in codasip and constructed full implementation diagrams.

3D Noise Visualizer in OpenGL 3.0

- Implemented the marching cubes algorithm to convert 3D datasets into a polygonal isofurface in real time.

Custom Engine Management Module based on Rusefi

- Designed and assembled custom pcb to run a 6-cylinder engine, with CAN-bus integration.