Karl Ventayen

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Education

California State University, Chico — Chico, California
*Bachelor of Science in **Computer Engineering**, Minor **Computer Science*** — *May 2025*

Skills

Languages: C, C++, Python, SystemVerilog, MATLAB, Jupyter Notebook, LaTeX, Markdown, R, R Markdown, HTML
Software: Vim, Visual Studio Code, MPLAB X IDE/IPE, Keil, KiCad, OrCad, Git, GitHub, Bitbucket, Vidado, LTSpice, Bantam Tools, Inventor, SolidWorks, Rstudio, Microsoft Office (Microsoft Word/Excel/Powerpoint)

Employment

Research Intern, Embedded Systems Developer — Monterey, California
CSU, Monterey Bay - Monterey Bay Aquarium Research Institute — May 2024 - August 2024

- **Hardware Design & Development:** Implemented an embedded system for the Coastal Profiling Float diagnostic tool using an STM32 microcontroller, enabling precise marine parameter data collection for climate science research
- **Software Design:** Designed and tested parsing algorithm for Bluetooth and Iridium communication, leveraging VisualGDB and Microsoft VS to ensure reliable data transmission, improving parsing by 33%
- **Presentation:** Implemented a simulation to demonstrate data transmission for the Coastal Profiling Float for a general audience (vimeo.com/1001218018)
- **Research:** Authored a research paper summarizing a three-month research project to ensure replicable results www.mbari.org/wp-content/uploads/Ventayen_Karl.pdf
- **Hardware/Software:** Designed a wire harness for interfacing with computer systems and collaborating with interdiciplinary teams, such as geologists, to enhance system functionality

Lab Assistant — Chico, California
Electrical and Computer Engineering Department (CSU, Chico) — March 2024 - May 2024

- **Taught Embedded Systems:** Assisted in the enrichment of the design and development of embedded systems
- **Grade Papers:** Evaluated student assignments for student understanding of successful development methodologies
- **Attended Lab Sessions:** Arrived to classes in a timely manner and encouraged collaboration amoung students

Organizations

IEEE Chico State Student Branch — Chico, California
Vice President | Secretary | Marketing Officer — August 2020 - Present

- **Managed the Club:** Encouraged student involvement through organizing club activities and events
- **Managed Part Sales:** Collaborated with other members of the IEEE to sell electrical parts and raise funds
- **Collaborated with Club Members:** Coordinated club events with other members to ensure it runs smoothly

Projects

Personal Cloud Storage — *August 2024 - Present*

- Developed a Raspberry Pi 3 microcontroller into a drive that is accessible through the local network for file transfer
- Expanded storage using a SanDisk USB Drive and interfaced it with the NextCloud framework for a larger storage
- Connected services with NextCloud using the Raspbian operating system to ensure reliable file transmission

Vivado Download Documentation — *August 2023 - October 2023*

- Created with Dr. Reza Khani at CSU, Chico for Computer Architecture to download Vivado on the Linux Ubuntu
- Coordinated with peers to review work to ensure that the material communicates information effectively
- Communicated tasks with images and links for instruction to redirect students to additional resources

Micro Controller PCB Board — *March 2022 - May 2023*

- To improve my understanding of the PIC10F200 Microcontroller, I designed, prototyped, and ordered a custom PCB
- Prototyped using Double Sided FR-1 Board on a PCB Mill, and completed using third party services
- Designed in KiCad and the microcontroller was programmed using MPLAB X IDE/IPE and the PicKit 3 debugger
- Documentation with Markdown and posted on GitHub: https://github.com/KVentayen/PIC10F200-Development

Certifications

Collaborative Institutional Training Initiative (CITI Program): Responsible Conduct of Research (June 2024)
Nvidia Deep Learning Institute: Fundamentals of Accelerated Computing C/C++ (December 2023)