Dwight Diesmo

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Education

- **San Diego State University** — San Diego, CA
  B.S. Electrical & Computer Engineering — *2018 - 2022*
  Courses: *Embedded Systems Programming, Embedded Operating Systems,Microprocessors, VLSI System Circuit Design, Computer Data Networks, Multimedia Communications, Web Application Development*

Skills Summary

- **Languages**: Python, C/C++, C, SQL, HTML, CSS, JavaScript*, Verilog/SystemVerilog, ARM*/MIPS*
- **Frameworks**: Flask, Bootstrap 5
- **Tools**: GIT, GitHub, Vivado, MySQL, Matlab, Fusion 360*
- **Soft Skills**: Leadership, Event Management, Writing, Public Speaking, Time Management

Experience

- **National Security Innovation Network** — San Diego, CA
  Embedded Systems Engineer — *2021 - 2022*
  - **Embedded Systems**: Assembled PIR Motion Sensor, Camera, Microphone, Seismic Sensor, GPS, SD Card, and WiFi Module for enemy detection, surveillance, and data collection
  - **Fog Computing Layer**: Engineered intermediary layer where raw data from physical SMART device is processed and transmitted to SQL Database.
  - **Web Application Development**: Built Flask Web Application UI for viewing data from SQL Database. GUI displays the captured image, audio file, seismic data across 3 axis, coordinates, and timestamp.
  - **Teamwork**: Partnered with mechanical engineers, electrical engineers, customers in developing an M-203 deploy-able surveillance round with motion/seismic triggering for image, audio, GPS, and seismic data collection then transmission to database to be viewed in GUI.
- **SDSU Research Foundation** — San Diego, CA
  Assistant — *2022*
  - **Cybersecurity**: Installed keystroke hidden kernel driver to grab user password.
  - **Operating Systems**: Destroyed Raspberry Pi OS with kernel process that eliminated all directories while leveraging the acquired user password.
  - **Kernel Drivers**: Injected kernel driver that generated an infinite number of processes to freeze user resources.
- **Hack Iloilo** — Iloilo City, Philippines
  Founder — *2019*
  - **Sponsorship**: Garnered $5000 in sponsorships form US/Philippines base companies.
  - **Event Planning**: Organized University, High School, and local Organization participation which attracted 160 attendees.
- **Ventura County Office of Education** — Camarillo, CA
  Non-Credentialed CTE Instructional Assistant — *2019*
  - **Teamwork**: Collaborated with a team of instructors from other branches in creating an modern software engineering curriculum.
  - **Teaching**: Trained ROP course students in developing websites using modern web development tools such as Bootstrap, GitHub.
- **NewCo Foundation** — Camarillo, CA
  Coding Mentor — *2017 - 2020*
  - **Teaching**: Assisted students in NewCoding Bootcamp program which covered HTML, CSS, JavaScript, Express.JS, Node.JS, Git, GitHub, and Bootstrap.
- **RCMakes** — Camarillo, CA
  Lead Intern — *2016 - 2020*
  - **Leadership**: Managed 30 interns by facilitating tasks for day-to-day operations.
  - **Program Development**: Designed community initiatives and academic programs such as the Academy Bridge Program for Rancho Campana High School.
  - **Marketing**: Organized community involvement in Camarillo City Parades, Park Events, and marketing to local businesses.
  - **Project Development**: Coordinated with local businesses and customers to develop products or provide services that met customer needs.
  - **Web Development**: Built rcmakes.com, an e-commerce website.
  - **Corporate Wiki**: Developed infrastructure for managing, tracking, and delivering ongoing simultaneous projects on Trello.

Projects

- **Autonomous Adaptive Solar Ecosystem**: (Awarded Best Overall in SD Hacks 2022) For the 2.5 billion+ people who don't have access to electricity or clean water, our team designed an adaptive solar panel and drives a water pump for irrigation, sanitation, and drinking.(2022)
- **Movie Database Dynamic Web Application**: As a clone of rotten tomatoes, our team used Flask and SQL to create a user-driven web application that enabled users to add movies to the database and write reviews to existing movies. We also implemented a recommendation system that analyzed the user's reviews, grabbed the corresponding genre and listed movies with the same genre minus movies already reviewed by the user. (2022)
- **Adaptive Differential Pulse Code Modulation**: Using Matlab, Vivado, and Verilog, I loaded the original values of a given .wav file and then implemented an ADPCM encoder for compression and decoder to create the reconstructed waveform. This was done in floating-point notation, then fixed-point notation in Matlab, then finally hardware implementation in Verilog. The given outputs were analyzed for MSE to show the effectiveness of the compression and its ability to reconstruct the waveform as close as possible. (2021)
- **FPGA SystemVerilog Implementation of UART**: Communicated between Putty and Basys 3 FPGA board to print ASCII code characters via UART implemented in SystemVerilog with 8-Data Bits. (2021)
- **FPGA SystemVerilog Implementation of Digital Clock**: Designed System to utilize 4-Seven Segment Displays to create a digital clock with an alarm setting mode and alarm clock mode. (2021)

Publications

- **The Camarillo Acorn: Rancho Campana's inaugural graduating class is looking toward future**: https://www.thecamarilloacorn.com/articles/rancho-campanas-inaugural-graduating-class-is-looking-toward-future/ (2018)

Honors and Awards

- Best Overall Project - SD Hacks 2022 (UCSD)
- Dean's List - SDSU College of Engineering
- Distinguished Organization Vice President - SDSU Residence Hall Association
- Academy Award for Engineering - RCHS 2018
- Speech Contest Winner - Amber's Light Lions Club

Organizations

- **Mentor at Hackathon by the Sea** — Camarillo, CA
  Coached teams of high school coders in developing web/mobile applications. — *2018 - Present*
- **Vice President of Projects at SDSU IEEE** — San Diego, CA
  Launched workshops and hackathons for SDSU students, introduced HS students to robotics. — *2019 - Present*
- **Vice President of Administration at SDSU Residence Hall Association** — San Diego, CA
  Hosted programs and events for SDSU on-campus residence. — *2019*