

SCHUYLER RYAN

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EDUCATION

California Polytechnic State University, San Luis Obispo
B.S. in Mechanical Engineering: Mechatronics Concentration
Minor: Computer Science

San Luis Obispo, CA
September 2016 – Present

Coursework: Mechatronics, Data Structures, Systems Programming, Computer Organization, Operating Systems, Artificial Intelligence, Electronics, Robotics, Mechanical Control Systems, System Dynamics

SKILLS

- **Hands on:** Hand Drafting, Machining, Metal Casting, Welding, Electronics equipment, Machine Shop equipment, Vibrations lab equipment, Fluids lab equipment, Materials lab equipment
- **Software:** SolidWorks, Abaqus, Fusion360, Microsoft Word, PowerPoint, Excel, MATLAB, Python, MicroPython, Assembly, Java, C, UNIX, EES, Simulink
- **Traits:** Leader, Quick Learner, Passionate, Problem Solver, Analytical, Disciplined, Detail Oriented

ENGINEERING PROJECTS

NASA RASC-AL 2021 Moon to Mars Ice & Prospecting Challenge (National Finalists)

- Led year-long engineering project to develop an autonomous drilling system to extract ice from Lunar and Martian ice shelves and collect soil hardness data
- Worked with MSP432 microcontroller to improve skills in creating finite state machines and developing software to control I/O devices in C
- Wrote multiple detailed design reports to secure grant funding
- Sourced materials and components within budget constraints
- Implemented formal engineering design process including ideation, prototyping, manufacturing, and testing

Roborodentia Student Robotics Competition

- Enhanced knowledge of the engineering design process by designing, building, and testing an autonomous robot to compete with other Cal Poly teams
- Worked with Raspberry Pi to control omnidirectional, line sensing vehicle
- Gained comfortability working within size, time, and budget constraints
- Exercised 3-D modeling skills and team collaboration within a multidisciplinary project

Mechatronics SUMO-Bot Competition

- Led term-long project to create autonomous robot to compete with student peers
- Gained expertise creating tasks and finite state machines in MicroPython
- Demonstrated application of lean manufacturing principles
- Worked with STM32 Nucleo and furthered experience with electrical components and equipment

Moon Lander Q-Learning Agent

- Worked with python to create a reinforcement learning agent that adapts the optimal policy for landing a moon lander without crashing
- Formulated a Q-function to map action-state pairs with utility values
- Adjusted parameters such as learning rate, discount rate, and state reward values

Simple C shell

- Created a shell in C with basic functionality including file redirection and piping
- Utilized UNIX system calls such as fork, exec, pipe, wait, and dup2 to manage child processes
- Tokenized and parsed command line arguments, implementing complete error handling

WORK EXPERIENCE AND LEADERSHIP

- **Redding Youth Organization** | *President*
- **Cal Poly SLOverwatch** | *President*
- **Patriot Gold and Silver** | *Assistant Manager*
- **DVL Landscaping** | *Landscaper*