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Lucas Butler

GitHub **(GitHub)** •
LinkedIn **(LinkedIn)** •
Link Tree **(Link Tree)**

Summary

Dedicated Computer Engineer with a background in both undergraduate and master's degrees in engineering and computer science. Proven experience in machine learning, robotics, and full-stack development. Demonstrated ability to lead research projects and develop innovative solutions in various technical domains. Strong project management and leadership skills with a passion for teaching and tutoring.

Work Experience

Manufacturing Engineer Intern
SMC, ltd, Santa Rosa, CA • May '22–August '22

- Created innovative solution using automatic blender for PLA pellet mixing, replacing manual process and saving $12,000
- Redesigned robotic cage system for injection mold machines to standardize latch points and mounting heights, reducing operational downtime by 30 minutes per changeover
- Designed and manufactured custom support bars using drill press, band saw, and welder to prevent mounting bar sag and eliminate manual adjustments
- Reduced cage production costs by 25% through standardized design and optimized materials
- Conducted Statistical Process Control (SPC) to identify and resolve out-of-spec production areas
- Learned medical injection mold manufacturing industry operations and technical processes.

Sandia National Laboratories
Sandia National Laboratories, Albuquerque, NM and Remote • Sept '23–Present

- Main focus was to learn about LLMs and how to apply them to various problems, providing insights for the engineers to use
- Developed a tool that reduces fatigue and increases turnover speed in HR and business professionals who screen candidates for hiring by implementing a Data Extraction pipeline that extracts information from 100 resumes a minute and stores it in a Postgres database, whereas professionals were spending 3-5 minutes extracting information per resume
- Prototype secured $5,000 in external funding and earned a SPOT award for taking initiative
- Applied LLMs to requirements analysis in classified environment, creating custom agentic scripts for automated issue detection, with potential to save the organization upwards of $300,000,000 in reengineering costs over the multi-year product lifecycle.

CE/EE Tutor/Grader
CSU, Chico, Chico, CA • Jan '22–May '23

- Tutored 15+ students weekly on electrical circuit design and embedded systems
- Improved average student performance by 7% through personalized feedback.

Park Avenue Pub
Park Avenue Pub, Chico, CA • Sep '21–Dec '21

- Worked from bus boy to server/bartender, practiced great customer service and kept track of up to 7 tables while keeping my work environment organized.

Student Research Group, Elephant Listening Project
CSU, Chico, Chico, CA • August '24–Expected Graduation December '25

- Published a Paper in SPIE as a co-author with my instructor comparing RNNs and CNNs as detectors for Elephant rumbles in the infrasound sound spectrum with 95% detection accuracy of Elephants using the CNN
- Led entire research project from conception to completion in 3 months: data exploration, engineering, training/validation/testing scripts, and experiment execution
- Processed dataset of 22,000 examples using cross-validation, grid search, and early stopping to optimize hyperparameters and training loops

- Used Singularity Pro to scale up TensorFlow training, cross-validation and testing pipelines, while formatting raw audio clippings into Spectrograms.

Student
CSU, Chico, Chico, CA • August '21–May '24
- Pursued a Bachelor's Degree in Computer Engineering with a minor in Computer Science, attaining a 3.85 GPA, involving coursework in Dynamics, Strength of Materials, Manufacturing, Logic Design, Embedded Systems Development and more.

Computer Science Graduate Student
CSU, Chico, Chico, CA • August '24–Expected Graduation December '25
- Pursuing a Master's Degree in Computer Science with a 3.883 GPA, engaging in advanced coursework in Machine Learning and Robotics while leading significant research projects.

Team Captain and Treasurer
Chico Men's Club Basketball Team, Chico, CA • 2019–Present
- Lead the team to an appearance in the conference tournament in our first year as a Club
- Handled the finances and cost analysis for our trips.

Business/Finance Lead
Formula SAE, Chico, CA • 2021–Present
- Led team to 1st prize in cost event by creating innovative ECU redesign, achieving $800 savings per unit, translating to $800,000 savings per 1,000 units in production cost analysis
- Helped identify $5,000 in cost savings opportunities across subsystems over 2 seasons.

Skills

Technical Skills: Python, C, C++, SQL, TypeScript, JavaScript, AWS, Google Cloud, PostgreSQL, MongoDB, OpenCV, TensorFlow, PyTorch, React, Docker, Flask API, Express.js, Singularity, Jupyter, NumPy, Pandas, Matplotlib
Leadership Skills: Project Management, Team Leadership, Cost Analysis, Research Coordination