Riley Prince

0 NW Corner 4th and Lobos • Carmel-by-the-Sea, CA 93921 • princeri@oregonstate.edu • +1 (831) 402-7466

Professional Summary

My name is Riley Prince. I am an Electrical Engineering graduate student from Oregon State University who is motivated to find a position at the interface of technology and the human body. I have spent my professional and educational career working to develop knowledge in the fields that encompass this intersection. Through these efforts, I have developed years of experience working on research in chemical and hardware design labs. I offer significant course experience in Medical Device Design, Software Engineering, and Signal Processing, as well as demonstrated knowledge in programing languages such as Python, C/C++, JavaScript, and MATLAB. I utilize a growth mindset and I am excited to learn, grow, and contribute in my next opportunity.

Education

OREGON STATE UNIVERSITY 3.7 GPA Corvallis, OR

Master's of Engineering**, Electrical Engineering** Minor- **Biological Data Science** Expected: December, 2023

Bachelor's of Science, **Biological Engineering** Minor- **Computer Science** June 2021

Relevant Coursework

Computer Science: Algorithms, Assembly Language, Computer Architecture, Object-Oriented Programming I/II, Machine Learning, Applied Bioinformatics, Software Development I/II, Networks in Comp Biology, Discrete Math

Electrical Engineering: Analog CMOS Circuits, Linear Systems Theory, Stochastic Processes, Electronic Optics, Signal Processing, Image Processing

Biomedical Engineering: Bio-Signal Processing, Human Control Systems, Transport Phenomena, Biochemistry, Biomaterials, Medical Device Design, Medical Device Regulation, Modeling Physiological Systems, Engineering Design

Skills & Interests

Programming Languages: C/C++, Python, JavaScript, HTML/CSS/PHP, VBA, SQL, MATLAB

Software: ImageJ, Cadence, Solidworks, Microsoft Excel, VS Code, Bash, AMBER11,

Skills: Root Cause Analysis, Unit Testing, PCA, Clustering, Git, Scrum, Shell Scripting, Data Processing, Prototyping

Languages: English: Native, Mandarin: Basic-Conversational

Laboratory Skills: Prototyping, Soldering, Breadboards,

Interests: Medical Devices, Data Science, Health Sensing Hardware, Software Development, Signal Processing

Experiences

Openly Published Environmental Sensing Lab, eDNA Project Lead **Corvallis, OR December 2022 – Current**

- Implement and design improvements for an embedded system focused on environmental DNA sampling
- Write C++, JavaScript, and Typescript code for programming microcontrollers and designing user interfaces
- Utilize git and task management software to evaluate the success and impact of written code changes
- Lead collaboration and teamwork in a diverse team of Electrical, Mechanical and Software Engineers by triaging issues, leading collaborative meetings, and determining avenues for new innovation
- Interface with clients to streamline status communication and integrate client visions of product success and applications into the product design

HP Inc, Lead Chemical Technician **Corvallis, OR September 2021 – January 2023**

- Collaborated in the early stages of the product development lifecycle, gaining experience in R&D, NPI, and NPQ
- Developed knowledge in Design of Experiments through conducting bead milling experiments to research new ink formulations for inkjet printers
- Utilized JMP and Excel to conduct data visualization in tooling correlation, and gauge studies
- Diagnosed discrepancies in material data to understand sources of experimental error through root cause analysis
- Optimized workflow and automated business processes through the creation of scripts using VBA and JavaScript
- Spearheaded the deployment of a new lab through training new technicians, writing SOPs, and identifying process improvements, demonstrating exceptional project management and technical writing skills

SEAP, SEAP Intern @ The Naval Postgraduate School **Monterey, CA June 2014 – August 2015**

- Developed coursework for a graduate-level computer networking class using LaTeX
- Built web scrapers using Python as a method for automated data mining
- Designed a nodal network-based model using QGIS to predict the effect of natural disasters and terrorist attacks on internet and utility grids to identify network weak points

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Projects

Identifying Changes in SARS CoV-2 Main Protease Structure Through Molecular Dynamic Modeling
Oregon State University / The University of Oregon

- Conducted Molecular Dynamics Simulations on the SARS-CoV2 (Covid-19) main protease using BASH and AMBER11
- Constructed a data pipeline using Python, Pandas, and NumPy to process raw interaction data from large datasets
- Created an amino acid residue-based neural-network model using PCA and k-means clustering to identify protein interaction networks

Senior Capstone Project: Transdermal Microneedle Vaccine Patch
Oregon State University

- Designed and built a prototype dissolving microneedle patch as a vaccine delivery vehicle using rapid prototyping techniques such as silicone molding, 3D printing and CAD (SolidWorks)
- Created a Knudsen Diffusion model to predict the rate of vaccine delivery and microneedle thickness in MATLAB.
- Explored the De Novo and 510(k) market approval pathways as a means for FDA approval.
- Conducted a financial analysis on plant start up, manufacturing costs and capital to determine product price-point.

Thor Weather
Oregon State University

- Wrote a web application allowing the user to display weather information in chosen locale using Node.JS.
- Implemented express, sessions, and handlebars to handle user routing, user logins, and object oriented templating
- Utilized MySQL to implement a database and store user account data

Fabry-Perot Interferometer for Glucose Sensing
Oregon State University

- Designed a glucose sensor using an optical resonator to detect changes in glucose concentration via changes in refractive index.
- Created a MATLAB simulation to determine system sensitivity to deviations from normal glucose concentrations via changes in interference pattern maxima

References Available upon request.

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