David Ward

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Summary

Software developer nine months of full stack development experience, a B.S. in Computer Science, a recently published IEEE Conference proceeding, and academic research background. Expert critical thinker, driven self starter, and quick learner. Has extensive experience writing clean code with automated branch testing and working with industry standard cloud development practices (CI/CD, Git, containerized development).

Work Experience

Layers Media

Remote / United States

Full Stack Web Developer

July 2022 - Dec 2022

- Sole web developer for monolithic social media app, working directly under CEO and CTO
- Enabled quick public launch of startup by fixing 27 bug and features updates independently across entire web app
- Ensured zero bugs in production by writing an exhaustive 66 unit and 131 integration tests into the automated test suite
- Reduced development time immensely by removing deep seeded bug in automated test suite causing a random 4-6% of tests to fail with erroneous error messages due to sample size constraints of data generation library, Faker
- Rapidly eliminated numerous front end bugs related to Stimulus.js controllers, Tailwind CSS, and CSS media queries
- Efficiently triangulated backend bugs related to video processing jobs, Sidekiq worker tasks, OAuth login, and browser/mobile specific bugs
- Implemented and choose architecture for tagging of posts and search by tag using query parameters
- **Technical Skills:** Ruby on Rails, Stimulus.js, Automated Unit and Integration Testing, CI/CD, Docker, AWS, PostgreSQL, Debugging, Git, MVC
- **Soft Skills:** Communication, Self Learning, Time Management.

CSUN Structural Bioinformatics Lab

Northridge, CA

Full Stack Web Developer

Jan 2022 - Apr 2022

- Worked directly under structural bioinformatics professor to create alpha release of an open source research tool
- App enables novel analysis by compiling and standardizing non-uniform protein data from many sources
- Rapidly built fool proof user interface using Angular and REST API back end layer using C# with Entity Framework object relational mapping complete with type checking before saving to database
- Front end uses $HTTP service calls, two way data binding via the NgModel directive, *ngFor/*ngIf/*ngTemplate directives, and custom components to dynamically display data
- MVC architecture uses separation of concerns for scalable development with frontend hosted on Apache server and backend/database on Azure
- **Technical Skills:** Typescript with Angular, C# with Entity Framework Core, AzureSQL, Postman, Apache
- **Soft Skills:** Communication, Teamwork, Presentation skills.

California State University, Northridge

Northridge, CA

Student Researcher

June 2021 - August 2021

- Conducted literature review and ran experiments of workload balancing algorithms
- Created multi-dimensional plots for poster and symposium
- **Technical Skills:** Bash Scripting, Python, Data Analysis, Technical Writing
- **Soft Skills:** Time Management, Communication, Self Learning, Public Speaking, Presentation Skills.

Santa Monica College STEM Program

Santa Monica, CA

STEM Tutor

January 2017 - June 2018

- Tutored 11 undergraduate math, chemistry, and computer science courses
- One of the few core tutors with many regulars, often helping 2-4 students concurrently for 10-20 hours a week
- **Technical Skills:** Data Structures and Algorithms in C, C++, Python, and Java, Web Development, Calculus, General Chemistry I/II
- **Soft Skills:** Teaching, Making Complex Information Accessible, Communication, Multitasking, People Skills.

Projects

Tweetir

Los Angeles, CA

Personal project

Jan 2022 - August 2022

- Text based blog with user authentication
- Industry level continuous deployment pipeline utilizing automated data validation, unit testing, functional testing and heroku staging server
  Technical Skills: Ruby on Rails, PostgreSQL, HTML/CSS, Heroku, GitHub Workflows, CI pipeline.

California Wildfire Prediction using Machine Learning *Northridge, CA*

Senior Design Group Project *August 2020 - December 2021*

- Predicted fires in CA with 93% accuracy using machine learning and raw geospatial data
- Research published in IEEE International Conference on Machine Learning and Applications 2023
- Primary author, data preprocessing engineer, web developer, and project manager
- Drastically increased accuracy of spatial analysis by an average factor of 60 in a co-led initiative to reprocess data by sub-setting original data set into counties using image masking, ensuring 100% integrity in error prone process
- Visualized cryptic spatio-temporal fire record data using an interactive map single page application via Data Driven Documents (D3.js) with exact placement of fires on an SVG drawn map using CA GEOJSON country boundry data
- Facilitated early finishing of project and additional stretch goals while leading group through unfamiliar geospatial domain by meticulously notating lengthy meetings, relaying information, delegating tasks, and organizing sprints
- **Technical Skills:** Python with NumPy, Pandas, GDAL, Rasterio, Javascript with D3.js, GEOJSON, Workflows Automation, Data Analysis, Machine Learning HTML/CSS, Git.
- **Soft Skills:** Project Manager, Communication, Teamwork, Agile, Presentation, Research.

GPU Enabled Protein Conformational Sampling (Volunteer) *Northridge, CA*

Structural Bioinformatics Lab *Sep 2020 - Dec 2021*

- Developed boilerplate app to run patented molecular dynamics simulation in parallel on GPUs using PyCUDA/CUDA framework
- Transformed singular function containing >300 lines of C++ protein input parsers, single letter variables, undocumented code into readable and maintainable, clean code that stored data in OOP generated, strongly typed, scalable data structures, allowing for debugging at many points with extremely descriptive output and unit testing
- Presented in semesterly research and literature talks/seminars
- **Technical Skills:** Python with PyCUDA, CUDA C/C++, Perl, Structural Bioinformatics, Linux (CentOS), Bash
- **Soft Skills:** Communication, Presentation Skills, Critical Thinking, Research.

Education

California State University, Northridge *Northridge, California*

B.S. Computer science *August 2018 - December 2021*

- Primary author and major contributor of senior project published in IEEE International Conference on Machine Learning and Applications 2022
- Spearheaded two structural bioinformatics research projects and a paid research on data center workload balancing algorithm analysis
- Participated in two hackathons, won 2019 AI Jam (team internship offer with $15,000 compensation package)

Publications

Conference Proceedings

California Wildfire Prediction using Machine Learning
Kaylee Pham, David Ward, Saulo Rubio, David Shin, Lior Zlotikman, Sergio Ramirez, Tyler Poplawski, Xunfei Jiang
2022 21st IEEE International Conference on Machine Learning and Applications (ICMLA), 2022

Skills

Programming	Ruby (Rails, ActiveRecord), Javascript (Typescript, Angluar, React, Stimulus, D3, Node), Python (Pandas, NumPy, PyCUDA, GDAL.), Java (FX Scene Builder), C# (Entity Framework Core), C++ (CUDA), Databases (MySQL, PostgreSQL, MariaSQL, AzureSQL), Automated Testing (unit, functional), DevOps (CI/CD, Docker, Git, AWS, Heroku), HTML/CSS.
Miscellaneous	Linux (CentOS, Manjaro/Arch, Ubuntu), Shell (Bash/Zsh), LaTeX(Overleaf).
Soft Skills	Communication, Attention to Detail, Critical Thinking, Time Management, Teamwork, Technical Writing, Teaching, Presentations.

Achievements

2021	**Outstanding Research In STEM Award,** CSU LSAMP Program Recognizing Undergraduate Distinction	*Northridge, CA*
2019	**Summer Accelerator Program Offer ($15,000 Total Group Compensation),** CSUN AI Jam – Summer startup accelerator program offer ($15,000 total group compensation)	*Northridge, CA*
2016	**Best Science Poster ($1000 group prize),** SMC Global Citizenship	*Santa Monica College*

Participation

2022-Now	**Mentor,** Mentor Collective Mentor to 10 CSUN Students	
2018-Now	**Raspberry Pi / Arduino Microcontrollers,** Hobby Projects to Automate Chores or Log Data	*Home*
2021	**Hackathon,** Intelligent Systems for Molecular Biology Conference	*Remote*
2018	**Hackathon,** CSUN Accessibility Challenge (Sponsored by Northrop Grumman)	*Northridge, CA*