DAVID WARD

Software Developer

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PROJECTS

Protein Domain Annotations Database SPA (CSUN Lab Volunteer)

angular, typescript, c#, entity framework core, azure sql

Jan 2022 — May 2022

- Full stack, open-source web app that enables novel analysis for bioinformatics researchers' by compiling non-uniform protein data from many databases into a standardized data format
- Interpreted domain specialist's ideas into specification for the UI and novel database schema
- Angular was used for the client side and with C# for server side with object relational mapping via .NET entity framework core
- Front end SPA uses $HTTP service calls, *ngFor/*ngIf/*ngTemplate directives, and custom components to dynamically display data
- The front end is deployed on a remote server, the back end on Azure App Services, and the database on Azure SQL Server

GPU Enabled Protein Conformational Sampling (CSUN Lab Volunteer)

python, numpy, pycuda, cuda c/c++

Sep 2020 — Dec 2021

- Developed boilerplate app to run patented molecular dynamics simulation in parallel on GPUs using PyCUDA/CUDA framework
- Refractored legacy, hard coded C++ structural protein input parsers into OOP generated, scalable, strongly typed data structures
- Presented in semesterly research and literature talks/seminars

ML Assisted Wildfire Prediction in CA (Senior Project)

python, numpy, pandas, kernas, gdal, rasterio, javascript, d3.js, geojson

Aug 2020 — Jun 2021

- Data preprocessing engineer, web developer, and project manager
- Predicted fires in CA with 93% accuracy using machine learning and raw geospatial data
- Co-led initiative to increase spatial granularity of analysis regions by a factor of 60 by sub-setting data into counties using image masking
- Created interactive map SPA to visualize past spatiotemporal fire data
- Data Driven Documents (D3.js) was used to make SVG drawing from GeoJSON data of CA county boundaries
- Lead group through unfamiliar geospatial domain by meticulously notating lengthy meetings, delegating tasks, and organizing sprints
- One of two presenters in senior design showcase

EDUCATION

B.S. Computer Science

California State University Northridge

Aug 2018 — Dec 2021

EXPERIENCE

Student Researcher

Computer Science Lab, CSUN

June 2021 — August 2021

- Conducted literature review and ran experiments of workload balancing algorithms
- Created multi-dimensional plots for poster and symposium

STEM Tutor

Santa Moninca College STEM Program

Jan 2017 — Jun 2018

- Responsible for 11 undergraduate computer science, chemistry, and math courses
- Often helped ~2-4 students concurrently

Summer Research Intern

Electrical Engienering Lab, UCLA

Jun 2016 — Aug 2016

- Analyzed medical instrument image data using MATLAB and presented in a poster session as well as a symposium of ~300

SKILLS

Proficient: C++ Python

Moderate proficiency: Javascript Java C C# Angular HTML/CSS

Familiar: Node.js Bash Unit testing Git Jira NumPy Latex

AWARDS

- CSUN AI Jam – Summer Accelerator program offer ($3000) Presentation 2019
- Best Science Poster : SMC Global Citizenship ($1000 group prize) 2015

PARTICIPATION

- Raspberry Pi/Pico Hobby Projects 2022
- Hackathon : Intelligent Systems for Molecular Biology 2021
- CSUN Accessability Hackathon 2018
- Independent Study: Built Hand Powered Centrifuge with Partner 2016