

Caleb M. Vatral

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Professional Summary

Self-motivated and team oriented individual, who uses a blend of a broad set of academic and technical skills in physics, math, engineering and computer science combined with experience in applied research, software development, and management toward solving real world problems and improving human lives.

Education

Eastern Nazarene College

Quincy, MA

B.S. IN COMPUTER SCIENCE AND MATHEMATICS, MINOR IN PHYSICS

Aug. 2015 - PRESENT

- GPA: 4.0, Expected Graduation: May 2019

Research Experience

Data Fusion Algorithm

An algorithm to combine data measured from multiple physical earthquake precursors into a single measurement for the likelihood of an earthquake in a given region

Software Performance Analysis

A neural-network based algorithm to help automate analysis of software performance test results and perform root cause analysis of performance problems

Tumor Treatment Fields

Collaborated with Beth Israel Deaconess Medical Center to characterize and reduce electrical burn side effects caused by TT Field cancer treatments

Data Acquisition Platform

A platform to collect data from remote locations and transmit to a time-series database on a CIS hardened CentOS server for later analysis

Piezo-Magnetic Simulation

A MATLAB simulation of the piezo-magnetic effects due to large magnitude earthquakes based on the results presented in Sasai (1980)

Technical Skills

Proficient C++, Python, Java, Debian and CentOS Linux, Git/Github

Experienced MATLAB, Apache Spark, PHP, MySQL, InfluxDB, Elasticsearch, LaTeX

Employment

HCL Technologies

Cary, NC

DATA SCIENCE INTERN

May 2018 - Aug 2018

- Developed new method for automatic analysis of software performance data using machine learning models for root cause analysis
- Designed REST API for automated analysis, storage, and retrieval of software performance test data

Eastern Nazarene College

Quincy, MA

LAB MANAGER

Aug. 2018 - PRESENT

- Oversee daily operation in the lab including managing all lab sessions, overseeing all teaching assistants, and facilitating active research projects
- Promoted from previous role as assistant lab manager (Aug 2017 - Aug 2018)

RESEARCH ASSISTANT

Jun. 2016 - PRESENT

- Joined with faculty and other students to continue ongoing research in earthquake forecasting full-time during two 10-week summer programs, and part-time during the school year
- Promoted to student manager during summer 2017 research program

PEER TUTOR

Aug. 2016 - PRESENT

- Tutored ENC students in coursework for computer science, math, and physics classes for a variety of skill levels ranging from elementary level to university junior level classes
- Promoted to Senior Tutor in Aug. 2017