Duy Nguyen (U.S. Citizen)

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EDUCATION

Master of Science: Computational and Applied Mathematics
(Academic Honors)
California State University, Fullerton

08/2019 - 01/2021 *GPA: 3.94/4.0*

Courses

- Advanced Linear Algebra and Applications
- Mathematical Modelling
- Machine Learning/ Data Analysis
- Parameter Estimation and Inverse Problems
- Scientific Computing and Applications
- Industrial Project in Computational Applied Mathematics (sponsored by NASA/JPL)

Bachelor of Arts: Applied Mathematics
California State University, Fullerton

08/2016 - 05/2019 *GPA: 3.68/4.0*

PROJECTS

Lunar Terrain Coverage Project (NASA/JPL) (01/2020 - 05/2021)

- Modeled and computed the lunar terrain
- Generated the regional dynamic simulation of the Sun illumination, Earth communication coverage, Lunar Relay Satellite communication
- Visualized the terrain from a lunar asset including the Line-of-Sight communication, Sun Illumination, and Earth Visibility
- Optimized the transverse path with different criteria: hazard avoidance, sun illumination and earth contact
- Developed the Terrain Coverage Analysis Tool (TCAT) to incorporate all mathematical models and delivered it to NASA/JPL. It is still being developed at NASA/JPL to be used for NASA's future missions.

Monitoring the effects of BMP (Best Management Practices) across the U.S. (SCCWRP) (01/2020 - Present)

- Develop the Python application running in Docker container to pull data from the environmental sensors recording the water's level, temperature, and other factors of the soil during the dry and wet weather
- Work with the U.S. Environmental Protection Agency to automate the process of checking the data flags in the raw data (indicating sensor's malfunction) and performing the statistical analysis on the raw data
- Automate the process of sending the the analyzed data to the cloud's database and clients (SCCWRP scientists and Environmental Protection Agency)
- Develop the R-Shiny application to provide interactive dashboard for data visualization and data reporting

Violent Crimes Prediction (05/2020 - 07/2020)

- Obtained data from the University of California, Irvine Machine Learning Repository, performed Explanatory Data Analysis, Principal Component Analysis
- Used Machine Learning methods (Linear Regression, Neural Network, Ridge and Lasso) to predict the number of crimes in the communities across the U.S
- Applied clustering to place the communities into low-risk, high-risk groups based on multiple criteria such as demographics,

TECHNICAL SKILLS

Machine Learning

Regression (Linear, General Linear, Logistic, SVR, Random Forest), Classification (K-NN, SVM, Random Forest, Native Bayes), Clustering (K-Means, Hierarchical), Neural Networks, Monte Carlo Simulation, Explanatory Data Analysis, Principal Component Analysis, Data Cleaning, Data Manipulation

Mathematical Modelling

Parameter Estimation and Inverse Problems (Markov Chain Monte Carlo Method, Beyesian Methods)

COMPUTER SKILLS

Programming: Python (Pandas, Numpy, Scipy, Matplotlib), R (R-Shiny, etc.), SQL

Databases: PostgreSQL/pgAdmin, MongoDB, Extract-Load-Transform (ETL)

Front-end: HTML, CSS, Java-script | Visualization: PowerBI

Version Control: Git/GitHub | Cloud Computing: AWS

WORK EXPERIENCE

Application Developer (Data Management)
Southern California Water Research Project

07/2019 - Present *Costa Mesa, CA*

Computer languages Used: Python, R, SQL

Achievements/Tasks

- Create and design website applications to automate the process of checking the metadata and lab data that are submitted by the research and development agencies using Python (Flask)
- Design and maintain data systems and databases (PostgreSQL), data collection systems (ArcGIS Survey123, Microsoft Form, etc..), data analytics and other strategies that optimize statistical efficiency and quality
- Provide quality assurance of imported data, work with the research technicians if necessary
- Work with the scientists to develop reports and analyses to improve the management of aquatic systems in Southern California and beyond
- Develop dashboards using R-Shiny to share insights with the clients and researchers from Southern California's wastewater treatment agencies, storm-water management agencies and water-quality regulatory agencies.

Contact: Paul Smith - pauls@sccwrp.org

AWARDS/ACHIEVEMENTS

Russell V. and Betty L. Benson Scholarship for Graduate Mathematics Students (Spring 2020)
California State University, Fullerton

Sally Casanova Pre-Doctoral Scholar (Spring 2019)
California State University, Fullerton

WORK EXPERIENCE

Mathematics Teaching Intern
Golden West College

01/2021 - Present *Huntington Beach, CA*

Achievements/Tasks

- Shadow an experienced faculty member—in class, pre-semester preparation, workshops, campus events, committee meetings, etc.
- Create and conduct lessons for Calculus 1 and College Algebra; collaborate with faculty mentor on syllabus building, assignments, and in-class activities; discuss strategies for student success and grading practices.
- Establish and maintain professional relationships with intern cohort, faculty, administrators, and students.

Contact: *Dr. Erin Craig - ecraig4@gwc.cccd.edu*