Duy Nguyen

Developing solutions to computationally challenging problems; Communicating the problems in written and oral form; Working with teams to implement the solutions.

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EDUCATION

Master of Arts: Applied Mathematics
Academic Honors
California State University, Fullerton
08/2019 - 12/2020 3.940

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 3.68

COMPUTER SKILLS

Python, R, SQL, Java-script, MATLAB, MS Office Suite, HTML, CSS, C++

Familiar with CSPICE library (from NASA/JPL)

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, EDA, Principal Component Analysis, Data Cleaning, Data Manipulation

PROJECTS

Lunar Terrain Coverage Project (01/2020 - Present)
- 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 models and delivered it to NASA/JPL

COVID-19 Mathematical Modeling (01/2020 - 05/2020)
- Built mathematical models to predict the spread of COVID-19
- Investigated the required percentage of population needed to be vaccinated to control the spread of COVID-19 pandemic

Violent Crimes Prediction (05/2020 - 07/2020)
- Obtained data from the UCI 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 in the U.S
- Applied clustering to place the communities into low-risk, high-risk groups based on multiple criteria

WORK EXPERIENCE

Information Technology Technician
Southern California Water Research Project
07/2019 - Present *Costa Mesa*
Computer languages Used: Python, R, SQL

Achievements/Tasks
- Write back-end functions for website applications (Data Checker, Data Receipt Generator, Data Change Request,...) to automate the process of checking data submitted by the research and development agencies using Python (Flask).
- Write R-packages to calculate metrics using field and experiment data, write R-Shiny applications.
- Build database schema (PostgreSQL), set up constraints, administer the process of submitting, checking and loading incoming data from Southern California's wastewater treatment agencies, stormwater management agencies and water-quality regulatory agencies.
- Provide IT support

Contact: *Paul Smith - pauls@sccwrp.org*

Research Assistant
University of California, Riverside
05/2019 - 08/2019 *Riverside*
Computer languages Used: Matlab

Achievements/Tasks
- Investigated the exocytosis-ROP1 Signaling Network in Pollen Tube's Growth
- Constructed the system of differential equations to model the mechanism for the oscillation behavior
- Analyzed the numerical solution of the model using Matlab

Contact: *Dr. Weitao Chen - weitaoc@ucr.edu*

Instructional Student Assistant
California State University, Fullerton
08/2018 - Present *Fullerton*

Achievements/Tasks
- Tutored students with all upper-division math classes
- Assisted professors by grading assignments, quizzes, exams in Calculus 1- Calculus 4

Contact: *Dr. Tyler McMillen - tmcmillen@fullerton.edu*

LANGUAGES

English
Full Professional Proficiency

Vietnamese
Native or Bilingual Proficiency

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

Research Paper submitted (08/2017 - 12/2020)
California State University, Fullerton
- Maxwell conjecture on four point charge