Huong Vu

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Education

- Ph.D. in Statistics (2020 – current)
    University of California, Berkeley
- B.S. in Mathematical Analytics and Operations Research (2018)
    University of California, Davis – GPA: 3.98 – Highest Honor

Research Experience

Graduate Student Researcher (Statistics Department, UC Berkeley)   June 2021 – current
- Collaborated with scientists at Innovative Genomics Institute (IGI) at UC Berkeley to curate and query 10,000+ COVID-19 PCR tested samples.
- Explored different data augmentation methods and deep learning algorithms (e.g. GRU and VAE) to classify positive and negative PCR samples to increase the accuracy and improve the efficiency of PCR tests.
- Collaborated with scientists at UCSF to build a pipeline to process high-resolution histology images that are about 100,000 by 100,000 pixels.

Research Assistant (Nightingale Open Science)   June 2021 – August 2021
- Worked with physicians to extract, pre-preprocess and convert International Code of Diagnosis (ICD) from Contra Costa Health Center's database using rxNorm API.
- Constructed and analyzed temporal relationship between patient medical history (e.g. doctor visits, prescriptions, and diagnosis, etc.) and electrocardiogram (ECG) to identify occurrence of silent heart attacks.
- Built a pipeline to run multiple deep learning models that are known to work well on ECG (e.g. LSTM, ResNet, Transformer) to predict historical silent heart attacks.

Research Assistant (Statistics Department, UC Davis)   June 2017 – June 2018
- Extracted and pre-processed California's catchments attributes and pesticide usages from the United States Environmental Protection Agency and the California Department of Pesticide Regulation databases using arcGIS and R.
- Explored methods to impute missing and censored data using spatial and temporal models.

Visiting Researcher (Muhlenberg College REU, Pennsylvania)   June 2016 – August 2016
- Developed dynamic models for generating triples satisfied quadratic formulae based on Pythagorean triples; constructed winning strategies for Edge Removal Game on special graphs and expanded to Edge and/or Vertex Removal Game
- Identified and generated integer sequences using the On-line Encyclopedia of Integer Sequences

Employment

Graduate Student Instructor (University of California, Berkeley)   August 2021 – present
- Fall 2022: Concepts in Computing with Data
- Spring 2022: Introduction to Statistics
- Fall 2021: Artificial Intelligence for Health and Healthcare

Data Analyst (1-800 Radiator & A/C)   July 2018 – March 2020
- Collaborated with scientists at Innovative Genomics Institute (IGI) at UC Berkeley to curate and query 10,000+ COVID-19 PCR tested samples.
- Explored different data augmentation methods and deep learning algorithms (e.g. GRU and VAE) to classify positive and negative PCR samples to increase the accuracy and improve the efficiency of PCR tests.
- Collaborated with scientists at UCSF to build a pipeline to process high-resolution histology images that are about 100,000 by 100,000 pixels.

Tutor (Richmond Youthworks, California)   September 2015 – May 2016
- Provided guidance and mentorship for students at underserved high school on homework and college/scholarship applications
- Organized social activities and volunteer events such as LEGO Robotics, tree planting with Ground Work, Inc., and a field trip to San Quentin State Prison

Peer-lead Team Leader (Contra Costa College, California)   January 2014 – May 2016
- Tutored 100+ college students in math, physics, and chemistry and assisted them in reaching academic goals

- Cooperated with other leaders to organize learning workshops where 80+ students participated in engaging math exercise

Papers

- Nguyen, D. M., Nguyen, T. T., **Vu, H.**, Pham, Q., Nguyen, M. D., Nguyen, B. T., & Sonntag, D. (2022). TATL: task agnostic transfer learning for skin attributes detection. Medical Image Analysis, 78, 102359.
- Nguyen, D. M., Nguyen, D. M., **Vu, H.**, Nguyen, B. T., Nunnari, F., & Sonntag, D. (2021). An attention mechanism using multiple knowledge sources for COVID-19 detection from CT images. In The Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI-2021), Workshop: Trustworthy AI for Healthcare (Vol. 360).
- **Vu, H**. (2018). Monitoring Pesticide Concentrations: Database Time Series Analysis. Senior Thesis.
- Ediger, A., Moon, J., Mora, C., **Vu, H.**, Vukovich, D., Winkeler, Z., and Wong, L. (2016). Expansions on "A Game of Edge Removal on Graphs".
- Benjamin N., Winkerler, Z., Arian, R., Jaramillo, E., Ohanian, G., **Vu, H.**, and Reyes, N. (2016). Pythagorean Triples.

Honors and Scholarships

- 2021: Honorable Mention in the 2021 National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) competition.
- 2018: Highest Honor from Mathematics Department, University of California, Davis
- 2017: Yampol Egerman Scholarship
- 2016: Honors & Prizes Scholarship, Contra Costa College Mathematics Department Scholarship, Extended Opportunities Program and Service Transfer Scholarship
- 2015: Associated Students Union Leadership Scholarship, Sy & Beverly Scholarship, Contra Costa College Foundation General Scholarship
- 2014: Bernard Osher Scholarship

Leadership Activities

Vietnamese Teacher (San Pablo, California)   August 2013 – March 2020

- Teaching Vietnamese language and cultures to K-12
- Arranged cultural and festival events such as Lunar New Year or Full Moon Festival

President of Vietnamese Students Association (Contra Costa College)   June 2015 - May 2016

- Introduced Vietnamese cultures and history to community by organizing Vietnamese Cultural Days or workshops
- Strengthen Vietnamese community unity by hosting team building activities such as study group session and field trips.

Vice President of Associated Students Union (Contra Costa College)   June 2014 – May 2015

- Represented students' opinions in college's committee meetings related to students
- Organizing community's activities for benefits of students such as Club Rush and Spring Dance