VIVIAN WONG

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EDUCATION

Stanford University Stanford, California

Doctor of Philosophy in Civil Engineering, expected March 2023 GPA: 3.710/4.0
Master of Science in Civil Engineering, March 2019

University of Illinois at Urbana-Champaign Urbana, Illinois

Bachelor of Science in Civil Engineering, May 2017
Engineering James Scholar
GRE: Math 170/170, Verbal 162/170 (91st Percentile)
Selected Coursework:
- Convolutional Neural Networks for Visual Recognition, Artificial Intelligence, Deep Learning, Data Mining, Design & Analysis of Algorithms, Programming Abstractions
- Probabilistic Models in Civil Engineering, Structural Dynamics, Mechanics and Finite Elements

RESEARCH INTERESTS

- Data analysis and management for smart cities and smart manufacturing
- Applications of computer vision to engineering problems

CURRENT RESEARCH DIRECTIONS

- Automatic 3D manufacturing defect segmentation using 3D convolutional neural networks
- Graph neural network and graph database's in smart city applications

RESEARCH EXPERIENCE

Ph.D Student

Engineering Informatics Group, Stanford, CA - April 2019 - Present

- Worked on NIST projects focusing on the application of computer vision in smart manufacturing
- Developed an assistive learning workflow to reduce human labor time to annotate images for object detection

Research Intern

City Brain Project, Alibaba Cloud, Hangzhou, China - July 2018 - September 2018

- Developed a traffic signal control algorithm using deep reinforcement learning
- Read state-of-the-art papers on DRL and traffic engineering, building prototypes from some of their techniques
- Self-taught necessary background information of traffic engineering as well as reinforcement learning
- Implemented various Q-learning extensions in the traffic signal control algorithm in order to improve performance
- Trained traffic light agent on a single simulated intersection

Undergraduate Research Assistant

Smart Structures Technology Laboratory, Urbana, Illinois — September 2015 - May 2017

- Developed software programs in NI LabVIEW and implemented NI CompactRio data acquisition system to collect and process signal acquired from the movement of a Quanser Shake Table II
- Developed a PID control system and graphical user interface for calibrating and controlling the shake table using MATLAB Simulink and NI LabVIEW
- Performed small-scale vibration testing on shake tables and presented experimental results in a research conference

OTHER RESEARCH PROJECTS

Rebalancing in Autonomous Mobility-On-Demand: A Reinforcement Learning Approach

Stanford Autonomous Systems Lab, Stanford, California — September 2018 - December 2018

As an independent study product, explored the data-driven approach to rebalance an AMoD system (similar to a system of autonomous taxis) using reinforcement learning.

Digital Twinning of Wheelchair Riders to Improve Indoor Accessibility

Stanford University, Stanford, California — January 2018 - March 2018

As a part of a research project, developed Python programs to simulate movements of a digital wheelchair and its rider in a 3D virtual environment

Uni3000 - an Android game for learning vocabularies

September 2018 - Present

Created a SIM game in Android Studio that allows users to play while expanding their vocabularies

TEACHING EXPERIENCE

Course Assistant

Dept. of Civil & Environmental Engineering, Stanford - September 2019 - December 2019

CEE 284: Finite Element Methods in Structural Dynamics

Engineering Learning Assistant of ENG 100 and ENG 177

Dept. of Civil & Environmental Engineering, UIUC - May 2016 - May 2017

ENG 100 and ENG 177: Introductory first-year experience courses

PRESENTATIONS

Wong, V. W. H., (2016). "Development of a Control System and User Interface for the Quanser Shake Table II," Poster presentation, Undergraduate Research Symposium 2016, 2016-04-21, Urbana, Illinois.

AWARDS & RECOGNITION

Blume Fellowship	2019-2020
LabVIEW Certified Associate Developer	2016
Earle J. Wheeler Scholarship	2016
Fred S. Bailey International Service Travel Scholarship for Cause-Driven Leaders	2016
International Engineering Fellowship	2016
Wayne C. Teng Scholarship	2015
Dean's List/GPA Ranks in Upper 20% of College	2014-2015

SKILLS

Programming/Scripting Languages: [Proficient] MATLAB, LabVIEW, Python, C, C++; [Familiar] Java; [Basic] Javascript; Git
Design Software: [Proficient] Photoshop, Illustrator, AutoCAD, Revit, Rhino, SketchUp
Languages: [Fluent] English, Mandarin, Cantonese; [Beginner] French