VAN DUONG

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EDUCATION

[Currently in the process of applying for Electrical & Computer Engineering M.S. programs starting Fall 2019]

University of Minnesota Twin-Cities, College of Science and Engineering (Expected Graduation Date: May 2019)
- Mathematics Bachelor of Science, Computer Science Minor, 3.28 GPA
- First-generation college student, Society of Women Engineers member, AIAA member

Hong Kong University of Science and Technology (Engineering Exchange: Spring 2018)

Eastview Senior High (Graduation Date: June 2015)
- Graduate with High Honors, STEM graduate, College in Schools, AP Scholar with Distinction, 3.98 GPA
- First-generation high school graduate

PROFESSIONAL EXPERIENCES

3D Immersive Cave Automatic Virtual Environment Support | NASA Glenn Research Center (Sept 2018 – Dec 2018)
- Acted as Lead Developer to produce a virtual reality (VR) Unity prototype of Urban Air Mobility (UAM) flight focused on addressing the challenges of air traffic communications and networking for congested flight paths, using multiple VR platforms such as Oculus Rift and Cave Automatic Virtual Environment (CAVE) system
- Designed a virtual urban testing environment and vehicle landing ports following Federal Aviation Administration (FAA) design requirements using 3D modeling software Esri CityEngine and SketchUp, and built needed design tools with C# scripts
- Utilized radio range and performance data from GRC flight tests to accurately simulate wave reflection, diffraction, and shadowing to provide visualization for future Federal Aviation Administration policymaking and engineering developments

NASA Academy Research Associate | NASA Langley Research Center (May 2018 – Aug 2018)
- Worked in a multidisciplinary, diverse engineering team tasked to build a virtual reality Dell HTC Vive program using both Unity and X-Plane to integrate users into a piloting role for UAM flight
- Used online geographical databases to build virtual reality city environments and terrain based on real-world cities, and implemented weather for simulated emergency piloting events to aid in the research of UAM pilot behavior
- To maximize human-user interface, paired virtual reality with a 3D-printed aircraft control panel and mechanical flight simulator chair to fully immerse the user into a mixed-reality simulator booth

IT Business Analyst Intern | Delta Air Lines, IT Alliances (May 2017 – Dec 2017)
- Consulted with technical lead engineers and business partners to determine best solution to various IT problems
- Led own project for Delta Air Lines to better interact with partner airlines, saving the company $2 million each year
- Developed documents to auto-calculate all capital expense data for Delta IT Alliances

Undergraduate Research Assistant, Data Analysis Programming | MN Traffic Observatory (Jan 2017 – May 2017)
- Built MATLAB programs to analyze transportation PostgreSQL data from sensors on Interstate-35 and created an algorithm to predict an upcoming crash by analyzing real-time speeds of vehicles
- Developed Python code for the Minnesota Department of Transportation to process real-time vehicle speeds and warn cars to slow down via electric road signs to prevent a predicted crash on Minnesota's highest crash point at Interstate-35

RESEARCH

Communications and Urban Air Mobility, showcased at AIAA SciTech Forum and Exposition (Jan 2019)

TECHNICAL SKILLS

Programming Languages: C, C++, C#, Java, Python
Experience with:
- VR & 3D Graphics Development:
  - Unity, SketchUp, Esri CityEngine, HTC Vive, Oculus Rift, Cave Automatic Virtual Environment, LEAP Hand Tracker
- Technical computing:
  - Mathworks MATLAB, Wolfram Mathematica, Maplesoft Maple
- Flight physics simulation:
  - X-Plane 11

VOLUNTEER WORK

Teacher Aide | NASA Club, John Marshall School of Information Technology (Sept 2018 – Dec 2018)
- Assisted in teaching computer programming and video game development to high school students in weekly lessons

Co-Chair | President's Distinguished Faculty Mentor Program (Sept 2015 – June 2018)
- Led a group of seventy first-generation minority students to develop research skills and explore various postgraduate opportunities in weekly meetings
- Arranged and facilitated student-faculty mentorships with professors who specialize in student areas of interest

Student Engineer | Engineers Without Borders USA, University of Minnesota Chapter (Sept 2015 – May 2017)
- Researched for quality control and prevention of acid contamination in the Juckucha River located in Bolivia
- Provided engineering support such as materials and structural analysis, mechanical design, and environmental testing for water system development for the Yulo community

Emergency Room and Dispatch Volunteer | Fairview Ridges Hospital (Mar 2013 – June 2015)
- Built strong patient relationships and retained a calm and focused attitude in emergency situations while adhering to strict rules and regulations

Mathematics Teacher Aide | University of St. Thomas, Eastview Senior High (Sept 2013 – June 2015)
- Tutored struggling students outside of class time and developed a learning schedule tailored towards each student's ability

COURSEWORK

Mathematics / Statistics:
- Advanced Calculus V
- Applied Linear Algebra
- Applied Differential Equations
- Applied Fourier Analysis
- Mathematical Modeling in Industry
- Computational Algebraic Geometry
- Statistics, Quality, and Reliability
- Multivariable Calculus
- Combinatorial Analysis
- Matrix Computation

Computer Science:
- Machine Architecture & Organization
- Algorithms and Data Structures
- Discrete Structures
- Artificial Intelligence
- C, C#, C++, Java, Python

Sciences:
- Modern/Molecular Physics: Fluid, Mechanical, Thermodynamics, Electromagnetism, Optics, Special Relativity, Waves
- Chemistry
- Biology

REFERENCES

Herbert Schilling - Computer Scientist (Graphics & Visualization Team Lead)
Internship Mentor (Fall 2018)
NASA Glenn Research Center
hschilling@nasa.gov
(216) 433-8955

Elizabeth Ward - Aeronautics Research Directorate & Chief Technologist's Office, Student Programs
Internship Mentor (Summer 2018)
NASA Langley Research Center
elizabeth.b.ward@nasa.gov
(757) 864-7638

Bruce Yang - Assistant Director, Multicultural Center for Academic Excellence
Mentor (2015 – Present)
University of Minnesota, Twin-Cities
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