Alan Xue

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EDUCATION

Northwestern University, Evanston, IL **GPA**: 3.64/4.00
Bachelor of Science - Mechanical Engineering Expected: June 2021

SKILLS

Applications/Frameworks: NX, Solidworks, Ansys, MATLAB, Octave, Express.js Node.js, Git,
Languages: Python, JavaScript, HTML/CSS, C/C++

WORK EXPERIENCE

Institute of Electrical and Electronics Engineer, Evanston IL December 2020 - Present
Machine Learning Team Member

- Developed an active learning algorithm that outputs optimal experimental parameters for material scientists at Argonne National Lab
- Implemented functions using Flask to upload, and download files to and from Polybot, an open-source library for controlling robotic synthesis of materials

Solid Oxide Fuel Cell Lab, Evanston IL *May 2019 – September 2020*
Research Engineer Assistant

- Independently led the lab work and co-authored a manuscript for a new composition of fuel cells
- Analyzed the conductivity of fuel cells under different operating temperatures (300 ºC - 900 ºC) through the collection of impedance data
- Fabricated fuel cells through ink preparation, pellet polishing, screen printing, and sintering

PROJECTS

Human-Centered Product Design

- Conducted outdoor surveys and patent research to identify unmet needs and discover innovation opportunities
- Prototyped and modeled the new design of a can opener on Solidworks

Glass Bridge Model

- Collaboratively designed a scaled model of the Zhangjiajie Glass Bridge using Solidworks and conducted stress analysis to estimate maximum occupancy using Ansys

MobileNet/VGG16

- Fine-Tuned the MobileNet model to perform classification on a custom image data set of sign language digits
- Built a fine-tuned neural network to classify images of cats and dogs using VGG16 as the pre-trained model
- Built using Python and importing the TensorFlow/Keras and scikit-learn library

Discord Bot

- Implemented and hosted a Discord bot on a local computer to handle various requests from users using JavaScript and Node.js as the back end

GoLocal

- Designed a prototype web application that aims to share and spread information about local communities to travelers and tourists using HTML, CSS, JavaScript

Robotics

- Programmed a 32-bit microcontroller using C++ to drive a brushed DC motor that can move to a desired reference angle using a PID controller, and output a desired PWM duty cycle prompt from the user

LEADERSHIP EXPERIENCE

White Space Development Challenge *December 2019 – April 2020*
Team Member

- Committed over 20+ hours of research and analysis toward addressing the problem of air quality in East Asia
- Interviewed 5 experts on air quality to determine a solution and created a 3D prototype using Solidworks

Academic Support and Learning Advancement *September 2018 – September 2019*
Peer Tutor

- Developed mentoring skills through leading student study groups and reinforcing concepts from lecture
- Met with supervisor and other peer tutors to refine mentoring techniques and provided insight toward achieving a high-quality experience for students