JD Zhu

j425zhu@uwaterloo.ca (548) 333-1224 jdzhu.ca GitHub LinkedIn

Skills

CAD/CAM/CAE: SolidWorks, Ansys, Fusion 360, Abaqus FEA, Mastercam, CATIA, Autodesk Inventor, HyperWorks
Programming: Python, C++, LabVIEW, JavaScript, HTML, CSS
Data Analysis: MATLAB, ImageJ, R, Excel, Octave, BigQuery

Experience

University of Waterloo Faculty of Engineering **Waterloo, ON**
Undergraduate Research Assistant May 2022 – Present

- Work part-time under the supervision of Professor Reem Roufail in the Faculty of Systems Design Engineering.
- Compile a review paper on the biomedical engineering applications of auxetics.
- Determine the discrepancy between the experimental and the theoretical results of 2D Re-Entrant unit cell under tensile stress using **FEM**.
- Work part-time under the supervision of Professor Zhao Pan in the Interdisciplinary Fluid Physics Lab.
- Design Splash Free Urinal using **MATLAB** and **SolidWorks**.
- Manufacture prototypes of Splash Free Urinal using **clay 3D printers** and **CNC** machines.
- Research on the fluid physics of droplet impact on inclined surfaces.
- Experimentally determine the critical angle of the splashback of water after impact on inclined surfaces.

Research Assistant Co-op Jan 2022 – Apr 2022

- Work full-time under the supervision of Professor Zhao Pan in the Interdisciplinary Fluid Physics Lab.
- Use **MATLAB** and **Python** to label and process image and video data, labeled over 5000 images to train the Neural Network.
- Develop Deep Neural Network for image segmentation by building **Multimodal Learning** and **Convolutional Long Short-Term Memory** neural network.
- Use **Python OpenCV** and **PyTorch** to develop Convolutional Long Short-Term Memory Neural Network for image segmentation.
- Collaborate with senior students to design **Arduino** circuits for their final year design project.

University of Waterloo Formula Motorsports Team **Waterloo, ON**
Aerodynamics Engineer Sep 2021 – Sep 2022

- Work part-time to design and develop components and systems, ensuring quality and efficiency.
- Manufacture carbon fiber parts using **resin transfer molding** process.
- Use **Ansys and HyperWorks Computational Fluid Dynamics** simulation to research, design, test and predict aerodynamic performance of the rear wing.

Projects

Storify 2022

- A dense storage system **Fusion 360** CAD model for compact warehouse storage in downtown Toronto, a safe multi level sorting system built to be semi-autonomous and work with e-commerce **React** app with **Stripe** payment and **Commerce.js** for efficient warehouse storage with cache customer cart, shipping services, automated emails, mobile support and deployed with **Netlify**.

Stock Prediction Model 2021

- A machine learning model to predict stock price in the near future using historical data from Yahoo Finance. The Long Short-Term Memory model is trained from historical data of Apple stock price using Yahoo Finance **API**, **TensorFlow** and **Keras** , and predicts the closing price of the day.

Education

Candidate for Bachelor of Applied Science **University of Waterloo**
Major in Mechanical Engineering Sept 2021 – Present
90.27% Cumulative Average
Term Dean's Honours List