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YUZHE ZHOU

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Mechanical Engineering Professional

Mechanical Design & Thermal and Fluid Analysis ★ Laser-based Sensor Development ★ Programming ★ Projects

Highly competent, analytical and resourceful, *mechanical engineer* with noteworthy research and industrial & academic project experience in researching, designing, building and testing next generation, futuristic mechanical systems, with revolutionary features. **Poised to assume roles** in the area of ***mechanical design, analysis and validation***. *Skilled at* performing research in *combustion diagnostics, engine modeling and automotive science & technology.*

Education Qualifications

Purdue University, Msc Mechanical Engineering, West Lafayette, IN — Expected August 2018

The University of Edinburgh, BEng (Hons) Mechanical Engineering, Edinburgh, United Kingdom — June 2016

South China University of Technology, BEng Mechanical Engineering, Guangzhou, China — June 2016

Professional Work History

Cummins, Inc. , *Seymour, Indiana* — August 2017 – December 2017
Thermal and Fluid Science Engineer Co-op, Analysis Team, PSBU

- **Performed** 1D (***GT-Suite***) and 3D (***Ansys Fluent***) **CFD Analysis** for High-Horse Power Engine and components; **Provided** analysis support for current and new designs

Powertrain Team, *Edinburgh University Formula SAE, Edinburgh, United Kingdom* — October 2014 – May 2016

- **Demonstrated** team player skills and design performance driven and cost-effective sprocket-chain and rear wheel hubs
- **Considered** cost and weight, performance, assembly and manufacturing specifications for sprocket-chain and rear hubs;
- **Strategically improved** design work as an analyst in Powertrain Team (***Solid Edge***)

Research Experience

The Goldenstein Group, *Purdue University, Indiana* — August 2016 – present

- **Designed and Developed** single-ended, fiber-coupled, diode-laser sensors for characterizing combustion gases, which are compact and windowless, making measurements rapidly and non-intrusively
- **Calibrated** sensor and process experimental data using Scan-Wavelength-Modulation Spectroscopy fitting technique leveraging analytical and ***MATLAB*** skills

Laser Diagnostics and Optical Measurements — October 2014 – May 2016
Mentor – Dr. Brian Peterson, The University of Edinburgh, United Kingdom

- **Performed** data processing work in laser diagnostics and optical measurements in internal combustion engine
- **Evaluated and Calibrated** raw laser induced fluorescence images, and applied appropriate filters and reduce signal noises
- **Implemented** boundary tracking of LIF images with ***MATLAB***

Project Experience

Optimal Visualization of Scientific Data (Personal)

- Remained proficient with ***ParaView*** to visualize a mass of 3D flow data in parallel on the supercomputer, ARCHER at Edinburgh University; Conducted scientific calculation of the datasets with ***Python*** for data manipulation with improved render speedup

Airflow in the Hyperloop System

- Played an integral role in creating feasible design specifications and performing feasibility study of Hyperloop system; additionally, handled design work for air bearing suspension, CFD simulation in ***Solidworks***

Sustainable Design Project

- Pioneered the CAD design of a wind-powered heat pump for family use and manufactured the prototype of the system, ***Solid Edge***

SCARA Robot Simulation Platform

- Assisted in building a SCARA robot simulation platform; accountable for managing CAD work and undertook the transfer of the model into ***OpenGL***

EWB Challenge Design Project

- Pioneered the CAD design of a vertical goods transport system for mountain areas in Nepal, ***Solid Edge***

Technology Proficiency

Software and Programming Experience: AutoCAD, Solid Edge, Solidworks, GT-Suites, Ansys Fluent, MATLAB, Python, ParaView
Industrial Methodologies: Engineering Management, Supply Chain Management, Six Sigma