

HAOLIANG JIANG

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EDUCATION

Carnegie Mellon University

Master of Science in Mechanical Engineering

GPA: **3.96/4.0** | TOEFL: **106(S25)** | GRE: **326+3.5**

Pittsburgh, U.S.

Sept.2017-May.2019(expected)

Tongji University

Bachelor of Engineering in Vehicle Engineering

GPA:**91.76/100** | Major Rank:**3/67**

Shanghai, China

Sept.2014-July.2017

University of Illinois, Urbana Champaign

Exchange Program for Excellent Senior Undergraduates

Sponsored by China Scholarship Council

Urbana and Champaign, U.S.

Jan.-May 2017

RESEARCH INTERESTS

Machine Learning, Robotics Systems, Design

RESEARCH EXPERIENCE

Finite Element Analysis(FEA) Using a Deep Learning Algorithm

Jun.2018-Present

Graduate Research Project

Advisor: Prof. Kara | Visual Design and Engineering Lab | CMU

Responsibilities:

- Developed a conditional Generative Adversarial Network algorithm to predict high-resolution stress field for highly diverse geometries and conditions
- Developed an Autoencoder deep learning algorithm to analyze 2D stress fields of basic engineering structures

Data-driven Upsampling of Point Clouds

Mar.-July 2018

Graduate Research Project

Advisor: Prof. Kara | Visual Design and Engineering Lab | CMU

Responsibilities:

- Conducted single-category, multi-category and other experiments to evaluate the upsampling capability of a deep learning algorithm
- Came up with the idea of combination of critical points and uniform points to improve the upsampling capability of the algorithm
- Prepared and pre-processed the point clouds data for the entire work

Functionally-Based Design Through Data-Driven Shape Analysis

Sep.2017-Mar.2018

Graduate Research Project

Advisor: Prof. Kara | Visual Design and Engineering Lab | CMU

Responsibilities:

- Developed a program via OpenGL to visualize, select and delete meshes on 3D CAD models
- Implemented a revised genetic algorithm to research for functionally optimal representation of voxelized models
- Tapped into a deep learning generative model, genetic algorithm and simulators to develop a data-driven design support for 3D voxelized models

Research on Autoignition Characteristics of Jet Fuels, Biodiesels and PRFs

Jul.-Oct.2016

Visiting Undergraduate Research Intern

Advisor: Prof. Jyh-Yuan Chen | Combustion Modeling Lab | U.C.Berkeley

Responsibilities:

- Tapped into CHEMKIN packages to validate the simulation results of chemical mechanisms of biodiesels with the experimental data of ignition delay
- Computed and analyzed the numerical characteristics of biodiesels and reference fuels to see the connection between the characteristics of chemical ignition delay and cetane numbers or octane numbers under IQT or HCCI condition

Research on Combustion and Spray of Internal Combustion Engine

Oct.2015 – Jun.2016

Undergraduate Research Assistant

Advisor: Prof. Liguang Li | Lab for Combustion and Spray | Tongji University

Responsibilities:

- Machined parts and built the air intake and exhaust system and cooling water system to construct an engine bench
- Analyzed the influence of its control strategy of boundary conditions on the combustion, emission and fuel consumption of an internal combustion engine with EGR through engine bench test, ETAS and INCA
- Conducted the bench tests and drew fuel consumption contour maps to analyze the influence of sparks with pre-chambers on fuel consumption of a gasoline engine

PUBLICATIONS

- [1]Wentai Zhang, **Haoliang Jiang**, Zhangsihao Yang, Soji Yamakawa, Kenji Shimada and Levent Burak Kara, **"Data-driven Upsampling of Point Clouds"**, submitted to *Computer-Aided Design-Special Issues*, 2018.(**After Revision, Cited by 1**)
- [2]Zhenguo Nie, **Haoliang Jiang**, Levent Burak Kara, **"Deep Learning for Stress Field Prediction Using Convolutional Neural Networks"**, submitted to *Computer Methods in Applied Mechanics and Engineering*, 2018.(**Under Review**)

CONFERENCE

"Functionally-based Conceptual Design through Data-driven Shape Analysis", attended Poster Session of Machine Learning of Science and Engineering, 2018.

PROJECT EXPERIENCES

- Visual Relationship Detection** *Sep.2018-present*
 Course Project of Multi-model Machine Learning
- Utilized language priors, an appearance module and the structural ranking loss to improve a baseline model of visual relationship detection based on VRD dataset
- 3D Conceptual Design Using Deep Learning** *Mar.-May.2018*
 Course Project of Deep Learning
- Explored a learning algorithm to learn the combination of geometrical features from various objects
- Graphical and Interactive Software Package Development** *Nov.-Dec.2017*
 Course Project of Engineering Computation
- Developed an entertaining game program via OpenGL
- Resolver-to-digital interface IC** *Mar.-Jun.2017*
 Undergraduate Project
- Designed and completed a PCB of resolver-to-digital interface IC of PAG411-Q1 and MSP430 microcontroller to measure the revolving speed of a motor

TEACHING EXPERIENCE

- Teaching Assistant of Advanced Engineering Computation** *Jan.-May 2019(expected)*
Mechanical Engineering | Carnegie Mellon University
- Teaching Assistant of Linear Control System** *Aug.2018-Present*
Mechanical Engineering | Carnegie Mellon University

AWARDS & CERTIFICATES

- Best Student Poster at Mech.E. Graduate Research Symposium *2018*
 Outstanding Graduates of Shanghai *2017*
 The Harting Scholarship of Excellence (5%) *2016*
 National Scholarship (1%) *2015*

TECHNICAL SKILLS

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|------------------------------|---|
| Programming Languages | Python, Tensorflow, Pytorch, C++, MATLAB, LabVIEW |
| Software | L ^A T _E X, Altium Designer, Solidworks, CATIA, ANSA |
| Experimental | Engine bench test, Vehicle dynamics test |