Yao JIANG

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Education

2015-present **McGill University** **Montreal, Canada**
Ph.D. in Mechanical Engineering
Thesis: Goal-oriented grid adaptation for Large Eddy Simulation (3 publications)
- Numerical solving of partial differential equation and physical modeling of turbulence
- Large scale data management (up to 15M computational grid points and 400 CPU cores)
- Optimization of computational grids and parallel computing

2011-2014 **Institut Supérieur de l'Aéronautique et de l'Espace (ISAE)** **Toulouse, France**
SUPAERO graduate program/*Master of Science*, Major in Numerical Simulation

2010-2011 **Beihang University (Beijing University of Aeronautics&Astronautics)** **Beijing, China**
Master of Science, Majored in Power Engineering and Engineering Thermophysics

2007-2011 **Université Libre de Bruxelles (ULB), College of Applied Science** **Brussels, Belgium**
Bachelor of Science courses during two semesters through the Erasmus Mundus Program
Beihang University **Beijing, China**
Bachelor of Engineering, Majored in Engineering Mechanics, Ecole Centrale de Pékin

Research Experience and Projects

2019.09-2019.11 **Research assistant in Natural Language Processing**
- Data scraping and cleaning from restaurant review websites.
- Translation of 33000 online customer reviews from Thai to English using *Google Translation API*.
- Sentiment and readability analysis of restaurant reviews using *Python*

2019.07-2019.12 **Research project in Natural Language Processing**
Research project: achieve a competitive language model by applying transfer learning on two challenging datasets (NewsQA and CoQA)
- Fine-tune BERT model using *huggingface* and implement a two-stage transfer learning pipeline, achieving the state-of-the-art performance in question-answering.
- Recover the favorable properties of both dataset such as paraphrasing, co-reference resolution, etc.
- Deploy the model on a web-server to validate the linguistic and conversational properties through empirical experiments.

2019.02-2019.03 **Kaggle competition on Machine Learning (in class)**
Each modified MNIST image contains more than one MNIST digits with random transformations and noise. The goal is to recognize the digit which occupies the most space.
- Analyze and implement various pre-processing techniques (such as normalization, noise reducing, bounding box, resizing, image augmentation, etc) and optimizers (Adam, SGD, and RMSprop).
- Construct convolutional neural network (CNN) using *Tensorflow* and *Keras* and fine-tune several model architectures (DenseNet, Xception, etc), achieving an accuracy of 97.03% on Kaggle.

2015.09-2017.09 **Research project in numerical simulation and scientific computing** (4 publications)
Flow simulation using low-dissipative scheme and hybrid LES-RANS turbulence model
- Scale-Adaptive Simulation of turbulent flow in hydraulic draft tube which precisely capture the swirling structure the flow field.
- Large scale data processing (13M grid points), acceleration of computing by parallelization.

Employment

2016.09–2020.05 **McGill University** **Montreal, Canada**

Teaching assistant:

Mechanics **(**MECH220, Fall 2016)

Computational Aerodynamics (MECH539, Winter 2020)

2016.04-2016.06 **Institut de recherche d'Hydro-Québec (IREQ)** **Varennes, Canada**

Research engineer internship:

Geometry definition and grid meshing using ICEM and Tecplot

2014.04-2014.09 **Electricité de France R&D Center** **Chatou, France**

Research engineer:

- 3D modeling of the radiation fog during ParisFog project using *Code_Saturne*
- Contribution to the atmospheric library of the open source CFD solver *Code_Saturne* by modeling of physics of radiation fog.
- Detailed 3D transient numerical simulation of formation and dissipation of radiation fog.

Scholarships

2015–2018 McGill *Engineering Doctoral Award* (36 months)

2016–2018 *J.W. McConnell Memorial Fellowship* (24 months)

2015–2016 *Louis C. Ho Fellowships* in Engineering (12 months)

2012–2014 French government scholarship *France Excellence* (24 months)

2010–2011 European government scholarship *Erasmus Mundus Tandem* (10 months)

Computer Skills

Sofeware: ICEM, Tecplot, Tableau

Programming: Python, C, Java, Shell, Fortran, Matlab

Database: MySQL

Languages

Mandarin: Mother tongue

French: Full Professional Proficiency

English: Full Professional Proficiency

Interests and Activities

Associative work

2013 Secretary and one of the founders of Sino-French Aeronautics Association (AASFC)