Machine Learning Engineer

**Postdoc Fellow - Applied mathematics for scientific computing, Lawrence Berkeley National Lab**

**Berkeley, CA, CA**

• Working experience in developing machine learning algorithm for autonomous dirving company

• 6 years software development experience using C++ and Python: developed a mathematical and multi-physics fuel cell modeling toolbox, check it out at https://github.com/jeremyjiezhou/OpenFCST-PhD-project.

• 3 first author peer review publications and 1 book chapter (Springer) in mathematical and statistical modeling.

• Machine learning experience: Coursera machine learning and deep learning certificates, Kaggle competition, and courses at UC Berkeley, introduction to machine learning and AI for systems and systems for AI.

• Ranked 6th and 8th in ACM regional contest

Work Experience

**Machine Learning Engineer**

Wavelength Global - Berkeley, CA

July 2018 to Present

1. Work on building autonomous driving systems to develop high-performance real-time system architecture by implementing ConvNet machine learning algorithms.

2. Develop and prototype new machine learning techniques using deep learning computing frameworks, data modeling and other relevant software tools.

**Postdoc Fellow**

Applied mathematics for scientific computing, Lawrence Berkeley National Lab

June 2018 to Present

Applied advanced numerical method, adaptive mesh refinement and high speed parallel computing for solving complex multi-physics energy conversion system, electrolyzer and compressor in Python on clusters.

- Applied a data-driven model (ConvNet in Python) for fast computational fluid dynamic simulations, saved computational time by 80%, the ConvNet model is used by a start-up company for system design.

**Software Developer**

OpenFCST - Edmonton, AB

January 2013 to January 2018

A Computational Multiphysics Modeling Toolbox (C++ and Python).

- Modeled 3D, non-isothermal and multi-phase transport in fuel cell using C++. Implemented multivariate Newton-Raphson algorithm, parallel conjugate gradient method (MPI), and adaptive multivariance scaling.

- Lead programmer (from 2016): code review, version control, and software testing (unit and regression).

- Proposed and implemented a statistical micro-structure model to fit discrete experimental data using multi- variate Gaussian distributions.

- Contributed to PyFCST project, a 3D image reconstruction and visualization tool. Applied adaptive histogram equalization to improve image contrast and random walk algorithm for water distribution in 3D structure.

- GUI design and development using C++ Qt4, reduced the software learning curve and gained 200% more users.

- Website maintenance and development using PHP, JavaScript and MySQL, added an online simulator to the website which allows performing simulation and plotting data online.

Selected Computer Science Projects

• Kaggle competitions (Python), Quora question pairs (classification) and House price prediction

(regression).
- Feature engineering: visualize and analyze data, e.g., applied bag-of-word model, Word2vec for word embedding.
- Applied SVM, CNN, RNN, LSTM and gradient boosting (XGBoost) models.
• Implemented preconditioned Conjugate Gradient Method using MPI in C++ vs. Stochastic Gradient Descent
Method using Spark in Python for computational speed comparison by solving linear equations.

Education
Ph.D. in Computational Fluid Dynamics and Mathematical and Statistical Sciences
University of Alberta Edmonton, AB
September 2013 to June 2018
BEng in Electrical And Computer Engineering
Dalian University of Technology
September 2008 to June 2012
Skills
Machine Learning (Less than 1 year), Python (Less than 1 year), Algorithm (Less than 1 year), C (Less than 1 year), C++ (Less than 1 year)