

Jeremy Liu

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OBJECTIVE: Develop research skills and contribute knowledge to Computer Science

SUMMARY:

- PhD student in Computer Science at the University of Southern California
- B.S. in Computer Science from the University of Pennsylvania
- Recent focus on quantum computing, deep learning, machine learning
- Previously an associate at Citigroup – Global Equities Technology

EDUCATION: **Three years into Computer Science PhD program as of January 2016**
University of Southern California, Los Angeles, California

Bachelor of Science in Computer and Information Science, May 2011
University of Pennsylvania, Philadelphia, Pennsylvania

PROJECTS: **Quantum Deep Learning**
Application of quantum devices towards improving deep learning results
Previously intractable problems approached using D-Wave machine
Approximation of problem descriptions to fit device architecture physical limits

Rare Event Detection for Quantum Molecular Dynamics (QMD) Simulations
Environment: large scale parallel instances of QMD simulations
Use of machine learning techniques to identify rare/interesting events
Event detection to be done in-situ, in real time

Smart Oilfield Safety Net
Develop software to predict corrosion events in oil platforms before actual onset
Use of factors graphs to model climate variables and equipment information
Noisy and sparse data

EXPERIENCE: **Research Assistant, USC, 2013 – Present**
Application of quantum computing to classically intractable learning problems
Ongoing development of in-situ rare event detection for large parallel simulations
Ongoing development of predictive analytics software for corrosion detection
Autoencoder techniques for feature extraction in dynamometer card data
Compared SVM performances of hand-selected vs. autoencoder-derived features
Assisted in development of rod-pump failure prediction model

Summer Intern, Chevron, 2014 Summer

Reviewed literature of feature extraction

Proposed use of neural networks to reduce data dimensionality

Built and compared predictive models for fracturing data using neural networks

Graduate Associate, Citigroup, 2010 – 2013

Utilized q/kdb to provide real-time market data and analytics to traders and quants

Enhanced DNA (Data and Analytics) framework to add functionality

Improved efficiency of dependent data loading processes

Provided simplified business logic through CAT (Citi Analytics Template)

Maintained Trade Processing System (TPS)

PAPERS:

Autoencoder-derived Features as Inputs to Classification Algorithms for Predicting Well Failures

Society of Petroleum Engineers, Western Regional Meeting 2015