

## Xuan Li

<https://milanlx.github.io/>

CONTACT INFORMATION	5 Bayard Road Pittsburgh, PA, 15213	work: (412) 951-9187 xuanli1@andrew.cmu.edu
SKILLS	<b>Programming:</b> Python, Java, C/C++, R, MATLAB, JavaScript, SQL <b>Machine Learning:</b> Deep Learning, NLP, computer vision <b>Data Modelling:</b> stochastic control and optimization, multimodal analysis	
EDUCATION	<b>Carnegie Mellon University</b> , Pittsburgh, PA M.S., <i>Machine Learning</i> GPA: 3.9 2019.05 - 2020.5 ( <i>expected</i> ) Ph.D., <i>Civil Engineering</i> GPA: 3.9 2016.09 - 2020.12 ( <i>expected</i> ) <ul style="list-style-type: none"><li>interpretable predictive control on building HVAC systems</li></ul> M.S., <i>Advanced Infrastructure System</i> GPA: 3.9 (major), 3.5 (overall) 2014.09 - 2015.12 <ul style="list-style-type: none"><li>Assistantships &amp; Summer Research Internship</li></ul> <b>Dalian University of Technology</b> , Dalian, China M.S., <i>Structural Engineering</i> 2011.09 - 2014.06 <ul style="list-style-type: none"><li>Thesis: State Estimation and optimal sensor placement of deepwater Riser</li><li>Best Dissertation Award: <b>top 5/57</b></li></ul> B.S., <i>Civil Engineering</i> , <i>minor in Economics</i> 2007.09 - 2011.06	
EXPERIENCE	<i>Data Scientist</i> @ LeanFM Technologies 2016.03 - 2016.09 NLP Development and Data Analytics <ul style="list-style-type: none"><li>Designed raw text processing framework, implemented <b>Named Entity Recognition</b> algorithm on 100M+ work order dataset to support facility management.</li><li>Designed interactive interface (R Shiny) for data visualization and business analysis</li></ul>	
RESEARCH PROJECTS	Building Energy Prediction using Fine-grained Spatial-temporal Transportation Features <ul style="list-style-type: none"><li>Implemented real-time data processing &amp; feature selection pipeline on 10G+ transportation dataset from 3 sources</li><li>conducted detailed correlation analysis, tested on various spatial-temporal regression model, and achieved R2 at 0.96.</li></ul>	
COURSE PROJECTS	(1) Object Counting by Leveraging CNN and LSTM with Multi-Source of Input <ul style="list-style-type: none"><li>Implemented spatial-temporal neural network architecture to obtain 2D density map as well as vehicle counts, given inputs of low resolution and high occlusion sequential image (spatial, CNN), and real-time bus localization features (temporal, LSTM)</li><li>achieved state-of-the-art MAE (3.5) performance on TRANCOS, and 0.27 (improved from 0.73) on calibrated dataset collected around campus.</li></ul> (2) Optimization Setting of Residual Neural Network <ul style="list-style-type: none"><li>Apply reinforcement learning to construct agent that explores the optimal attention mapping (maxout, identity, etc) options for Resnet architecture; trained with REINFORCE Algorithm on ImageNet and verified that the identity connection is optimal.</li></ul> (3) Solving High-Dimensional Semilinear PDEs Using DNN <ul style="list-style-type: none"><li>reformulated the time discrete stochastic control problem (HJB equation) using RNN to approximate the gradient of value function at each time stamp.</li><li>explored different network configuration and achieved relative error of 0.2% compared to analytical solution.</li></ul>	
RELATED COURSES	<b>Programming:</b> Introduction to Computer Systems, Algorithms and Advanced Data Structures, Data Structure for Application Programmers, Java and J2EE Programming <b>Machine Learning &amp; Modelling:</b> Introduction to Machine Learning, Machine Learning with Large Datasets, Machine Learning for Text Mining, Reinforcement Learning, Deep Learning, Convex Optimization, Dynamic Programming, Stochastic Control and Application in Finance	