

HEXING REN

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OBJECTIVE

Data Scientist/AI Engineer, focusing on unstructured data modeling, time series forecasting, and information retrieval; developing scalable AI/ML solutions for problems in automotive, finance, healthcare, and logistics

EDUCATION

Carnegie Mellon University – *Pittsburgh, PA* 09/2015—05/2017

- M.S. in Multimedia Data Science, School of Computer Science
- *Courses:* Machine Learning, Applied Machine Learning (TA 2016 & 2017), Practical Data Science, Modern Regression, Interactive Data Science, Advanced Methods for Data Analysis, Topics in Statistics: Data Mining, Statistical and Machine Learning Methods for Financial Data, Financial Time Series Analysis, Database Applications, Web Application Development, Designing Human Centered Software

Huazhong University of Science and Technology – *Wuhan, China* 09/2011—05/2015

- B.E. in Electronics and Information Engineering, School of Electronic Information and Communications
- *Courses:* Artificial Intelligence and Pattern Recognition, Data Mining, Database Systems, Data Structure

CERTIFICATES

Udacity: Deep Learning, Deep Reinforcement Learning

Coursera: Self-Driving Cars*

SKILLS

Programming Languages: Python; Scala; R; SQL; C/C++; HTML; CSS; JavaScript

Models: Statistical Models; Conventional Machine Learning; CNN; RNN; GANs; Reinforcement Learning

Tools: Anaconda (pandas, NumPy, SciPy, scikit-learn, NLTK, matplotlib, etc.); Spark; Keras; TensorFlow; NeuPy; CNTK; Caffe(2); PyTorch; MXNet; OpenCV; Django; PostgreSQL; AWS; Hadoop; Hive; Azure

EXPERIENCE

Data Scientist, *ServiceLink, Fidelity National Financial* – *Pittsburgh, PA* 07/2017—Present

- Lead ground-up research, design, development, and evaluation of scalable Artificial Intelligence / Machine Learning solutions to automate mortgage business processes, such as valuation, title, and closing

Data Analyst Intern, *AXA* – *Hong Kong, China* 06/2014—08/2014

- Collected, cleaned, and evaluated more than 60 million entries for 2,000+ companies using Python
- Led a group of 7 interns to predict the return of a stock given its recent history using R

Marketing Analyst Intern, *E Fund* – *Wuhan, China* 12/2013—05/2014

- Conducted marketing analysis on E-wallet, a money market fund starting in early 2014 which helped 600,000 users gain \$109.7 million through the year
- Analyzed sales data to understand potential customers and to optimize resource utilization leading to ~21% increase in profit

Data Engineer Intern, *China Mobile* – *Zhuhai, China* 07/2013—10/2013

- Built scoring models to quantify 15 key indicators of mobile network quality selected by PCA
- Developed modules on an evaluation platform to query and analyze regional mobile network quality serving ~2 million users in Zhuhai City

ACADEMIC PROJECTS

Teach a Quadcopter How to Fly 11/2018—12/2018

- Designed 3 reward functions for takeoff, hover, and landing tasks
 - Built an agent using DDPG algorithms with a replay memory and Ornstein-Uhlenbeck noise
 - Trained and evaluated the quadcopter flying agent using reinforcement learning
- Image Generator & Classifier** 09/2018—10/2018
- Implemented and evaluated Deep Convolutional GANs trained on color pictures of real house numbers collected from Google Street View to generate new images
 - Built and trained a semi-supervised GAN model in TensorFlow with only 1,000 labeled images of house numbers achieving ~94% accuracy
- Sentiment Classification in Movie Reviews** 07/2018—09/2018
- Built and trained a neural network from scratch using count-based heuristics to classify the sentiment of reviews achieving ~86% accuracy
 - Improved the accuracy (+43%) and speed (+7,000%) by neural noise reduction and network optimization
 - Created a word embedding from Wikipedia articles using the continuous skip-gram architectures
 - Built and trained an LSTM with Word2vec using TensorFlow to improve the accuracy to ~93%
- Dog Breed Classifier** 08/2018—09/2018
- Developed and assessed a human face detector using Haar feature-based cascade classifiers in OpenCV
 - Built and trained CNNs to classify dog breeds based on VGG-16, VGG-19, ResNet-50, Inception, and Xception using transfer learning achieving ~92% accuracy
 - Boosted the performance of CNNs by data augmentation and regularization
 - Developed a web app using Django with features including mixed-breed dog prediction, resembling dog breed recommendation for human faces, and dog ears/nose overlay on detected human heads
- Text Generators** 09/2018
- Built and trained a character-wise RNN to generate new text, based on Anna Karenina using TensorFlow
 - Built and trained an LSTM with word embedding to generate a new TV script from Simpsons TV scripts
- Exploring Demographic, Crime, and Housing Data in Chicago** 02/2017—05/2017
- Conducted spatial and temporal analysis of crimes based on ~3 million records between 2012 and 2016
 - Built and evaluated multiple classifiers, i.e., Naïve Bayes, SVM (with RBF features), decision tree, random forest, and XGBoost, to predict a person's gender based on demographic and housing data
 - Built and evaluated multiple regressors, i.e., linear/ridge/lasso regression, SVR, random forest, XGBoost, and KNN, to predict property prices based on real estate data
- CMUPaper Filing System** 10/2016—11/2016
- Designed and implemented a filing system application from scratch using PostgreSQL allowing users to upload, search, and vote for papers, as well as showing relevant statistics
- Hitchhiker & SocialQueen** 02/2016—05/2016
- Developed a ride matching system using Django that helps commuters to find a match based on proximity, destination and travel route, as well as schedules and preferences
 - Developed an interactive microblogging site with features including user registration and authentication, email integration for user verification, photo upload, and quasi-real-time updates

AWARDS

School of Computer Science Fellowship , <i>Carnegie Mellon University</i>	2016, 2017
Honor Graduate , <i>Huazhong University of Science and Technology</i>	2015
Distinguished Undergraduate (1%) , <i>Huazhong University of Science and Technology</i>	2013
National Scholarship , <i>Ministry of Education of China</i>	2012