Xin Li | Curriculum Vitae

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Research Experiences

Department of Biomedical Engineering, Boston University
Research Assistant in Nia Laboratory *Feb., 2019 – May, 2019*

Principal Investigator: Professor Hadi T. Nia
Designed and conducted Predicative Analysis using 3D Convolutional Neural Network for Lung Cancer:

- Helped configured the Linux environment for the Lab Computer for Biomedical Software Development (Ubuntu with NVIDIA CUDA Support).
- Designed and implemented a data preprocessing routine to efficiently perform operations including segmentation and data masking for the CT Scan DICOM data.
- Designed and implemented a 3D Convolutional Neural Network Architecture for 3D image visual recognition to classify patients' CT Scan data.
- Resolved the data imbalance problems by introducing regularization techniques including batch normalizations, introducing dropout layers, and regularizing loss function.

Education

Academic Qualifications

Boston University **Boston, MA**
Master of Science, Electrical and Computer Engineering *2017 – 2019*

North China Electric Power University **Beijing, China**
Bachelor of Engineering, Communication Engineering *2013 – 2017*

Coursework

Boston University
Graduate Level Courses Taken *2017-2019*

EC601-Product Design for ECE Students, EC602-Design by Software, EC503-Introduction to Learning From Data, EC724-Advanced Optimization Theory and Methods, EC710-Dynamic Programming and Stochastic Control, MA585-Time Series Analysis, BE562-Computational Biology, EC732-Combinatorial Optimization and Graph Algorithms, EC504-Advanced Data Structures and Algorithms

EC504 Advanced Data Structures
MoleculeDB, A Database Attuned to Molecule Data *Feb. – May, 2019*

Designed and implemented a Spring-Based RESTful Web Server for user access to the Database that supports CRUD operations via both server side and the client side (using WebSocket and STOMP messaging technologies). Modified the Web Server front end for better user experiences. Modified the Command-Line User Interface to support detailed display of the molecule data stored in the database.

BE562 Computational Biology
Team Leader, Combinatorial Phylogenetic Analysis for Tumor Progression *Oct. – Dec., 2018*

Designed and implemented various exact and approximate graph search algorithms (Min-Cost Rectilinear Arborescence) based on tumor gene copy numbers to reach an efficient polynomial-time approximated solution to the tumor phylogenetic tree reconstruction problem (NP-Hard).

EC732 Combinatorial Optimization and Graph Algorithms
Neural Combinatorial Optimization With Reinforcement Learning, Term Project *Dec, 2018*

Researched into an interesting Combinatorial Optimization framework which incorporates the feedback functionality of reinforment learning to achieve successive update to approach the optimal solution for various combinatorial optimization problem instances.

EC724 Advanced Optimization Theory and Methods

Dynamic Vehicle Routing And Traffic Predictions *Feb. – May, 2018*

Implemented Vehicle Routing and Traffic Predictions using various time series analysis techniques (ARMA, ARIMA, etc.) and Recurrent Neural Network (RNN) with Long Short Term Memory (LSTM) units, along with metaheuristic graphical search algorithms such as Guided Local Search to reach a closer approximated optimal solution (compared to the traditional local search algorithms) for the vehicle routing problem (NP-Hard).

EC710 Dynamic Programming and Optimal Control

Portfolio Management Using Deep Reinforcement Learning, Term Project *May, 2018*

Implemented a multi-stage portfolio optimization algorithm using dynamic programming techniques, including Deep Q-Learning (DQN) and Double DQN.

EC503 Introduction to Learning from Data

Classifying Video Objects Using Multi-Class SVM and CNN, Term Project *Oct. – Dec., 2017*

Implemented a video object classification algorithm using Convolutional Neural Networks (CNN) with YOLO v2 algorithm, with achieves real-time video object identification (including object localization, object detection, bounding box prediction, etc.) with satisfying performance based on our limited computer hardware.

EC601 Product Design for ECE Students Final Project

Medusa.Pys: A Distributed Computing Platform *December, 2017*

Designed and implemented a web server for the distributive system that supports a file transport protocol using socket programming in Python Flask Framework, modified the Web UI for the distributed system server for better user experience, applied integrated file and package management using Docker technologies, and designed a logo for the project.

MA585 Time Series Analysis

Predicting Stock Prices Using Time Series Analysis Tools, Term Project *May, 2018*

Implemented various time series analysis techniques for stock price forecasting, including basic exponential model forecasting techniques such as Yule-Walker Forecasting, ARIMA forecasting, and Long Short Term Memory (LSTM) forecasting.

Awards

- NCEPU Excellent Student Leader (2014 - 2015).
- MCM/ICM Honorable Mentioned (January, 2016).

Working Experiences

Hilti (Shanghai) Co. Ltd. **Shanghai, China**

Management Associate – Industrial IT Engineer *Nov. 2019 – Present*

System Design and Software Development for the Implementation of Industry 4.0 in the Hilti (Shanghai) Manufacture Plant P88 including:

- Manufacturing Execution System (MES) and Assembly Line Management System development using Single-Page Application (SPA) Architecture and Spring Framework
- Data acquisition and transfer from assembly and PLCs using OPC-UA protocol
- Configuration and testing of assembly smart camera recognition system
- Configuration and deployment support plant's current NFC Packaging System, MES System, etc.
- SQL Server maintenance and management
- Communicate with suppliers to support plant's production and customized configurations of manufacturing tools.