Junchi Bin

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EDUCATION

University of British Columbia (Okanagan), Kelowna, BC
M.A.Sc, Electrical Engineering, Sept. 2016 - Exepected Sept. 2018 GPA: 88.9%

Northern Arizona University, Flagstaff, AZ, USA
B.Sc., Electrical Engineering, Aug. 2013 - Aug. 2016 GPA: 3.37

Chang'an University, Xi'An, China
B.Eng., Automation, Aug. 2012 - Jun. 2013 GPA: 3.07

PROJECTS

Mitacs: Machine Learning for Improved Automated Valuation Model:
Peer-dependence is an important criterion to estimate house prices. There is not any contemporary system to consider such impact in the field of real estate appraisal. I have developed a valuation system to convert the measurement of peer-dependence into sequential learning. Using long short-term memory (LSTM), the method outperforms than contemporary appraisal models. *Application Ref. : IT08399.*

Mitacs: Machine Learning for Improved Automated Valuation Model (II):
The house price not only depends on quantitative attributes but also topography, the beauty of a house, demographic, safety, etc.. Using the neural network (multi-modal CNN) to fuse multi-source data for property assessment. *Application Ref. : IT10011.*

Spatio-temporal Forecasting for Real Estate Appraisal:
I used tensor decomposition to manipulate the sparsity of sparse spatial-temporal data, and forecast the average market values of properties for next year based on forecasting models such as Holt-Winter, ARIMA, AR, etc..

Cloud Enabled Mobile Sensing Agent for Smart Agriculture:
The device is designated for sensing environmental data, detect and forecast potential insects' disaster using acoustic recognition. The project won **the Second Position Award** in the IEEE "Sensor and Measurement" Student Contest (IEEE IS&M-SC) for live demonstration session at IEEE International Instrumentation and Measurement Technology Conference (I2MTC).

SKILLS

Programming: R, Python, Matlab, C, C#, SQL, Assembly.
Machine Learning: Xgboost, Keras, Tensorflow, Scikit-learn, Tensor Toolbox.
Electrical Engineering: Simulink, VHDL, Signal Processing, Raspberry Pi, Arduino.
Visualization: ggplot, PowerBI, Bokeh, Leaflet, ShinyR.

EXPERIENCE

Research Assistant University of British Columbia
Sept. 2016 - Present Kelowna, BC
I mainly conducted research on urban computing and machine learning supervised by Dr. Zheng Liu and Dr. Eric Li. And I also supervised colleagues' projects such as anomaly detection for wind turbine, ocean transportation analysis and non-destructive testing.

Data Scientist Data Nerds
Dec. 2016 - Jul. 2018 Kelowna, BC
I was obligated to investigate machine learning algorithms for real estate appraisal, and conduct research on tensor decomposition for sparse spatial-temporal data. The first period (Dec. 2016 - Jan. 2018) is an industrially defined research projects funded by Mitacs Accelerate. After expiration of funding, I worked as contracted data scientist for Data Nerds (Mar. 2018 - Jul. 2018).

Teaching Assistant University of British Columbia
Sept. 2017 - Dec. 2017 Kelowna, BC
Course: APSC254 - Instrumentation and Data Analysis. I have hosted tutorial session to help students with their assignments, experiments and examination.

Teaching Assistant Northern Arizona University
Sept.2015 - May 2016 Flagstaff, AZ, USA
Courses: EE348 - Signal Processing and EE188 - Introduction to Electrical Engineering. I mainly helped professor grade assignment, lab reports, and exams. Moreover, made answers for each assignment and exams.

Presentation

The 45th Annual Meeting of the Statistical Society of Canada, Poster Jun. 2017
Child Protection Hackathon 2017 in Vancouver hosted by Two Hat Security Jul. 2017

Awards

IEEE IS&M-SC - Second Position May 2018
Student Travel Award from Statistical Society of Canada Mar. 2017

Publication

Junchi Bin et al. "Regression Model for Appraisal of Real Estate using Recurrent Neural Network and Boosting Tree". *IEEE 2017 International Conference on Computational Intelligence and Applications (ICCIA).*

H. Liu, Z. Liu, S. Liu, Y. Liu, **J. Bin**, F. Shi, H. Dong. "A Nonlinear Regression Application Via Machine Learning Techniques for Geomagnetic Data Reconstruction Processing". *IEEE Transactions on Geoscience and Remote Sensing (IF: 4.94).* ***In Press.***

C. Zhang, **J. Bin** and Z. Liu. "Wind Turbine Assessment through Inductive Transfer Learning". *IEEE 2018 International Instrumentation and Measurement Technology Conference (I2MTC).* ***In Press.***

Q. Jin, **J. Bin**, W. Ren and Z. Liu. "Structural Performance Analysis and Prediction for In-service Bridge with SHM Data Mining". *Canadian Society of Civil Engineering (CSCE) 2018 Annual Conference.* ***In Press.***

Work in Progress*

J. Bin, B. Gardiner, E. Li and Z. Liu. "Peer-dependence Valuation Model for Real Estate Appraisal". *Neural Processing Letters (IF:1.62).* ***Under Review.***

J. Bin, B. Gardiner, Z. Liu and E. Li. "Simple Attention-based Multi-modal Fusion for Real Estate Appraisal". *Neural Computing & Applications (IF:2.50).* ***Under Review.***

J. Bin, B. Gardiner, Z. Liu and E. Li. "Multi-view Data Fusion for Property Assessment". *Information Fusion (IF:5.66).* ***Submitted***

J. Bin, B. Gardiner, Z. Liu and E. Li. "Spatio-temporal Forecasting for Real Estate Appraisal based on Tensor Decomposition". ***Preparation.***

Note*: Bryan Gardiner is my colleague in Data Nerds, and my projects were under the collaboration with him. Here, I show my highest appreciation to him.