

JUNCHI BIN

1325 Aldon Road, Kelowna, BC, Canada, V1X 5A1

+1 778-215-0328 ◊ junchibin@outlook.com

SKILLS

| | |
|--------------------------|--|
| Research Interest | Urban Computing, Data Fusion and Machine Learning |
| R | Caret, Xgboost, ggplot, Leaflet, ggmap, ShinyR (Web application) |
| Deep Learning | Keras, Tensorflow |
| Python | NumPy, Scikit-learn, Pandas, OpenCV, Bokeh |
| C#/C | Windows Presentation Foundation (WPF) |
| Matlab | Simulink, Tensor Toolbox (Tensor Decomposition), Signal processing |
| Other skills | Github, SQL, Azure (IoT Hub, SQL Database, Virtual Machine) |
| Language | Native speaker in Chinese and fluent in English |

EDUCATION

| | |
|--|----------------------------------|
| University of British Columbia , Kelowna, Canada M.A.Sc in Electrical Engineering (Thesis-Based Program) Supervisors: Dr. Zheng Liu and Dr. Eric Li | Sept. 2016 - Expected Sept. 2018 |
| Northern Arizona University , Flagstaff, United States B.S. in Electrical Engineering Dual-degree with Chang'an University | Aug. 2013 - May 2016 |
| Chang'an University , Xi'An, China B.Eng. in Automation | Aug. 2012 - Jun. 2013 |

TECHNICAL EXPERIENCE

| | |
|--|-----------------------|
| Data Nerds, Canada , Data Scientist | Dec. 2016 - Jul. 2018 |
| <ul style="list-style-type: none">· Data Nerds is the real-estate-oriented data company, which is one of the members of Forbes Real Estate Council. Currently, the company has accomplished series-A financing.· Investigated machine learning algorithms for real estate appraisal.· Developed algorithms of data fusion for improved appraisal performance based on multi-source data (geography, images and social information)· Conducted research on tensor decomposition for sparse spatial-temporal data.· The first period (Dec. 2016 - Jan. 2018) is an industrially defined research project funded by Mitacs Accelerate. After expiration of funding, I am working as contracted data scientist for Data Nerds (Mar. 2018 - Jul. 2018). | |
| University of British Columbia, Canada , Graduate Research Assistant | Sept. 2016 - Present |
| <ul style="list-style-type: none">· Conducted research on data analysis, machine learning.· Identified and characterized different sources of urban data including satellite images, street view images, crimes, and so on.· Supervised colleagues' projects such as anomaly detection for wind turbine, ocean transportation analysis and non-destructive testing. | |

RESEARCH PROJECTS

| | |
|--|------------------------|
| Machine Learning for Improved Automated Valuation Model (Mitacs code: IT08399) | Dec. 2016 - May 2017 |
| <ul style="list-style-type: none">· Theme: peer-dependence valuation model for real estate appraisal.· Peer-dependence is an important criteria 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 system outperforms than contemporary appraisal models. | |
| Machine Learning for Improved Automated Valuation Model II (Mitacs code: IT10011) | Sept. 2017 - Jan. 2018 |
| <ul style="list-style-type: none">· Theme: Exploring multi-source data fusion in real estate appraisal.· The house price not only depends on quantitative attributes, but also topography, beauty of house, demographic, safety, etc..· Using neural network to fuse multi-source data for property assessment.· Besides neural-network based fusion, I have explored other fusion methods such as NMF, PCA, Coupled Matrix Factorization, PLSA, LDA, etc.. | |
| Spatial-temporal Sparse Data Based Real Estate Appraisal | Mar. 2018 - Jul. 2018 |

- Using tensor decomposition to manipulate the sparsity of sparse spatial-temporal data, and predict the house price.

Cloud Enable Mobile Sensing Agent for Smart Agriculture (IEEE IS&M-SC 2nd Position) Sept. 2017 - May 2018

- IEEE International Sensor and Measurement Student Contest is a contest which only allowed graduate students to participate.
- The device is designated for sensing environmental data, detect and forecast potential insects' disaster.
- The whole system can be divided into two major parts. One is sensor fusion which is designed by my teammate. The other part is pests' acoustic signal recognition and development of web application which is assigned to me.

TEACHING EXPERIENCE

University of British Columbia, Teaching Assistant Sept. 2017 - Dec. 2017

- Course: APSC254 - Instrumentation and Data Analysis.
- Hosted tutorial session to help students with their homeworks, experiments and examination.

Northern Arizona University, Teaching Assistant Sept. 2015 - May 2016

- Courses: EE348 - Signal Processing and EE188 - Introduction to Electrical Engineering.
- Helped professor grade assignment, lab reports, and exams. Moreover, make answers for each assignment and exams.

AWARDS & AFFILIATIONS

IEEE Sensor and Measurement Student Contest (IEEE IS&M-SC) - Second Position May 2018

Student Travel Award from Statistical Society of Canada Mar. 2017

PRESENTATION

The 45th Annual Meeting of the Statistical Society of Canada, Poster Jun. 2017

Child Protection Hackathon 2017, Hosted by Two Hat Security and Microsoft Vancouver Jul. 2017

PUBLICATIONS

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 (ICCI)*.

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*. **Accepted**.

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

Q. Jin, **J. Bin**, W. Ren and Z. Liu. Structural Performance Analysis and Prediction for In-service Bridge with SHM Data Mining. *CSCE 2018 Annual Conference*. **Accepted**.

WORK IN PROGRESS

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

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

J. Bin, B. Gardiner, E. Li and Z. Liu. Deep Fusion-based Real Estate Appraisal. *Information Fusion*. **Submitted**

C. Zhang, **J. Bin**, X. Peng and Z. Liu. AIS Data-based Destination Prediction System for on-the-way Vessels. **Preparation**

J.X. Liew, **J. Bin** and Z. Liu. Software as a Service: the Future of NDT Data Analysis in the Cloud. **Preparation**

Q. Jin, **J. Bin**, Z. Liu and W. Ren. In-service Structural Performance Analysis and Prediction with SHM and Data Mining: Two Case Studies in Bridge Engineering. **Preparation**