Bing Zha

CONTACT

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RESEARCH

The goal of my research is to develop deep learning methods that is able to learn from existing map and localize the agent using motion trajectory, and demonstrate the potential applications this will enable.

EDUCATION

The Ohio State University   **2017 - Now**
Ph.D. in Geoinformation and Geodetic Engineering
Graduate Minor in **Computer Science (AI Track)**

Chinese Academy of Surveying and Mapping   **2015 - 2017**
M.S. in Photogrammetry and Remote Sensing

University of Chinese Academy of Sciences   **2014 - 2015**
First-year Master in Photogrammetry and Remote Sensing

Beijing University of Civil Engineering and Architecture   **2010 - 2014**
B.S. in Geographic Information System (GIS)

RESEARCH
PROJECTS

Map Learning for Localization using Deep Learning Methods
- Globally topological localization and map matching using OpenStreetMap(OSM) through deep learning methods

Multi-modal Semantic Segmentation and Data Fusion for Indoor and Outdoor Environments
- Using RGB, depth, surface normal to improve semantic segmentation accuracy using encoder-decoder convolutional neural network

Nuclear Power Plant(NPP) Time Series Data Classification
- Multivariate time series data classification using recurrent neural network

Structural Image Damage Detection
- Using ResNet and transfer learning to detect and classify damage type in the structural image and win 3rd place in Kaggle Challenge

Laboratory Earthquake Time Series Prediction
- Using LightGBM and LSTM to predict the time of next lab earthquake based on previous sequential signal data

Technology of Oblique Image Data Processing Based on Multi-angle and Multi-view Match Model
- Recovering the camera motion and sparse reconstruction using close-range image

PUBLICATIONS

JOURNAL

The applicability of different feature extraction algorithms to camera motion estimation
Zha, B., Zhang, L., & Ai, H. B..
Science of Surveying and Mapping. (2018)

CONFERENCE

Learning Maps for Object Localization using Visual-Inertial Odometry
Zha, B. & Yilmaz, A.
In XXIV ISPRS Congress. (2020)

Trajectory Mining for Localization using Recurrent Neural Network
Zha, B., Koroglu, M. T., & Yilmaz, A.
In IEEE International Conference on CSCI. (2019)

Pedestrian Localization on Topological Maps with Neural Machine Translation Network
Wei, J. L., Koroglu, M. T., **Zha, B.**, & Yilmaz, A.
In IEEE SENSORS. (2019)

Off-site Dose Prediction for Decision Making Using Recurrent Neural Networks
Zha, B., Yilmaz, A., & Aldemir, T.
ANS Winter Meeting & Expo. (2019)

Deep Convolutional Neural Networks for Comprehensive Structural Health Monitoring and Damage Detection
Zha, B., Bai, Y. S., Yilmaz, A., & Sezen, H..
International Workshop on Structural Health Monitoring (SHM). (2019)

Semantic Labeling of Structural Elements in Buildings by Fusing RGB and Depth Images in an Encoder-Decoder CNN Framework.
Iwaszczuk, D., Koppanyi, Z., Gard, N. A., **Zha, B.**, Toth, C., & Yilmaz, A..
International Archives of the Photogrammetry, Remote Sensing & Spatial Information Sciences. (2018)

BOOK CHAPTER

Multimodal Semantic Segmentation: Fusion of RGB and Depth Data in Convolutional Neural Networks
Koppanyi, Z., Iwaszczuk, D., **Zha, B.**, Saul, C. J., Toth, C. K., & Yilmaz, A.
In Multimodal Scene Understanding (pp. 41-64). Academic Press. (2018)

RELEVANT
COURSES

Computer Vision
   Computer Vision, Photogrammetry, Geospatial Data Structure, Image Processing

Machine Learning/Deep Learning
   Machine Learning, Neural Networks, Advanced Artificial Intelligence, Computational Cognitive Neuroscience, Optimization, Probabilistic Graphical Model

Mathematics/Statistics
   Mathematical Statistics, Applied Regression Analysis, Time Series Analysis, Applied Bayesian Analysis

SKILLS

Programming Languages: Python, C/C++, Matlab, R
Operation Systems: Windows, Linux (Ubuntu)