Bing Zha

CONTACT

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EDUCATION

The Ohio State University **2017 - 2021**
Ph.D. in Geoinformation and Geodetic Engineering
Graduate Minor in Computer Science **(AI Track)**
- Thesis: Motion-based Topological GeoLocalization using Deep Learning
- Advisor: Prof. Alper Yilmaz

Chinese Academy of Surveying and Mapping **2015 - 2017**
M.S. in Photogrammetry and 3D Computer Vision
- Thesis: Camera Pose Estimation from Unstructured Images
- Advisor: Prof. Li Zhang

University of Chinese Academy of Sciences **2014 - 2015**
M.S. in Photogrammetry and 3D Computer Vision

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

EXPERIENCE

Motorola Solutions **2021 - Now**
Projects (Video Analytics):
- Object Detection and Tracking
- Gun Event Detection System on Edge/Cloud
- Pose-Based Human Fall Detection System on Edge/Cloud
- Skeleton-based (2/3D Pose) Action Recognition

RESEARCH PROJECTS

Map Learning for Geolocalization using Deep Learning Methods
- Globally topological geolocalization using OpenStreetMap(OSM) through deep learning methods
- Subgraph learning for topological localization with graph neural network
- Attention-based Fusion for geolocalization through visual vector navigation

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 deep sequential models (LSTM, Transformer)

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

Visual Odometry and 3D Reconstruction using Consumer Camera
- Study camera pose estimation and 3d reconstruction for visual odometry (VO)

and SLAM

PUBLICATIONS

CONFERENCE

Subgraph Learning for Topological Localization with Graph Neural Networks
Zha, B. & Yilmaz, A.
Sensors. (2023)

Map-Based Temporally Consistent Geolocalization through Learning Motion Trajectories
Zha, B. & Yilmaz, A.
ICPR. (2020)

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

Deep Cascaded Neural Networks for Automatic Detection of Structural Damage and Cracks from Images
Bai, Y. S., **Zha, B.**, Sezen, H., & 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)

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)

TEACHING

2018 Fall Undergraduate: Probabilistic Applications and Data Interpretation in Civil and Environmental Engineering

SKILLS

Programming Languages: Python, C/C++