

WEIWEI DUAN

PERSONAL INFORMATION

Computer Science Department
University of Southern California
Phone: (213) 519-2844
E-mail: weiweidu@usc.edu
Personal Website: <https://weiweiduan.github.io/>

EDUCATION

Ph.D. student in Computer Science University of Southern California, USA	<i>Aug. 2016 - Present</i>
M.S. in Computer Science University of Southern California, USA	<i>Aug. 2014 - May 2016</i>
B.S. in Computer Science Anhui University, China	<i>Sep. 2010 - Jun. 2014</i>

PUBLICATIONS

Duan, W., Chiang, Y. Y., Knoblock, C. A., Uhl, J. H., Leyk, S. (2018), Automatic Generation of Precisely Delineated Geographic Features from Georeferenced Historical Maps Using Deep Learning. *UCGIS/AutoCarto, Madison, WI USA*.

Duan, W., Chiang, Y. Y. (2018). SRC: a fully automatic geographic feature recognition system. *SIGSPATIAL Special*, 9(3), 6-7.

Chun Lin, H. S.; Craig A. Knoblock, Y. C.; and **Weiwei Duan**, S. L. (2018) Building Linked Data from Historical Maps. In *Proceedings of the ISWC 2018 Workshop on Enabling Open Semantic Science (SemSci 2018)*.

Uhl, J. H; Leyk, S.; Chiang, Y.; **Duan, W.**; and Knoblock, C. A. (2018), Spatialising uncertainty in image segmentation using weakly supervised convolutional neural networks: a case study from historical map processing. In *The Institution of Engineering and Technology*.

Uhl, J. H; Leyk, S.; Chiang, Y.; **Duan, W.**; and Knoblock, C. A. (2018), Map Archive Mining: Visual-Analytical Approaches to Explore Large Historical Map Collections. In *ISPRS International Journal of Geo-Information*.

Uhl, J. H., Leyk, S., Chiang, Y.-Y., **Duan, W.**, and Knoblock, C. A. (July 2017) Extracting Human Settlement Footprint from Historical Topographic Map Series Using Context-Based Machine Learning. In *Proceedings of the IAPR 8th International Conference on Pattern Recognition Systems*, Madrid, Spain (best paper award).

Duan, W., Chiang, Y.-Y., Knoblock, C. A., Jain V., Feldman, D., Uhl, J. H., Leyk, S. (2017), Automatic Alignment of Vector Data with Geographic Features for Feature Recognition in Historical Maps. In *Proceedings of the 1st Workshop on Artificial Intelligence and Deep Learning for Geographic Knowledge Discovery - GeoAI '17*, ACM Press: 2017. <http://dx.doi.org/10.1145/3149808.3149816>

Duan, W., Chiang, Y. Y. (2016), *Building knowledge graph from public data for predictive analysis: a case study on predicting technology future centers in space and time*, In *Proceedings of the 5th ACM SIGSPATIAL International Workshop on Analytics for Big Geospatial Data (pp. 7-13)*.

PROFESSIONAL EXPERIENCE

Locations Extraction of Geographic Features in Georeferenced Raster Maps Using CNN
Graduate Research Assistant supported in part by NSF, Microsoft, Nvidia Sep. 2016 - Present

· Building raster-to-vector data alignment algorithm to automatically generate training data for the image segmentation model by using vector data to annotate the locations of geographic features on raster maps

- Building a image segmentation model combining local and global image information to reduce misclassifications

Modeling, Integrating, and Search Across Multiple Geographic Features from a Variety of Geospatial Source *Graduate Research Assistant supported by BAE Systems* Jan. - Jul. 2016

- Build a geo-temporal ontology to integrate multiple online data sources
- Build a predictive analysis workflow which enables easily switch among machine learning models by using knowledge graphs

Optical Character Recognition System for Ancient Chinese Characters Feb. 2012 - Jun. 2013
Funded by the National Undergraduate Innovative Laboratory Program

- Remove noises on scanned ancient Chinese Characters by using median filter
- Use feature engineering to find the features to represent variant morphology of Chinese characters

AWARDS

Winner of the GPU Essay Challenge Nov. 2017
presented by the United States Geospatial Intelligence Foundation and technology company NVIDIA

TECHNICAL SKILLS & RESEARCH INTERESTS

Skills Python, Java, C++, Oracle, Keras, Tensorflow, Spark, MongoDB, Postgres/PostGIS, ElasticSearch

Research Interests Image Recognition, Deep Learning, Data Integration, Data Mining