

# Jiawei Zhang

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## CONTACT INFORMATION

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## EDUCATION BACKGROUND

**Purdue University**, West Lafayette, Indiana

Ph.D. Candidate, [Electrical and Computer Engineering](#), 2013-2018

- Advisor: [David Ebert](#)
- Thesis: *Context-preserving visual analytics of multi-scale spatial clustering*
- GPA: 3.8/4.0

**Zhejiang University**, Zhejiang, China

B.Eng., [College of Computer Science](#), 2009-2013

- Advisor: [Wei Chen](#)
- Thesis: *Visualizing large-scale graph based on line integral convolution*
- GPA: 3.95/4.0 (major) 3.84/4.0 (overall)

## WORK EXPERIENCE

**Uber Technologies**, San Francisco, California

Software engineering intern, Data Visualization Team Fall 2017

- Mentor: [Yang Wang](#)
- Project: Scalable WebGL-powered visualization and interactive machine learning

**Purdue/DHS Visual Analytics Center of Excellence**, West Lafayette, Indiana

Graduate Research Assistant 2013-2017

- Mentor: [David Ebert](#)
- Project: Real-time social media data mining and visualization

## SELECTED PUBLICATIONS

**Jiawei Zhang**, Chittayong Surakitbanharn, Niklas Elmqvist, Ross Maciejewski, Zhenyu Qian, David Ebert. [TopoText: Context-Preserving Text Data Exploration Across Multiple Spatial Scales](#). *Proceedings of the ACM Conference on Human Factors in Computing Systems*, 2018 (*Best Paper Honorable Mention, top 5%*).

**Jiawei Zhang**, Junghoon Chae, Chittayong Surakitbanharn, David Ebert. [SMART: Social Media Analytics and Reporting Toolkit](#). *IEEE Visualization Workshop on Visualization in Practice*, 2017.

**Jiawei Zhang**, Abish Malik, Benjamin Ahlbrand, Niklas Elmqvist, Ross Maciejewski, David Ebert. [TopoGroups: Cotext-Preserving Visual Illustration of Multi-Scale Spatial Aggregates](#). *Proceedings of the ACM Conference on Human Factors in Computing Systems*, 2017.

**Jiawei Zhang**, Benjamin Ahlbrand, Abish Malik, Junghoon Chae, Zhiyu Min, Sungahn Ko, David Ebert. [A Visual Analytics Framework for Microblog Data Analysis at Multiple Scales of Aggregation](#). *Computer Graphics Forum (Proceedings of EuroVis)*, 35(3):441-450, 2016.

**Jiawei Zhang**, Junghoon Chae, Shehzad Afzal, Abish Malik, Dennis Thom, Yun Jang, Thomas Ertl, Sorin Adam Matei, and David Ebert. [Visual Analytics of User Influence and Location-Based Social Networks](#). *Transparency in Social Media*, Springer International Publishing, 223-237, 2015.

**Jiawei Zhang**, et al. [Real-Time Identification and Monitoring of Abnormal Events Based on Microblog and Emergency Call Data Using SMART](#). *IEEE Conference on Visual Analytics Science and Technology (VAST)*

Challenge), 393-394, 2014.

Louis Tay, Vincent Ng, Abish Malik, **Jiawei Zhang**, Junghoon Chae, David Ebert. **Big Data Visualizations in Organizational Science**. *Organizational Research Methods (ORM)*, 2017.

Louis Ngamassi, Abish Malik, **Jiawei Zhang**, David Ebert. **Social Media Visual Analytic Toolkits for Disaster Management: A Review of the Literature**. *International Conference on Information Systems for Crisis Response and Management*, 2017

Junghoon Chae, **Jiawei Zhang**, Sungahn Ko, Abish Malik, Heather Connell, David S. Ebert. **Visual Analytics for Investigative Analysis of Hoax Distress Calls Using Social Media**. *IEEE Symposium on Technologies for Homeland Security*, 2016.

Haidong Chen, Song Zhang, Wei Chen, Honghui Mei, **Jiawei Zhang**, Andrew Mercer, Ronghua Liang, Huamin Qu. **Uncertainty-Aware Multidimensional Ensemble Data Visualization and Exploration**. *IEEE Transactions on Visualization and Computer Graphics*, 21(9):1072-1086, 2015.

## SELECTED PROJECTS

WebGL-Powered Visualization and Interactive Machine Learning (Intern project at Uber)

- Applied interactive visualization techniques to enable agnostic, comparison and ensemble processes of multiple machine learning models.
- Contributed two highly reusable and scalable (WebGL-enabled) visualization layers to an open source library: [deck.gl](#)

Multi-Scale Spatial Data Clustering and Visualization [[paper](#), [video](#)]

- Explored large-scale geospatial data at multiple spatial scales using hierarchical clustering.
- Designed polygon distortion algorithms to couple multi-scale spatial clusters in a holistic visual space for context preservation.
- Developed a text summarization method to identify top K representative documents from a large text corpus based on matrix reconstruction.

Real-Time Location-Based Social Media Analysis for Situational Awareness [[paper](#), [video](#)1, 2, 3]

- Led the design and implementation of interactive systems (both front and back end) to support visual analysis of massive real-time social media data. Demonstrated the capability and stability of the system through the usage in multiple nation-wide events by various law enforcement agencies (police departments, US Coast Guard, DHS fusion centers) for situational awareness and emergency management.
- Developed an anomaly detection method using topic modeling and seasonal-trend decomposition.
- Designed interactive interfaces to involve human knowledge in the evaluation and refinement of the topic classification process.

Massive Crowd Movement Analysis and Visualization ([IEEE VAST Data Challenge 2015](#)) [[report](#)]

- Led the development of the back-end architecture including three microservices: kernel density spatial aggregation, trajectory data management and communication network management.
- Designed a scalable schemaless module for massive trajectory data based on geohash and sequence clustering to enable efficient nearest neighbor search and similarity search.

## HONORS AND AWARDS

Best Paper Honorable Mention, ACM CHI Conference	2018
VAST Challenge Honorable Mention: <i>Compelling Narrative Debrief</i> , IEEE	2015
VAST Challenge Honorable Mention: <i>Sponsor's Award for Novel Visualization</i> , IEEE	2014
RCA Zworykin Scholarship, Purdue University	2013
Scholarship for Outstanding Merits, First Class (Top 5%), Zhejiang University	2009
Scholarship for Outstanding Students, Zhejiang University	2009

TECHNICAL  
SKILLS

- Programming: Java, Python, JavaScript (ES6), PHP, HTML/CSS, C++, C
- Web development: React/Redux, AngularJS, Node, Flask
- Visualization & Graphics: WebGL, SVG (D3.js), OpenGL, Processing
- Data management & Machine learning: Apache Kafka, Apache Solr (Lucene), MongoDB, SQL, scikit-learn, NLTK, Mallet