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Guizhen Wang

LinkedIn
Google Scholar
Personal website

- Years of software developments of data visualization applications in academia
- Proficient in data mining and machine learning
- 1-year research experiences in database (specific to approximate data query)
- Extensive research experiences in data visualization
- Faster learner, objective thinker, and outstanding team player

Education

Ph.D. in Electrical and Computer Engineering, Purdue University, Indiana, United States **Aug. 2013 — Aug. 2020**
GPA: 3.60/4.00
Dissertation: Interactive exploration and visual analytics of large-scale spatiotemporal data using approximate query processing

M.S. in Joint Computer Science and Statistics, Purdue University, Indiana, United States **Jan. 2019 — Dec. 2021**
GPA: 3.40/4.00

M.S. in Computer Science, Zhejiang University, Hangzhou, China **Aug. 2009 — May 2012**
GPA: 3.84/4.00

B.S. in Computer Science, Shandong University, Jinan, China **Sep. 2005 — Jul. 2009**
GPA: 3.70/4.00

PROGRAMMING LANGUAGES/FRAMEWORKS

Excellent	Java , C/C++, Python, JavaScript, SQL, MATLAB, .Net
Proficient	Flask, React, Spark, Linux/Unix, OpenGL, .Net, R, NumPy, SciPy, Pandas
Familiar	PHP, PyTorch, AWS, NoSQL, Scikit-learn, CI/CD

Internship

Backend Engineer, Verizon Media, Champaign, IL **Jun. 2021 — Aug. 2021**
Technique: : Java, AWS, HDFS, Linux, CI/CD

- Added a data compression pipeline into Yahoo's Ad platforms to deliver ad models from internal data centers to publishers/advertisers more efficiently. It significantly reduced HTTP calls and network bandwidth usages. Therefore, the model delivery would become more robust in network reliability concerns and its AWS bills would reduce as well.

Research Intern, Internet Graphics Group, Microsoft Research Asia, Beijing, China **May 2011 — Jun. 2012**
Technique: C#, .Net

- Conducted research on topic-modeling-driven textual data analysis and visualization (e.g., topic-guided interactive exploration of a 1-billion corpus).

Academic Projects

Graduate Research Assistant, Purdue University **Aug. 2013 — present**
Technique: Multi-threading, Flask, React, SQL, Machine Learning, .Net, OpenGL, JavaFX, Unity

- Responsible for developing 6+ web/desktop data visualization applications (including data analysis, front ends, and back ends). Two of the developed applications have run in Law Enforce Agencies and U.S. Coast Guard for 5+ years.
- Designed novel sampling-based approximate query processing approaches for client/server-based data visualization systems to render large data at interactive rates. The approaches reduce large data processing latencies and resolve spatial sampling bias. This project resulted in my doctoral dissertation.
- Applied data mining and machine learning to forecasts COVID-19 trends and detect abnormal vessel movements. Our work resulted in two academic publications.
- Applied NLP techniques to detect and remove addresses from tweets. This work helped our lab's social media analysis tools to meet Twitter's user privacy changes.
- Developed a web application that incrementally visualizes large vessel movement data in the Spark/HDFS cloud environment.
- Conducted preliminary research on Augmented Reality for Smart Manufacturing

Graduate Research Assistant, Zhejiang University, Purdue University **Aug. 2009 — Dec.2012**
Technique: Java, text mining, computer graphics

- Conducted research on data mining and data visualization for social network data and document corpus (e.g., sequential semantic evolution)
- Compressed 3D volume data by leveraging some numerical calculation algorithms (including hashing and tensor).

Awards & Honors

2017	Purdue Graduate Student Government Travel Grant Award
2015	IEEE VAST Challenge Honorable Mention: Compelling Narrative Debrief
2011	IEEE PacificVis Best Poster Award

Selected Publications

1. **Wang, G.** *et al.* STULL: Unbiased Online Sampling for Visual Exploration of Large Spatiotemporal Data. *IEEE Visualization Conference* (2020).
2. **Wang, G.** *et al.* A Client-based Visual Analytics Framework for Large Spatiotemporal Data under Architectural Constraints. *IEEE Workshop on Data Systems for Interactive Analysis* (2017).
3. Snyder, L. *et al.* PanViz 2.0: Intregating AI into Visual analytics to adapt to the novel challenges of COVID-19. *Hawaii International Conference on System Sciences* (2021).
4. **Wang, G.** *et al.* TraSeer: A Visual Analytics Tool for Vessel Movements in the Coastal Areas. *IEEE International Conference on Technologies for Homeland Security* (2017).
5. **Wang, G.** *et al.* Spatiotemporal Driven Analysis of Law Enforcement Data. *IEEE Workshop on Visualization in Practice* (2017).
6. **Wang, G.** *et al.* Topic HyperGraph: A Long Document Sequential Visualization. *SCIENCE CHINA Information Sciences* (2013).
7. Ye, S. *et al.* GPU-friendly Regularization and Volume Rendering of Tetrahedral Volumetric Datasets. *Chinagraph* (2010).