

GUIHONG WAN

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EDUCATION

The University of Texas at Dallas, Richardson, TX

Ph.D in Computer Science

Jan. 2019 - Present

The University of Texas at Dallas, Richardson, TX

M.S in Computer Science

Aug. 2017 - Dec. 2018

South-Central University For Nationalities, Wuhan, China

B.S. in Electronics and Information Engineering

Sep. 2006 - May. 2000

Stanford University, Stanford, CA

Data Mining and Applications Graduate Certificate

May. 2018 - Jun. 2019

RESEARCH INTERESTS

My research interests are in large-scale data mining, graph mining, and machine learning, with specific focus on anomalous pattern detection, feature selection/extraction and efficient algorithms for eigenvalue decomposition.

RESEARCH & TEACHING EXPERIENCE

Computer Vision and Data Lab (Supervised by Prof. Haim Schweitzer)

Aug. 2018 - Present

- **Outlier detection for principal component analysis**

Ideas include: combinatorial search, centered rank-one update for eigenvalues, bias trick.

Papers are accepted by AAAI 2021. Two papers are under review by TKDD and ICDE 2021.

- **Unsupervised/Supervised feature selection/extraction**

Ideas include: combinatorial search, efficient implementation by rank-one update. The first non-trivial optimal algorithm for supervised feature selection for multi-target prediction.

One paper was published by AAAI 2019. Another one is in preparation.

- **Accurate dimension reduction**

The main idea is to use the maximum entropy method. Paper is accepted by ICDM 2020.

- **Edge sparsification and feature selection for graphs**

The main idea is to use meta-learning. The paper is in preparation.

Teaching Assistant

Jan. 2019 - Present

- Assist in the teaching of following graduate level courses: Machine Learning, Computer Vision, Artificial Intelligence, Data Representation.
- Help students to understand the underlying math, algorithms and projects.
- Grade projects and exams.

Technical Reviewer

- **Reviewer** The Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI 2021)
- **Reviewer** International Conference on Tools with Artificial Intelligence (ICTAI 2018, 2019)
- **Reviewer** International Conference on Pattern Recognition (ICPR 2020)

PUBLICATIONS

Guihong Wan and Haim Schweitzer. “Accelerated Combinatorial Search for Outlier Detection with Provable Bound on Sub-Optimality”. Proceedings of the Thirty-Fifth AAAI Conference on Artificial Intelligence, **AAAI 2021**.

Guihong Wan and Haim Schweitzer. “A New Robust Subspace Recovery Algorithm (Student Abstract)”. Proceedings of the Thirty-Fifth AAAI Conference on Artificial Intelligence, **AAAI 2021**.

Guihong Wan; Crystal Maung; Chenxu Zhang and Haim Schweitzer. “Fast Distance Metrics in Low-dimensional Space for Neighbor Search Problems”. 20th IEEE International Conference on Data Mining, **ICDM 2020**.

Guihong Wan; Crystal Maung and Haim Schweitzer. “Improving the Accuracy of Principal Component Analysis by the Maximum Entropy Method”. 31st IEEE International Conference on Tools with Artificial Intelligence, ICTAI 2019.

Baokun He; **Guihong Wan** and Haim Schweitzer. “A Bias Trick for Centered Robust Principal Component Analysis (Student Abstract)”. Proceedings of the Thirty-Fourth AAAI Conference on Artificial Intelligence, **AAAI 2020**.

Baokun He; Swair Shah; Crystal Maung; Gordon Arnold; **Guihong Wan** and Haim Schweitzer. “Heuristic Search Algorithm for Dimensionality Reduction Optimally Combining Feature Selection and Feature Extraction”. Proceedings of the Thirty-Third AAAI Conference on Artificial Intelligence, **AAAI 2019**.

Guihong Wan and Haim Schweitzer. “A Lookahead Algorithm for Robust Subspace Recovery When Irrelevant Data Abound”. 37th IEEE International Conference on Data Engineering, ICDE 2021 (under review).

Baokun He; **Guihong Wan**; Rong Jin and Haim Schweitzer. “The Bias Method for Robust Centered Principal Component Analysis”. The ACM Transactions on Knowledge Discovery from Data, TKDD (under review, co-first author).

WORK EXPERIENCE

Android Software Engineer

Jul. 2010 - Mar. 2016

Actions Semiconductor Co., Ltd (NASDAQ-ACTS)

Zhuhai, China

- Android Software Engineer in R&D Department.
- Director of the Application Team, in Production Development Department.

AWARDS

- Betty and Gifford Johnson Scholarship: 2020
- ICDM Travel Award: 2020
- AAAI Student Scholarship: 2019