Shimin Li

Department of Computer Science
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Current Position

Associate Professor
Department of Computer Science, Winona State University.

Education

Ph.D. in Computer Science, May 2018
Utah State University, Logan, Utah, USA
Dissertation: *Geometric Algorithms for Intervals and Related Problems*
Advisor: Professor Haitao Wang.

M.S. in Pattern Recognition and Intelligent System, June 2010
East China University of Science and Technology, Shanghai, China
Thesis: *Optimization Algorithms for Data Transmission in Wireless Networks*
Advisor: Professor Xingyu Wang.

B.S. in Automation, July 2006
Northeast Petroleum University, Daqing, Heilongjiang, China

Research Interests

Algorithms and Theory, Data Structures, Combinatorial Optimization, High Performance Computing, Computational Geometry, Wireless Sensor Network, Internet of Things (IoT), etc.

Grants

- TedVentures, Inc. (Award No. 2021-015), "Algorithms for computer aided design systems and geometric problems", November 15, 2020 – December 31, 2021, Sole PI, $ 23,000.

Teaching

Teaching at Winona State University

- CS 101 Exploring Creative Computing, Fall 2018, Fall 2019, Fall 2020, Fall 2021, Spring 2022, Fall 2022, Spring 2023, Fall 2023, Spring 2024.
- CS 234 Algorithms and Problem Solving, Spring 2019, Spring 2023.
- CS 275 Mathematical Foundations of Algorithms, Spring 2020, Fall 2020, Spring 2021, Fall 2021, Spring 2022, Fall 2022, Spring 2023, Fall 2023, Spring 2024.
- CS 313 Networking and Telecommunications, Spring 2020, Spring 2021.
- CS 344 Introduction to Web Programming, Spring 2019, Fall 2019, Summer 2020, Fall 2020, Fall 2021, Fall 2022, Fall 2023.
- CS 346 Introduction to Internet of Things, Summer 2019, Summer 2020, Summer 2021, Summer 2023.
- CS 440 Theory of Algorithms, Fall 2018, Summer 2019, Fall 2019, Spring 2022, Spring 2024.
- CS 495 Computer Science Research Seminar, Spring 2019, Spring 2020.

Other Teaching Experience at Utah State University

- Instructor of Recitation for CS1400: Introduction to Computer Science–CS 1, Spring 2018
- Teaching Assistant for CS5700: Object-Oriented Software Development, Fall 2017

Honors and Awards

- Professional Improvement Funds, 2023
- Special Project of WSU Foundation, 2021
- Professional Improvement Funds, 2020
- Special Project of WSU Foundation, 2019
- RGS Graduate Student Travel Award, 2016
- RGS Graduate Student Travel Award, 2015

Professional Experience

Associate Professor **August 2023 – Present**
Winona State University, Department of Computer Science, Winona, MN

Assistant Professor **August 2018 – July 2023**
Winona State University, Department of Computer Science, Winona, MN
• Teach courses and conduct research on algorithms and computational geometry.

Design Engineer(Graduate Intern) **May 2017 – August 2017**
Cadence Design Systems Inc., Research and Development Department, Cary, NC
• Implement algorithms for planarity testing, planar graph embedding, and outerplanarity testing in C++.

Senior Software Engineer **July 2010 – June 2014**
China UnionPay, Electronic Payment Research Institute, Shanghai, China
• Develop and maintain the electric payment system in C programming language.

Software Engineer(Intern) **November 2009 – May 2010**
Huateng Software Company, Research and Technology Department, Shanghai, China
• Develop and maintain the cellphone ticket system in C programming language.

System Engineer(Intern) **September 2007 – August 2008**
Siemens Industrial Automation Ltd., Engineering Department, Shanghai, China
• Design and implement the distributed control system for Novartis, one of the top pharmaceutical companies in the world.

Publications

Books

1. **Shimin Li**. *Java Programming is Easy*, Beijing: Tsinghua University Press, 2012.

Peer Reviewed Journal Articles

2. **Shimin Li** and Haitao Wang. "Separating Overlapped Intervals on a Line", *Journal of Computational Geometry (JoCG)*, Vol. 10, No 1, pages 281–321, 2019.
3. **Shimin Li** and Haitao Wang. "Algorithms for Covering Multiple Barriers", *Theoretical Computer Science (TCS)*, Vol. 758, pages 61–72, 2019.

4. **Shimin Li** and Haitao Wang. "Dispersing Points on Intervals", *Discrete Applied Mathematics (DAM)*, Vol. 239, pages 106–118, 2018.
5. Wei Cao, Jian Li, **Shimin Li**, and Haitao Wang. "Balanced Splitting on Weighted Intervals", *Operations Research Letters*, Vol. 43, pages 396–400, 2015.

Peer Reviewed Conference Papers

6. **Shimin Li**, Zhongjiang Yan, and Jingru Zhang. "An Optimal Algorithm for Maintaining Connectivity of Wireless Network on a Line", *Proceedings of the 31st Canadian Conference on Computational Geometry (CCCG)*, Edmonton, Canada, August 2019, pages 78–84.
7. **Shimin Li** and Haitao Wang. "Algorithms for Covering Multiple Barriers", *Proceedings of the 15th Algorithms and Data Structures Symposium (WADS)*, St. John's, Canada, August 2017, pages 533–544.
8. **Shimin Li** and Haitao Wang. "Dispersing Points on Intervals", *Proceedings of the 27th International Symposium on Algorithms and Computation (ISAAC)*, Sydney, Australia, December 2016, pages 52:1–52:12.
9. **Shimin Li** and Haitao Wang. "Separating Overlapped Intervals on a Line", *The 26th Fall Workshop on Computational Geometry (FWCG)*, New York, USA, October 2016. (Abstract Only)
10. **Shimin Li** and Haitao Wang. "Algorithms for Minimizing the Movements of Spreading Points in Linear Domains", *Proceedings of the 27th Canadian Conference on Computational Geometry (CCCG)*, Kingston, Canada, August 2015, pages 187–192.
11. **Shimin Li** and Xingyu Wang. "A Modeling and Optimizing Method Based on the Topology Information of Wireless Sensor Network", *Proceedings of the 29th Chinese Control Conference (CCC)*, Beijing, China, July 2010, pages 4802–4806.

Submitted Journal Papers

1. **Shimin Li**, Zhongjiang Yan, and Jingru Zhang. "An Optimal Algorithm for Maintaining Connectivity of Wireless Network on a Line", *Theoretical Computer Science (TCS)*, submitted in 2019.
2. **Shimin Li** and Haitao Wang. "Algorithms for Minimizing the Movements of Spreading Points in Linear Domains", *Theoretical Computer Science (TCS)*, submitted in 2015.

Professional Services

Program Committee Member

- The *4th Colloquium on Analytics, Data Science, and Computing (CADSCOM 2022)*, Edina, Minnesota, USA, November 2022.
- The *Fourteenth International Conference on Emerging Security Information, Systems and Technologies (SECURWARE 2020)*, Valencia, Spain, November 2020.
- The *Thirteenth International Conference on Emerging Security Information, Systems and Technologies (SECURWARE 2019)*, Nice, France, October 2019.
- The *2019 8th International Congress on Big Data (BigData Congress 2019)*, San Diego, USA, June 2019.

- The *13th International Frontiers of Algorithmics Workshop (FAW 2019)*, Sanya, Hainan, China, April 2019.
- The *4th EAI International Conference on IoT as a Service (IoTaaS 2018)*, Xi'an, Shaanxi, China, November 2018.

Review for Journals

- Journal of Combinatorial Optimization
- Mobile Networks and Applications
- Optimization Methods and Software
- IEEE/ACM Transactions on Networking
- Operations Research Letters

Conference Presentations

- "An Optimal Algorithm for Maintaining Connectivity of Wireless Network on a Line", *Proceedings of the 31st Canadian Conference on Computational Geometry (CCCG)*, Edmonton, Canada, August 2019.
- "Dispersing Points on Intervals", *Proceedings of the 27th International Symposium on Algorithms and Computation (ISAAC)*, Sydney, Australia, December 2016.
- "Separating Overlapped Intervals on a Line", *The 26th Fall Workshop on Computational Geometry(FWCG)*, New York, USA, October 2016.
- "Algorithms for Minimizing the Movements of Spreading Points in Linear Domains", *Proceedings of the 26th Canadian Conference on Computational Geometry (CCCG)*, Kingston, Canada, August 2015.
- "A Modeling and Optimizing Method Based on the Topology Information of Wireless Sensor Network", *Proceedings of the 29th Chinese Control Conference (CCC)*, Beijing, China, July 2010.