Curriculum Vitae of Huaming Zhang

TITLE: Associate Professor
DEPARTMENT: Computer Science Department,
The University of Alabama in Huntsville, Huntsville, AL

PICTURE:

EDUCATION

B.S., Mathematics, Anhui Normal University, Wuhu, China, 1992
M.S., Mathematics, University of Science and Technology, Hefei, China, 1995
M.S., Computer Science and Engineering, State University, of New York at Buffalo, Buffalo, NY, 2002
Ph.D., Computer Science and Engineering, State University of New York at Buffalo, June 2005

EMPLOYMENT

1995-1998	Instructor	Department of Mathematics and Physics Wuyi University Jiangmen, China
1998-2005	Teaching Assistant Research Assistant	Department of Mathematics Department of Computer Science and Engineering State University of New York at Buffalo, Buffalo, NY
August 2005- July 2011	Assistant Professor	Computer Science Department The University of Alabama in Huntsville, Huntsville
August 2011- Present	Associate Professor	Computer Science Department The University of Alabama in Huntsville, Huntsville

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PUBLICATIONS:

- **Refereed Journal Articles:**
  1. D. B. Acharya and H. Zhang, Community Detection Clustering via Gumbel Softmax, *SN Computer Science*, Vol. 1, 2020.
  2. Y. Li, L. Zou, H. Zhang and D. Zhao, Longest Increasing Subsequence Computation over Streaming Sequence, *IEEE Transactions on Knowledge and Data Engineering*, Vol. 30 (6), pp. 1036-1049, 2018.
  3. H. Zhang and X.-Z. Kong, On k-greedy routing algorithms, *Computational Geometry: Theory and Applications* 52, 2016.
  4. X. He and H. Zhang, On Succinct Convex Greedy Drawing of 3-Connected Plane Graphs, *Algorithmica*, Vol. 68, pp 531 -544, 2014.
  5. W. Zheng, L. Zou, X. Lian, H. Zhang, W. Wang and D. Zhao, SQBC: An efficient subgraph matching method over large and dense graphs. *Inf. Sci.* 261, pp. 116-131 2014.
  6. O. Kulkarni and H. Zhang, An optimal greedy routing algorithm for triangulated polygons, *Computational Geometry: Theory and Applications*, Vol. 46, pp 640-647, 2013.

7. X. He and H. Zhagn, A Simple Routing Algorithm Based on Schnyder Coordinates, Theorectical Computer Sciecne, Vol. 494, pp. 112-121, 2013.
8. H. Zhang and S. Govindaiah, Greedy Routing via Embedding Graphs onto Semi-metric Spaces, *Theoretical Computer Science*, Vol. 508, pp 26-34, 2013.
9. X. He, J.-J. Wang and H. Zhang, Compact Visibility Representation of 4-Connected Plane Graphs, *Theoretical Computer Science*, Vol. 447, August, 2012, pp 62-73.
10. S. Sadasivam and H. Zhang, Closed Rectangle-of-Influence Drawings for Irreducible Triangulations, *Computational Geometry: Theory and Applications*, Vol. 44, pp. 9-19, 2011.
11. H. Zhang and S. Sadasivam, Improved floor-planning of graphs via adjacency-preseving transformations, *Journal of Combinatorial Optimization*, Volume 22, 2011, pp. 726-746.
12. H. Zhang, Planar Polyline Drawings via Graph Transformation, *Algorithmica*, Vol. 57, 2010, pp. 381-397.
13. S. Sadasivam and H. Zhang, NP-Completeness of st-Orientations for Plane Graphs, *Theoretical Computer Science*, Vol. 411, 2010, pp. 995-1003.
14. H. Zhang and X. He, A Generalized Greedy Routing Algorithm for 2-Connected Graphs, *Theoretical Computer Science*, Vol. 411, 2010, pp. 4242-4252.
15. H. Zhang, and M. Vaidya, On Open Rectangle-of-influence and Rectangular Dual Drawings of Plane Graphs, *Discrete Mathematics, Algorithms and Applications,* Vol. 1, 2009, pp 319-333.
16. H. Zhang and X. He, Optimal st-Orientations for Plane Triangulations, *Journal of Combinatorial Optimization*, Vol. 17, 2009, pp. 367-377.
17. X. He and H. Zhang, Nearly Optimal Visibility Representations of Plane Triangulations, accepted to SIAM Journal on Discrete Mathematics, *SIAM Journal on Discrete Mathematics*, Vol. 22, 2008, pp. 1364-1380.
18. H. Zhang and X. He, An Application of Well-Orderly Trees in Graph Drawing, *International Journal of Foundations of Computer Science,* Vol. 17 2006, pp.1129-1141.
19. H. Zhang and X. He, On Simultaneous Straight-line Grid Embedding of a Planar Graph and its Dual, *Information Processing Letters*, Vol. 99 2006 pp.1-6.
20. H. Zhang and X. He, Visibility Representation of Plane Graphs via Canonical Ordering Tree, *Information Processing Letters*, Vol. 96 2005, pp. 41-48.
21. H. Zhang and X. He, On Even Triangulations of 2-Connected Embedded Graphs, *SIAM Journal on Computing*, Vol. 34 2005, pp. 683-696.
22. H. Zhang and X. He, Canonical Ordering Trees and Their Applications in Graph Drawing, *Discrete and Computational Geometry*, Vol. 33 2005, pp. 321-344.
23. H. Zhang and X. He, Improved Visibility Representation of Plane Graphs, *Computational Geometry: Theory and Applications*, Vol. 30 2005, pp. 29-39.

- **Refereed Conference Papers:**

1. D. B. Acharya and H. Zhang, Feature Selection and Extraction for Graph Neural Networks, ACM Southeast Regional Conference 2020, pp 252-255.
2. X. He and H. Zhang, On Characterization of Petrie Partitionable Plane Graphs, in the Proceedings of the 16th International Conference of Theory and Applications of Models of Computation, TAMC 2020, pp. 313-326.
3. The Missing Element: A Discussion of Autism Spectrum Disorder in Computer Science, W. Meade, L. Etzkorn, and H. Zhang, in the Proceedings of ASEE-SE2018, 8 pages. http://www.asee-se.org/proceedings/ASEE2018/papers2018/30.pdf
4. Y. Li, L. Zou, H. Zhang and D. Zhao, Computing Longest Increasing Subsequences over Sequential Data Streams, in the Proceedings of VLDB Endow. 10(3), pp. 181-192, 2016.
5. O. Kulkarni, H. Zhang and S. Govindaiah, An experimental study of low stretch factor on greedy geometric routing based algorithms, in: the Proceedings of the 2012 International Conference on Wireless Networks (ICWN' 2012).
6. H. Zhang and S. Govindaiah, Greedy Routing via Embedding Graphs onto Semi-metric Spaces, in: the Proceedings of the 2011 joint International Conference on the Frontiers of Algorithmics Workshop and the Algorithm Aspects in Information and Management (FAW-AAIM' 2011). Lecture Notes in Computer Science, Vol. 6681, pp. 58-69, 2011.

7. X. He and H. Zhang**,** On Succinct Convex Greedy Drawing of 3-Connected Plane Graphs, in: *Proceedings of the Twenty-Second Annual ACM-SIAM Symposium of Discrete Algorithms (SODA 2011)*, pp. 1477-1486.
8. X. He, J.-J. Wang and H. Zhang, Compact Visibility Representation of 4-Connected Plane Graphs, to appear in: *Proceedings of the Fourth Annual International Conference on Combinatorial Optimization and Applications, (COCOA' 2010),* Lecture Notes in Computer Science.
9. S. Sadasivam and H. Zhang, Closed rectangle-of-influence drawings for irreducible triangulations, accepted to *7th Annual Conference on Theory and Applications of Models of Computation (TAMC 2010)*, Lecture Notes in Computer Science, Vol. 6108, pp. 409-418 2010.
10. X He and H. Zhang, Schnyder greedy routing algorithm, accepted to *7th Annual Conference on Theory and Applications of Models of Computation (TAMC 2010)*, Lecture Notes in Computer Science, Vol. 6108, pp. 271-283, 2010.
11. S. Sadasivam and H. Zhang, NP-Completeness of st-Orientations for Plane Graphs, in: *Proceedings of the Seventeenth International Symposium on Fundamentals of Computation Theory, (FCT' 2009),* Lecture Notes in Computer Science, Vol. 5699, pp. 298-309.
12. H. Zhang and M. Vaidya, On Open Rectangle-of-influence Drawings of Planar Graphs, in: *Proceedings of the Third Annual International Conference on Combinatorial Optimization and Applications, (COCOA' 2009),* Lecture Notes in Computer Science, Vol. 5573, pp. 123-134.
13. H. Zhang, On Minimizing One Dimension of Some Two-Dimensional Geometric Representations of Plane Graphs, in: *Proceedings of the Third International Frontiers of Algorithmics Workshop, (FAW' 2009),* Lecture Notes in Computer Science, Vol. 5598, pp. 163-172.
14. S. Sadasivam and H. Zhang, On Segment Representation of Planar Graphs, in: *Proceedings of the Fourth International Conference on Algorithm Aspects in Information and Management, (AAIM' 2008),* Lecture Notes in Computer Science, Vol. 5034, pp. 304-315.
15. L. Zou, L. Chen, H. Zhang, Y. Lu and Q. Luo, Summarization Graph Indexing: Beyond Frequent Structure-based Approach, accepted to: *Proceedings of the 13th International Conference on Database Systems for Advance Applications (DASFAA'08), Lecture Notes in Computer Science*, Vol. 4947, pp. 141-155.
16. H. Zhang and S. Sadasivam, On Planar Polyline Drawings, accepted to: *Proceedings of the 15th International Symposium on Graph Drawing (GD'2007*), *Lecture Notes in Computer Science,* Vol. 4875, pp. 213-218.
17. H. Zhang and X. He, Optimal st-Orientations for Plane Triangulations, in: *Proceedings of the Third International Conference on Algorithm Aspects in Information and Management, (AAIM' 2007),* Lecture Notes in Computer Science, Vol. 4508, pp.296-305.
18. L. Zou, Y. Lu, H. Zhang, R. Hu and C. Zhou, Mining Frequent Induced Subtrees by Prefix-Tree-Projected Pattern Growth, in: *Proceedings of the International Workshop on XML, Web, and Internet Contents Technologies* (XWICT' 2006), pp. 18-25
19. L. Zou, Y. Lu, H. Zhang and R. Hu, Mining Frequent Induced Subtree Patterns with Subtree-Constraint, in: *Proceedings of the 6th IEEE International conference on data mining –Workshops* (ICDMW' 2006), pp. 3-7
20. L. Zou, Y. Lu, H. Zhang and R. Hu, PrefixTreeESpan: A Pattern Growth Algorithm for Mining Embedded Subtrees, in: *Proceedings of the 7th International conference on Web Information systems Engineering* (Web Information Systems - WISE'2006), Lecture Notes in Computer Science, Vol. 4255, pp. 499-505.
21. X. He and H. Zhang, Nearly Optimal Visibility Representations of Plane Graphs, in: *Proceedings of the 33rd International Colloquium on Automata, Languages and Programming (ICALP'2006),* Lecture Notes in Computer Science, Vol. 4051, pp. 407-418.
22. W. Li, H. Zhang and R. Shatnawi, A Graph-Based Representation of Object-Oriented Designs, in: *Proceedings of the 2006 International Conference on Software Engineering Research and Practice & Conference on Programming Languages and Compilers (SERP'2006),* pp.198-204.
23. R. Shatnawi, W. Li and H. Zhang, Predicting Error Probability in the Eclipse Project, in *Proceedings of the 2006 International Conference on Software Engineering Research and Practice & Conference on Programming Languages and Compilers (SERP'2006),* pp. 422-428.
24. H. Zhang and X. He, An Application of Well-orderly Trees in Graph Drawing, in: *Proceedings of the 13th International Symposium on Graph Drawing (GD'2005), Lecture Notes in Computer Science*, Vol. 3843, pp. 458-467.

25. H. Zhang and X. He, New Theoretical Bounds of Visibility Representation of Plane Graphs, in: *Proceedings of the 12th International Symposium on Graph Drawing (GD'2004), Lecture Notes in Computer Science*, Vol. 3383, pp. 425-430.
26. H. Zhang and X. He, On Visibility Representation of Plane Graphs, in: *Proceedings of the 21st International Symposium on Theoretical Aspects of Computer Science (STACS'2004), Lecture Notes in Computer Science*, Vol. 2996, pp. 477-488.
27. H. Zhang and X. He, Compact Visibility Representation and Straight-Line Grid Embedding of Plane Graphs, in: *Proceedings of the 8th Workshop on Algorithms and Data Structures (WADS'2003), Lecture Notes in Computer Science*, Vol. 2748, pp.493-504.
28. H. Zhang and X. He, On Even Triangulations of 2-Connected Embedded Graphs, in: *Proceedings of the 9th International Computing and Combinatorics Conference (COCOON'2003), Lecture Notes in Computer Science*, Vol. 2697, pp. 139-148.
29. H. Zhang and X. He, A Simple Linear Time Algorithm for Finding Even Triangulations of 2-Connected Bipartite Plane Graphs, in: *Proceedings of the 10th European Symposium on Algorithms (ESA'2002), Lecture Notes in Computer Science*, Vol. 2461, pp. 902-913.

STUDENT ADVISING:

- **Major Advisor:**

1. Mr. Milind Vaidya, M.S., Thesis title: Open Rectangle of Influence Drawings of Planar Graphs, defended in October, 2008.
2. Dr. Sadish Sadasivam, *st-Orientations in Planar Graph Drawings*, October, 2009, Ph.D.
3. Ms. Swetha Govindaiah, M.S., Thesis title: Greedy Routing via Embedding Graphs onto Semi-metric Spaces, defended in February, 2012.
4. Dr. Omkar Kulkarni, Ph.D., *Stretch factors of greedy routing algorithms*, defended in August, 2013.
5. Ms. Shwetha Herga, M.S., Thesis title: Feature Extraction for Classification of Auroral Images, defended in June 2020.
6. Mr. Michael R. Volz, M.S., Thesis title: Application of Metaheuristics to a Subset Selection, defended in Oct., 2020.
7. Mr. Erick C. Jones, Master thesis student, in pipeline
8. Ms. Pooja Khanal, Master thesis student, in pipeline
9. Mr. Deepak Bhaskar Acharya, Ph.D. dissertation student, in pipeline
10. Mr. Praveen V. Phatate, Ph.D. dissertation student, in pipeline

- **Committee Members:**

1. Ms. Irina V. Dodoukh, M.S., major advisor: Dr. Newman, defended in March 2008.
2. Ms. Vani Jain, M.S., major advisor: Dr. Aygun, defended in May 2008.
3. Mr. Mitesh Naik, M.S., major advisor: Dr. Aygun, defended in September 2008.
4. Dr. Miranda Roden Bowie, Ph.D., major advisor: Dr. Slater, defended in September 2008.
5. Ms. Harini Kandadi, M.S., major advisor: Dr. Aygun, defended in June 2009.
6. Dr. Xiang Zhang, Ph.D., major advisor: Dr. Newman, defended in March 2010.
7. Mr. Ajinkya Kulkarni, M.S., major advisor: Dr. Zhu, defended in October 2010.
8. Dr. Yi Chen, Ph.D., major advisor; Dr. Aygun, defended in October 2010.
9. Ms. Vineetha Bettaiah, M.S., major advisor: Dr. Aygun, defended in February 2011.
10. Mr. Shailesh Khot, M.S., major advisor: Dr. Newman, defended in August 2011.
11. Dr. Junliang Lu, Ph.D., major advisor: Dr. Li, defended in June 2012.
12. Mr. Salma Begum, M.S., , Advisor: Dr. Aygun, defended, July 2013.
13. Mr. Sal Barbosa, Ph.D.,. Advisor: Dr. Petty, defended March 2014.
14. Ms. Reem Albashaireh, Ph.D., . Advisor; Dr. Ai, defended, Oct, 2014.
15. Dr. Vineetha Bettaiah, Ph.D., Advisor, Dr. Ranganath, defended, Oct. 2014
16. Mr. Madhu Sigdel, M.S., Advisor, Dr. Aygun, defended, Oct. 2014.
17. Ms. Lulu Zhao, M.S. Advisior, Dr. Newman, defended, May, 2015
18. Dr. Zhiqiang (John) Wu, Ph.D., Advisor, Dr. Etzkorn, defended, May 2015

19. Dr. Madhav Sigdel, Ph.D., Advisor, Dr. Aygun, defended, June, 2015
20. Mr. Matthew Couch, M.S., Advisor, Dr. Newman, defended, Oct., 2015
21. Dr. Semih Dinc, Ph.D., Advisor, Dr. Aygun, defended, June 2016
22. Dr. Imren Dinc, Ph.D., Advisor, Dr. Aygun, defended, June 2016
23. Mr. Ritesh Pradhan, M.S., Advisor, Dr. Aygun, defended, Oct., 2016
24. Mr. Nathan Henderson, M.S., Advisor, Dr. Aygun, defended, Sept. 2017
25. Mr. Iksha Gurung, M.S, Advisor, Dr. Peng, defended, Nov. 2017
26. Mr. Mahesh Kumar Juttu, M.S., Advisor, Dr. Aygun, defended, May 2017
27. Dr. Robert Youngren, Ph.D., Advisor, Dr. Petty, defended, July 2017
28. Dr. Sussan Einakian, Ph.D., Advisor, Dr. Newman, defended, August, 2017
29. Dr. Mini Zeng, Ph.D., Advisor, Dr. Zhu, defended, February, 2018.
30. Dr. Brett Skinner, Ph.D., Advisor, Dr. Zhang, defended, June, 2018.
31. Mr. Diwas Sharma, M.S., Advisor, Dr. Aygun, defended, October, 2018.
32. Dr. Will Garrison, Ph.D., Advisor, Dr. Petty, defended, April, 2019.
33. Dr. Daniel O'Neil, Ph.D., Advisor, Dr. Petty, defended, June, 2019.
34. Dr. Zhuocheng Jiang, Ph.D., Advisor, Dr. Pan, defended, January, 2020.
35. Ms. Slesa Adhikari, M.S., Advisor, Dr. Aygun, defended, March, 2020.
36. Mr. Jeren Suzuki, M.S., Advisor, Dr. Newman, defended, August, 2020.
37. Mr. Md Kawser Bepary, M.S., Advisor, Dr. Tauhidur Rahman, defended, October, 2020.

FUNDING HISTORY:

- **External Funding:**
    1. Specifying near-Earth Solar Wind Conditions: A Novel Model for Propagating Solar Wind Values and Uncertainties, NASA, Co-PI, $476,660, PI, Dr. Ying Zou, UAH. December 2020 – November 2022.
    2. AF:Small: K-Greedy drawing of graphs and their applications, PI, $104,694, October 2010-September, 2013, NSF.
    3. Graph Orientation Structures and Their Applications, PI, $55,214, April 2008-March 2011, NSF.
    4. Graph Orientation Structures and Their Applications (supplemental REU), PI, $15,000 February 2009-March 2011, NSF
    5. Finding Frequent Webpage Access Patterns, PI, $6,500, Sept. 2006-June 2007, CREU from CRA.
    6. Travel Grant, $700, May 2008, Georgia Institute of Technology.

- **Internal Funding:**
    1. Huaming Zhang, Distinguished Speakers Series Grant, 2019-2020, $2000, UAH.
    2. Whitney Meade, Huaming Zhang and Letha Etzkorn, Collaborative Learning Grant from UAH, 2018, $1,500.
    3. Mining Algorithms for Graph Databases, PI, $4,309, January 2007-December 2007, UAHuntsville research mini-grant.
    4. Introduction to Bioinformatics Algorithms, PI, $2,300, May 2007-August 2007, UAHuntsville instructional mini-grant.

PROFESSIONAL SERVICES:

- **Reviewer for the following journals:**
    1. Algorithmica
    2. Computational Geometry: Theory and Applications
    3. Data and Knowledge Engineering
    4. Discrete Mathematics

5. Discrete Applied Mathematics
6. Information Processing Letters
7. International Journal of Computers and Applications
8. Journal of Combinatorial Optimization
9. Journal of Graph Algorithms and Applications
10. Parallel Processing Letters
11. Theoretical Computer Science
12. Computers & Electrical Engineering
13. Sensor Networks
14. International Journal of Numerical Modelling: Electronic Networks, Devices and Fields
15. Sustainability
16. Symmetry

- **Reviewer for the following funding agency:**

1. NSF CCF-AF Algorithmic Foundation 2011
2. The Innovation and Technology Commission, Hong Kong Special Administration Region Government, 2020.

- **Program Committee Member for the following conferences:**

1. The 13th International Computing and Combinatorics Conference, COCOON 2007
2. The 4th International Conference on Algorithmic Aspects in Information and Management (AAIM 2008)
3. The 5th International Conference on Algorithmic Aspects in Information and Management (AAIM 2009)
4. The 4th Annual International Conference on Combinatorial Optimization and Applications (COCOA 2010)
5. The Joint International Conference of FAW 2011 and AAIM 2011
6. The 16th Annual Conference on Theory and Applications of Models of Computation (TAMC 2020)
7. The 14th Annual International Conference on Combinatorial Optimization and Applications, COCOA 2020

- **Reviewer for the following conferences:**

1. The 11th International Computing and Combinatorics Conference, COCOON 2005
2. The 12th International Computing and Combinatorics Conference, COCOON 2006
3. The 30th Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2010).
4. The 17th International Colloquium on Structural Information and Communication Complexity, SIRROCO 2010.
5. The 29th Annual ACM-SIAM Symposium on Discrete Algorithms, SODA *2018*
6. The 36th International Symposium on Computational Geometry, SoCG 2020**.**
7. The 7th Annual International Conference on Algorithms and Discrete Applied Mathematics at CALDAM, 2021.