KWANGSOO YANG

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Department of Electrical Engineering and Computer Science		Fax:	561-297-2800
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EDUCATION HISTORY

University of Minnesota	Computer Science	Ph.D.	*2015*
University of Minnesota	Computer Science	M.S.	*2010*
Yonsei University	Electricity Engineering	B.S.	*1998*

EMPLOYMENT HISTORY

Associate Professor	Florida Atlantic University	Boca Raton, FL	*2021–Present*
Assistant Professor	Florida Atlantic University	Boca Raton, FL	*2015–2021*
Software Engineer	LG-CNS	Seoul, Korea	*2001–2008*

PUBLICATIONS

Refereed Journal Articles

27. Xavier, Jhansi, Kwangsoo Yang, and Praveen Borra. "Hybrid Framework for Synthetic Transportation Network Generation: Combining Constraint-First Topology With Learned Geometry." IEEE Access (2026).

26. Borra, Praveen, et al. "Resource Constraint Evacuation Route Planning: A Capacity-Aware Charge-Encoded State-Space Approach." Applied Sciences 16.13 (2026): 6509.

25. Moshfeghi S, Ghoreishi SGA, Jan MT, Jang J, Furht B, Yang K, Tappen R, Newman D, Conniff J, Rosselli M. Human-Centered Multi-Sensor Framework for Identifying Driving Patterns Associated with Cognitive Decline Through Quantitative Analysis. Res Sq [Preprint]. (2026)

24. Tappen, Ruth M., David Newman, Mónica Rosselli, Joshua Conniff, Subhosit Ray, Sonia Moshfeghi, Jinwoo Jang, KwangSoo Yang, and Borko Furht. "Sensor-Detected Differences in Behaviors of Older Drivers with Pre-MCI and Mild Cognitive Impairment vs. Unimpaired Drivers." Sensors 26, no. 1 (2026): 290.

23. Jackson, Kelley, David Newman, Alexandru Pasarariu, KwangSoo Yang, and Ruth Tappen. "Traditional Strategies vs. Social Media for Recruitment of Older Adults in a Longitudinal Study." Innovation in Aging 9, no. Suppl 2 (2025): 122-584.

22. Seyedeh Gol Ara Ghoreishi, Charles Boateng, Sonia Moshfeghi, Muhammad Tanveer Jan, Joshua Conniff, Kwangsoo Yang, Jinwoo Jang et al. "Quad-tree Based Driver Classification using Deep Learning for Mild Cognitive Impairment Detection." IEEE Access (2025).

21. Omar Gonzales, Kwangsoo Yang, and Shihong Huang. "Contextual Sequence-Based User Behavior Anomaly Detection." IEEE Access (2025).

20. Muhammad Tanveer Jan, Borko Furht, Sonia Moshfeghi, Jinwoo Jang, Seyedeh Gol Ara Ghoreishi, Charles Boateng, KwangSoo Yang, Joshua William Conniff, Monica Rosselli, David Newman, Ruth Tappen: Enhancing road safety, "In-vehicle sensor analysis of cognitive impairment in older drivers". Multim. Tools Appl. 84(17): 18711-18732 (2025)

19. Kelley Jackson, Ruth Tappen, David Newman, Jinwoo Jang, Borko Furht, KwangSoo Yang, Mónica Rosselli, and Michelle Villar. "Older driver reports of experience with sensors in vehicles to record driving behavior." Innovation in Aging 8, no. Suppl 1 (2024): 899.

18. Ruth Tappen, Robin Jarvis-Powers, David Newman, Mónica Rosselli, Joshua Conniff, KwangSoo Yang, Jinwoo Jang, and Ashlee Li. "The IDA (Interference with daily activities) scale: a new measure of function in mild cognitive imparment." Innovation in Aging 8, no. Suppl 1 (2024): 924.

17. Charles Boateng, Seyedeh Gol Ara Ghoreishi, Kwangsoo Yang, Muhammad Tanveer Jan, Ruth Tappen, Jinwoo Jang, David Newman et al. "Spatial Deep Learning Approach to Older Driver Classification." IEEE Access (2024).

16. Marie Adonis-Rizzo, Ruth M. Tappen, Monica Rosselli, David Newman, Joshua Conniff, Jinwoo Jang, KwangSoo Yang, and Borko Furht. "Cultural Effects on the Performance of Older Haitian Immigrants on Timed Cognitive Tests." Medical research archives 12, no. 11 (2024): 5868.

15. Sonia Moshfeghi, Jinwoo Jang, Muhammad Tanveer Jan, Seyedeh Gol Ara Ghoreishi, Borko Furht, Kwangsoo Yang, Ruth Tappen, David Newman, Joshua Conniff, and Monica Rosselli. "In-Vehicle Sensing Platform for the Inference of Older Drivers' Mild Cognitive Condition." In World Congress in Computer Science, Computer Engineering and Applied Computing, pp. 37-51. Cham: Springer Nature Switzerland, 2024.

14. Muhammad Tanveer Jan, Borko Furht, Sonia Moshfeghi, Jinwoo Jang, Seyedeh Gol Ara Ghoreishi, Charles Boateng, Kwangsoo Yang et al. "Enhancing road safety: In-vehicle sensor analysis of cognitive impairment in older drivers." Multimedia Tools and Applications (2024): 1-22.

13. Ruth Tappen, Jinwoo Jang, Sonia Moshfeghi, Kwangsoo Yang, Monica Rosselli, Joshua Coniff, Borko Furht, and David Newman. "In-vehicle sensors to detect changes in driving behaviors with emergence of mci." Innovation in Aging 7, no. Suppl 1 (2023): 64

12. Kwang Woo Nam and Kwangsoo Yang. "RealROI: Discovering real regions of interest from geotagged photos." IEEE Access 10 (2022): 83489-83497.

11. Young Gu Her, and Kwangsoo Yang. "Parallelization of a two-dimensional time-area runoff routing scheme for efficient overland flow modeling." Frontiers in Hydrology 2022 (2022): 148-04

10. Younggu Her, Kwangsoo Yang, and Jung-Hun Song. "Parallelization of a two-dimensional time-area watershed routing." Environmental Modelling and Software 146 (2021): 105222.

9. Herschelman Roxana, Ahmad Qutbuddin, Kwangsoo Yang, "Conflict-free evacuation route planning.", GeoInformatica 25, no. 4 (2021): 655-678.

8. Ahmad Qutbuddin, Kwangsoo Yang, "Multiple Resource Network Voronoi Diagram", Qutbuddin, Ahmad, and KwangSoo Yang. "Multiple resource network voronoi diagram." IEEE Transactions on Knowledge and Data Engineering 35, no. 2 (2021): 1857-1871.

7. KwangSoo Yang, Kwang Woo Nam, Ahmad Qutbuddin, Aaron Reich, Valmer Talis Huhn, "Size Constrained k Simple Polygons", GeoInformatica 25 (2021): 43-67.

6. Kwang Woo Nam, Wei Ding, KwangSoo Yang, "Measuring similarity between geo-tagged videos using largest common view", Electronics Letters, 450–452, IET (2019).

5. KwangSoo Yang, Apurv Shekhar, Dev Oliver, Shashi Shekhar, "Capacity-Constrained Network-Voronoi Diagram", IEEE Transactions on Knowledge & Data Engineering, 27(11):2919-2932 (2015)

4. KwangSoo Yang, Apurv Shekhar, Faizan Ur Rehman, Hatim Lahza, Saleh Basalamah, Shashi Shekhar, Imtiaz Ahmed, Arif Ghafoor, "Intelligent Shelter Allotment for Emergency Evacuation Planning: A Case Study of Makkah", IEEE Intelligent Systems, 30(5): 66-76 (2015)

3. Venkata Gunturi, Shashi Shekhar, KwangSoo Yang, "A Critical-time-point Approach to All-departure-time Lagrangian Shortest Paths", IEEE Transactions on Knowledge & Data Engineering, 27(10): 2591-2603 (2015)

2. KwangSoo Yang, Michael R. Evans, Venkata M.V. Gunturi, James M. Kang, Shashi Shekhar, "Lagrangian Approaches to Storage of Spatio-temporal Network Datasets", IEEE Transactions on Knowledge & Data Engineering, 26(9): 2222-2236 (2014)

1. Shashi Shekhar, KwangSoo Yang, Venkata M. V. Gunturi, Lydia Manikonda, Dev Oliver, Xun Zhou, Betsy George, Sangho Kim, Jeffrey M. R. Wolff, Qingsong Lu," Experiences with evacuation route planning algorithms". International Journal of Geographical Information Science 26(12): 2253-2265 (2012)

Refereed Conference Proceedings

23. Omar Gonzales, Shihong Huang, and KwangSoo Yang. "Towards More Effective Insider Threat Countermeasures: A Survey of Approaches for Addressing Challenges and Limitations." In 2024 IEEE International Systems Conference (SysCon), pp. 1-8. IEEE, 2024.

22. Ruth Tappen, David Newman, Monica Rosselli, Jinwoo Jang, Borko Furht, KwangSoo Yang, Seyedeh Gol Ara Ghoreishi et al. "Study protocol for In-vehicle sensors to detect changes in cognition of older drivers." BMC geriatrics 23, no. 1 (2023): 854.

21. Charles Boateng, Kwangsoo Yang, Seyedeh Gol Ara Ghoreishi, Jinwoo Jang, Muhammad Tanveer Jan, Joshua Conniff, Borko Furht et al. "Abnormal driving detection using gps data." In 2023 IEEE 20th International Conference on Smart Communities: Improving Quality of Life using AI, Robotics and IoT (HONET), pp. 1-6. IEEE, 2023.

20. Amogh Allani, and KwangSoo Yang. "Turn Constrained Shortest Path." In 2023 IEEE 20th International Conference on Smart Communities: Improving Quality of Life using AI, Robotics and IoT (HONET), pp. 1-6. IEEE, 2023

19. Seyedeh Gol Ara Ghoreishi, Sonia Moshfeghi, Muhammad Tanveer Jan, Joshua Conniff, KwangSoo Yang, Jinwoo Jang, Borko Furht et al. "Anomalous behavior detection in trajectory data of older drivers." In 2023 IEEE 20th International Conference on Smart Communities: Improving Quality of Life using AI, Robotics and IoT (HONET), pp. 146-151. IEEE, 2023.

18. Sonia Moshfeghi, Muhammad Tanveer Jan, Joshua Conniff, Seyedeh Gol Ara Ghoreishi, Jinwoo Jang, Borko Furht, Kwangsoo Yang et al. "In-vehicle sensing and data analysis for older drivers with mild cognitive impairment." In 2023 IEEE 20th International Conference on Smart Communities: Improving Quality of Life using AI, Robotics and IoT (HONET), pp. 140-145. IEEE, 2023.

17. Muhammad Tanveer Jan, Sonia Moshfeghi, Joshua William Conniff, Jinwoo Jang, Kwangsoo Yang, Jiannan Zhai, Monica Rosselli, David Newman, Ruth Tappen, and Borko Furht. "Methods and tools for monitoring driver's behavior." In 2022 International Conference on Computational Science and Computational Intelligence (CSCI), pp. 1269-1273. IEEE, 2022

16. Muhammad Tanveer Jan, Ali Hashemi, Jinwoo Jang, Kwangsoo Yang, Jiannan Zhai, David Newman, Ruth Tappen, and Borko Furht. "Non-intrusive drowsiness detection techniques and their application in detecting early dementia in older drivers." In Proceedings of the Future Technologies Conference, pp. 776-796. Springer International Publishing, 2022.

15. Daniel Bereznyi, Ahmad Qutbuddin, Younggu Her and Kwangsoo Yang, "Node–attributed Spatial Graph Partitioning", In Proceedings of 28th ACM SIGSPATIAL Intl. Conference on Advances in Geographic Information Systems (In-Press) (2020).

14. Ahmad Qutbuddin and KwangSoo Yang. "Multiple Resource Network Voronoi Diagram", 11th Intl. Conference on Geographic Information Science (In-Press) (2020)

13. Ohriniuc Roxana and Kwangsoo Yang. "Conflict-Free Evacuation Route Planner". In Proceedings of 27th ACM SIGSPATIAL Intl. Conference on Advances in Geographic Information Systems, pages 480-487 (2019).

12. Ohriniuc Roxana, Reich Aaron, KwangSoo Yang: "Coverage Constrained Spatial CO-clustering", In Proceedings of 26th ACM SIGSPATIAL Intl. Conference on Advances in Geographic Information Systems: Pages 492-495 (2018)

11. Reich Aaron, Ohriniuc Roxana, KwangSoo Yang: "Size Constrained k Simple Polygons", In Proceedings of 26th ACM SIGSPATIAL Intl. Conference on Advances in Geographic Information Systems: Pages 500-503 (2018)

10. Yiqun Xie, Kwangsoo Yang, Shashi Shekhar, Brent Dalzell and David Mulla, "Spatially Constrained Geodesign Optimization (GOP) for Improving Agricultural Watershed Sustainability", Workshops at the Thirty-First AAAI Conference on Artificial Intelligence: Pages 57-63, ISBN: 9781577357865 (2017)

9. KwangSoo Yang: "Distance-Constrained k Spatial Sub-Networks: A Summary of Results", 9th Intl. Conference on Geographic Information Science, LNCS 9927: pages 68-84 (2016)

8. KwangSoo Yang, Apurv Hirsh Shekhar, Dev Oliver, Shashi Shekhar, "Capacity-Constrained Network-Voronoi Diagram (Extended Abstract)", IEEE 32nd International Conference on Data Engineering (ICDE), ISBN: 978-1-5090-2020-1 (2016)

7. KwangSoo Yang, Apurv Hirsh Shekhar, Dev Oliver, Shashi Shekhar, "Capacity-Constrained Network-Voronoi Diagram: A Summary of Results", Spatial and Temporal Databases, proceeding of 13th Intl. Symposium on Spatial and Temporal Databases Springer LNCS 8098: pages 56-73 (2013)

6. Shekhar, Shashi, Viswanath Gunturi, Michael R. Evans, and KwangSoo Yang. "Spatial big-data challenges intersecting mobility and cloud computing." In Proceedings of the Eleventh ACM International Workshop on Data Engineering for Wireless and Mobile Access, pp. 1-6. ACM (2012)

5. KwangSoo Yang, Venkata M. V. Gunturi, Shashi Shekhar: "A Dartboard Network Cut Based Approach to Evacuation Route Planning: A Summary of Results", 7th Intl. Conference on Geographic Information Science, LNCS: pages 7478: 325-339 (2012)

4. KwangSoo Yang et al., "Capacity-Constrained Network-Voronoi Diagram: An Extended Abstract", Proceedings of the 12th International Conference on GeoComputation (2013)

3. KwangSoo Yang, Shashi Shekhar, Jing Dai, Sambit Sahu, Milind R. Naphade: Smarter Water Management: A Challenge for Spatio-Temporal Network Databases. Spatial and Temporal Databases, proceeding of 12th Intl. Symposium on Spatial and Temporal Databases, LNCS 6849: pages 471-474 (2011)

2. Venkata M. V. Gunturi, Ernesto Nunes, KwangSoo Yang, Shashi Shekhar, "A Critical-Time-Point Approach to All-Start-Time Lagrangian Shortest Paths: A Summary of Results", Spatial and Temporal Databases, proceeding of 12th Intl. Symposium on Spatial and Temporal Databases, LNCS 6849: pages 74-91 (2011)

1. Michael R. Evans, KwangSoo Yang, James M. Kang, Shashi Shekhar, "A Lagrangian approach for storage of spatio-temporal network datasets: a summary of results", In Proceedings of 18th ACM SIGSPATIAL Intl. Conference on Advances in Geographic Information Systems, pages 212-221 (2010)

GRANT AWARDS

External Grants From Federal/State Agencies

- In-Vehicle Sensors to Detect Cognitive Change in Older Drivers, Co-PI: KwangSoo Yang with Ruth Tappen, ($6,130,807), Sep. 2020 - Apr. 2026, National Institutes of Health (NIH)
- OAC CAREER: Spatial Network Database approach for Emergency Management Information Systems ($ 500,011); Mar. 2019 - Aug. 2025, National Science Foundation (NSF)
- Development of a Traffic Map Evaluation Tool for TMC Applications ($243,706); Feb. 2017 – Dec. 2018, Florida Department of Transportation, (Co-PI with PI Dr. Stevanovic, FAU)

Internal Grants

- OURI Undergraduate Research Grant: Identifying k Hot Routes on Time Expanded Graph ($600); 2022, Florida Atlantic University
- OURI Undergraduate Research Grant: Florida Emergency Evacuation Route Planning ($1,200); Jan. 2018 – Dec. 2018, Florida Atlantic University

AWARDS AND HONORS

- College Junior Faculty Research Award, Florida Atlantic University, 2020
- NSF Career Award, 2019
- Doctor Dissertation Fellowship, University of Minnesota, 2014.
- Received a "Thank a Teacher" note from students (UMN Center for Teaching & Learning).
- Distinguished Service Award, Leader of IT Research Division, (LG-CNS) Dec. 2002

COURSES TAUGHT AT FAU

Graduate Courses:

- Spring 2026: COP 6731 Theory and Implementation of Database Systems
- Fall 2025: COP 6731 Theory and Implementation of Database Systems
- Spring 2025: COP 6731 Theory and Implementation of Database Systems
- Fall 2024: COP 6731 Theory and Implementation of Database Systems
- Spring 2024: COP 6731 Theory and Implementation of Database Systems
- Fall 2023: COP 6731 Theory and Implementation of Database Systems
- Spring 2023: COP 6731 Theory and Implementation of Database Systems
- Spring 2022: COP 6731 Theory and Implementation of Database Systems
- Spring 2021: COP 6731 Theory and Implementation of Database Systems

Undergraduate Courses:

- Spring 2026: EGN 4952 Engineering Design 2
- Fall 2025: EGN 4950 Engineering Design 1
- Spring 2025: EGN 4952 Engineering Design 2
- Fall 2024: EGN 4950 Engineering Design 1
- Fall 2023: EGN 4950 Engineering Design 1

- Spring 2023: COP 3540 Introduction to Database Structures
- Fall 2022: COP 3540 Introduction to Database Structures
- Spring 2022: COP 3540 Intro to Database Structures
- Fall 2021: COP 3540 Intro to Database Structures

Supervision of Ph.D Students (10):

- Michel Angelo Roger : (2026 - Present): Expected to the Ph.D. dissertation proposal in Spring 2028.
- Jun Ma (Ph.D): (2026 - Present): Expected to the Ph.D. dissertation proposal in Fall 2027.
- Rui Costa (Ph.D): (2026 - Present): Expected to the Ph.D. dissertation proposal in Fall 2027.
- Joseph Kannookaden (Ph.D): (2025 - Present): Expected to the Ph.D. dissertation proposal in Fall 2026.
- Seyedeh Gol Ara Ghoreish (Ph.D): (2022 - Present): Expected to the Ph.D. dissertation proposal in Fall 2026.
- Jhansi Xavier (Ph.D): "Hybrid Framework for Synthetic Transportation Network Generation: Combining Constraint-First Topology With Learned Geometry" (2026)
- Praveen Borra (Ph.D): "Resource Constraint Evacuation Route Planning: A capacity-aware charge-encoded state-space approach" (2026)
- Omar Gonzales (Ph.D): "Contextual and Latent Deep Learning Approach to User Behavior Anomaly Detection" (2025)
- Ahmad Qutbuddin (Ph.D): "Spatial Network Big Database Approach to Resource Allocation Problems" (2021)
- Roxana M Herschelman (Ph.D): "Spatial Network Big Data Approaches to Emergency Management Information Systems" (2020)

Supervision of M.S. Students (4):

- Aaron Green (Master): (2026 - Present): Expected to the MS. thesis proposal in Spring 2027.
- Valentin Nechita (Master): "Node-attributed spatial graph partitioning: a kullback-leibler divergence based approach" (2025)
- Charles Boateng (Master): "Spatial Deep Learning Approach to Older Driver Classification" (2024)
- Daniel Bereznyi (Master): Research Paper "Node-attributed Spatial Graph Partitioning. SIGSPATIAL/GIS 2020: 58-67, 2020

Supervision of Highschool Students (3):

- Claire Park : (2026 - Present)
- Taher Kheda: Research Paper "Resource Constraint Evacuation Route Planning: A Capacity-Aware Charge-Encoded State-Space Approach." Applied Sciences 16, no. 13 (2026): 6509.
- Amogh Allani: Research Paper "Turn Constrained Shortest Path." In 2023 IEEE 20th International Conference on Smart Communities: Improving Quality of Life using AI, Robotics and IoT (HONET), pp. 1-6. IEEE, 2023"

SERVICE AND PROFESSIONAL DEVELOPMENT

Department/School service

- Gaduate Programs Committee (GPC) Chair: 2026-Present
- Undergraduate Programs Committee (GPC): 2021-2026
- Proctoring the QE exam (2021-Present)
- Ph.D. Dissertation/M.S. Thesis Committee
- Poster Judge (2022)

Professional Activities

- Editorial Board Member of Korea Spatial Information Society
- Refereed for numerous journals, including IEEE Trans. on Knowledge and Data Engineering, International Journal on Advances of Computer Science for Geographic Information Systems, IEEE Intelligent Systems, ACM Trans. on Spatial Algorithms and Systems, ACM Trans. on Spatial Algorithms and Systems, IEEE Trans. on Intelligent Transportation Systems, Journal of AI and Data Mining, ISPRS International Journal of Geo-Information (MDPI), Applied Sciences (MDPI).
- Refereed for numerous conferences, including ACM SIGSPATIAL, FEED Workshop KDD, IEEE International Conference on Vehicular Electronics and Safety, GEOProcessing, GraphSM.