

VINOD NAMBOODIRI

Curriculum Vitae

 *Vinod's Webpage*

Education

- 2008 **Doctor of Philosophy, Computer Engineering**, *University of Massachusetts*, Amherst.
Wireless Networks, Pervasive and Mobile Computing, Algorithms, Energy-Aware Computing
- 2003 **Master of Science, Computer Science**, *University of North Carolina*, Charlotte.
- 2000 **Bachelor of Engineering, Instrumentation and Control Engineering**, *Gujarat Technological University*, Gandhinagar, India.

Appointments

[Wichita State University, Wichita, KS, USA](#)

Administrative Appointments

2021–present **Associate Director for Research Engagement**, *School of Computing*.

This role has required closely working with the Director on day to day decisions and strategic planning. My role entails working with all research-active faculty members to maximize their potential. We discuss potential funding opportunities, how to forge new collaborations with industry and communities of interest, strategies to improve chances of getting funded, and how to balance research with other expectations. In 18 months in this role, all five junior faculty I worked have received funding from the NSF and/or industry. Due to these successes, I have begun participating on the WSU College of Engineering's Executive Council since June 2022 to help improve research productivity in the whole college in addition to providing input on various matters related to the daily operation and vision for the School of Computing.

2017–2019 **REU Site Director**, *Dept. of Electrical Engineering and Computer Science*.

I served as both the PI and site director for this National Science Foundation (NSF)-funded Research Experiences for Undergraduate (REU) program hosted in my department. This role, in addition to writing and administering the research project, required matching 31 students with faculty on summer research projects over three different years, and providing research and general career mentoring. This role made me better understand how active learning through research projects can help undergraduate students perform better academically.

2014–2016 **Graduate Program Coordinator**, *Dept. of Electrical Engineering and Computer Science*.

The administrative appointment of Graduate Program Coordinator had expectations of overseeing admissions and directing graduate academic programs in computer science and computer networking. These were two large programs (over 200 students in total) and my major responsibilities included admissions, graduate student advising, defining and adapting program guidelines, program evaluation and assessment, and program-related industry/community relations.

Academic Appointments

2021–present **Professor**, *School of Computing*.

2019–2021 **Professor**, *Dept. of Electrical Engineering and Computer Science*.

2017–present **Adjunct Research Professor**, *Dept. of Biomedical Engineering*.

2014–2019 **Associate Professor**, *Dept. of Electrical Engineering and Computer Science*.

2008–2014 **Assistant Professor**, *Dept. of Electrical Engineering and Computer Science*.

These positions have come with the typical responsibilities at research-intensive academic institutions that include engaging in research activities with graduate students, teaching undergraduate and graduate classes, and providing service at the department, college, and university levels in addition to the scientific community and society at large.

Envision Research Institute, Wichita, KS, USA

2017–2021 **Senior Scientist (Adjunct).**

This position had the responsibility of serving as a scientist helping design assistive and accessibility technologies for the benefit of blind and visually impaired individuals. Additional responsibilities include dissemination of research contributions to the scientific community, engagement with the community, and service as a mentor for post-doctoral fellows.

Robert Bosch Research and Technology Center, Palo Alto, CA, USA

2007 **Summer Research Intern.**

This position had the responsibility of serving as an intern designing low-latency communication protocols for wireless sensor networks. Results from this work were published at the ACM/IEEE IPSN Conference in 2008.

Awards & Recognition

2022 Recipient of the Wichita State University **Excellence in Research Award**

2020 Idea on Disability Inclusion in Workplaces Through Technology chosen as a **NSF Convergence Accelerator workshop** for year 2021; only 12 out 180 were chosen

2020 Received **patent** (in collaboration with graduate student Seyed Ali Cheraghi) titled “Beacon-based indoor wayfinding system with automated beacon placement”, U.S. 10,655,970.

2018 Recipient of the Wichita State University **Innovation Pioneer Award**

2018 Recipient of the **Duane and Velma Wallace Excellence in Research Award** by the College of Engineering at Wichita State University

2015–2016 Selected as **Online Learning Faculty Fellow** at Wichita State University

2015 Recipient of the **Excellence in the Advancement of Teaching Award** by Wichita State University

2014 Recipient of the **Academy of Effective Teaching Award** by Wichita State University

2013 Received the **Excellence in Teaching Award** by Wichita State University

2013 Recipient of the **Duane and Velma Wallace Excellence in Teaching Award** by the College of Engineering at Wichita State University

2011 Research work on the use of wireless technologies for metering in smart grids was noticed by the Department of Energy and **included in an internal report to the U.S. Energy Secretary**

2011 Recipient of the **Strategic Engineering Research Fellowship** by the College of Engineering at Wichita State University

2009 Recipient of the **Outstanding Student Branch Advisor and Counselor Award** by IEEE Region 5

Funded Grants

Dec. 2022– Aug. 2023 NSF Convergence Accelerator Track H: Towards a Community-Driven Framework for the Creation and Impact Analysis of Digital Accessibility Maps with Persons with Disabilities, National Science Foundation (NSF), (**PI**), (Total \$750,000)

- Nov. 2021– Oct. 2026 The Alliance of Persons with Disabilities and Intersectionality for Inclusion, Networking, and Transition Opportunities in STEM (TAPDINTO-STEM), National Science Foundation (NSF), (**Co-PI**), (Total \$175,000)
- Mar. 2021– Mar. 2022 NSF Convergence Accelerator: Accelerating Disability Inclusion in Workplaces through Technology, National Science Foundation (NSF), (**PI**), (Total \$110,000)
- Oct. 2020– Sep. 2023 SCC-IRG Track 2: CityGuide: Seamless and Inclusive Location-Based Services for Communities, National Science Foundation (NSF), (**PI**), (Total \$1,122,749)
- Sep. 2019– Aug. 2020 Student Housing and Student Program Support for the 51st North American Power Symposium, Wichita, KS, October 2020, National Science Foundation (NSF), (**Co-PI**), (Total \$25,000)
- Aug. 2018– June 2021 Accessibility and Inclusion Technology Research, Envision Research Institute (**PI**), (Total \$115,292)
- Jan. 2018– Aug. 2018 Towards Inclusive Wayfinding in Wichita and Establishment of an Accessibility and Inclusion Technology Research Incubator at Wichita State University, Envision Research Institute, (**PI**), (Total \$24,763)
- Sep. 2017– Aug. 2019 SCC-Planning: CityGuide: Beacon-Based Community-Driven Inclusive Wayfinding, National Science Foundation (NSF), (**PI**), (Total \$100,000)
- Mar. 2017– May 2021 Enhancing Undergraduate Research Experiences in Networked Cyber-Physical Systems, National Science Foundation (NSF), (**PI**), (Total \$324,000)
- Jan. 2017– May 2017 Development of an Assistive Technologies Research Agenda, Envision Research Institute, (**PI**), (Total \$15,395)
- July 2016– Aug. 2017 Indoor Wayfinding for the Blind and Visually Impaired, Regional Institute on Aging, Wichita State University, (**PI**), (Total \$15,000)
- July 2015– June 2016 Distributed Data Management for Data-Intensive Smart Grid Applications:, Wichita State University URCA, (**PI**), (Total \$4,500)
- June 2013– Aug. 2015 Towards a Privacy-Aware Information Sharing Framework for Metering in Smart Grids, Power Systems Engineering Research Center (PSERC) NSF I/UCRC, (**PI**), (Total \$220,000)
- July 2011– June 2013 Communication Needs and Integration Options for AMI in the Smart Grid, NSF/DoE funds through PSERC NSF I/UCRC, (**PI**). (Total \$34,000)
- June 2011– May 2012 Towards Sustainable Data Centers, Strategic Engineering Research Fellowship, College of Engineering, Wichita State University, (**PI**). (Total \$20,000)
- Jan. 2011– June 2011 Real-Time and Remote Monitoring of River Water for Trace Pesticides through Nanotechnology Enabled Sensors, Multidisciplinary Research Project Award, Wichita State University, (**PI-Collaborative**). (Total \$5,000)
- Nov. 2008– Aug. 2012 Novel Coding and Novel Service Differentiation Mechanisms to Innovate Army Wireless Communications and Ad Hoc Networks, U.S. DoD (DEPSCOR), (**Co-PI**), (note: this grant was initially to PI Coskun Cetinkaya before he left WSU; it was re-assigned to another PI with me as a Co-PI), (Total \$408,372)
- Jan. 2009– Dec. 2011 Communication Requirements and Integration Options for Smart Grid Deployment, Power Systems Engineering Research Center (PSERC) NSF I/UCRC, (**Co-PI**), (Total \$160,000)

Publications

Peer-Reviewed Journal Articles

S. A. Cheraghi, V. Namboodiri, and G. Arsal, “CityGuide: A seamless indoor-outdoor wayfinding system for people with vision impairments,” *Universal Access in the Information Society*,

accepted for publication.

A. Abraham and V. Namboodiri, “An accessible ble beacon-based indoor wayfinding system,” *Journal on Technology & Persons with Disabilities*, vol. 11, March 2023. [Online]. Available: <http://scholarworks.csun.edu>

V. Namboodiri, N. M. Ravindran, S. A. Cheraghi, and R. Babu, “Guidecall: Affordable and trustworthy video call-based remote assistance,” *Journal on Technology & Persons with Disabilities*, vol. 8, p. 53, March 2020. [Online]. Available: <http://scholarworks.csun.edu>

U. Das and V. Namboodiri, “A quality-aware multi-level data aggregation approach to manage smart grid AMI traffic,” *IEEE Trans. Parallel Distributed Syst.*, vol. 30, no. 2, pp. 245–256, 2019. [Online]. Available: <https://doi.org/10.1109/TPDS.2018.2865937>

A. Boustani, A. Maiti, S. Y. Jazi, M. Jadliwala, and V. Namboodiri, “Seer Grid: Privacy and utility implications of two-level load prediction in smart grids,” *IEEE Trans. Parallel Distributed Syst.*, vol. 28, no. 2, pp. 546–557, 2017. [Online]. Available: <https://doi.org/10.1109/TPDS.2016.2564399>

M. Heidari, T. Balachandran, V. Aravinthan, V. Namboodiri, and G. Chen, “ALARM: Average low-latency medium access control communication protocol for smart feeders,” *IET Generation, Transmission & Distribution*, vol. 10, pp. 2647–2657(10), August 2016. [Online]. Available: <https://digital-library.theiet.org/content/journals/10.1049/iet-gtd.2015.1064>

T. Ghose, V. Namboodiri, and R. Pendse, “Thin is green: Leveraging the thin-client paradigm for sustainable mobile computing,” *Comput. Electr. Eng.*, vol. 45, pp. 155–168, 2015. [Online]. Available: <https://doi.org/10.1016/j.compeleceng.2015.04.021>

V. S. Venkitachalam, V. Namboodiri, S. Joseph, E. Dee, and C. A. Burdsal, “What, Why, and How: Surveying what consumers want in new mobile phones,” *IEEE Consumer Electron. Mag.*, vol. 4, no. 2, pp. 54–59, 2015. [Online]. Available: <https://doi.org/10.1109/MCE.2015.2390651>

B. Karimi, V. Namboodiri, and M. Jadliwala, “Scalable meter data collection in Smart Grids through message concatenation,” *IEEE Trans. Smart Grid*, vol. 6, no. 4, pp. 1697–1706, 2015. [Online]. Available: <https://doi.org/10.1109/TSG.2015.2426020>

A. Badruddoza, V. Namboodiri, and N. Jaggi, “Does cognition come at a net energy cost in ad hoc wireless LANs?” *Comput. Commun.*, vol. 43, pp. 43–54, 2014. [Online]. Available: <https://doi.org/10.1016/j.comcom.2014.01.011>

S. Joseph, V. Namboodiri, and V. C. Dev, “A market driven framework towards environmentally sustainable mobile computing,” *SIGMETRICS Perform. Evaluation Rev.*, vol. 42, no. 3, pp. 46–48, 2014. [Online]. Available: <https://doi.org/10.1145/2695533.2695554>

B. Karimi and V. Namboodiri, “On the capacity of a wireless backhaul for the distribution level of the smart grid,” *IEEE Syst. J.*, vol. 8, no. 2, pp. 521–532, 2014. [Online]. Available: <https://doi.org/10.1109/JSYST.2013.2260701>

V. Namboodiri, V. Aravinthan, S. N. Mohapatra, B. Karimi, and W. Jewell, “Toward a secure wireless-based Home Area Network for metering in smart grids,” *IEEE Syst. J.*, vol. 8, no. 2, pp. 509–520, 2014. [Online]. Available: <https://doi.org/10.1109/JSYST.2013.2260700>

S. Joseph, V. Namboodiri, and V. C. Dev, “Toward environmentally sustainable mobile computing through an economic framework,” *IEEE Trans. Emerg. Top. Comput.*, vol. 2, no. 2, pp. 212–224, 2014. [Online]. Available: <https://doi.org/10.1109/TETC.2013.2296521>

V. Namboodiri, V. Aravinthan, S. Joseph, E. Sawan, and W. Jewell, “Five heads are better than one: An interdisciplinary graduate course on Smart Grids: Lessons, challenges, and opportunities,” *IEEE Power and Energy Magazine*, vol. 11, no. 1, pp. 44–50, 2013. [Online]. Available: <https://doi.org/10.1109/MPE.2012.2225231>

R. Syeda and V. Namboodiri, “Energy-efficiency of cooperative sensing schemes in Ad Hoc WLAN cognitive radios,” *Journal of Green Engineering*, vol. 2, pp. 345–375, 2012. [Online]. Available: <https://api.semanticscholar.org/CorpusID:1685420>

V. Namboodiri, M. DeSilva, K. Deegala, and S. Ramamoorthy, “An extensive study of slotted Aloha-based RFID anti-collision protocols,” *Comput. Commun.*, vol. 35, no. 16, pp. 1955–1966, 2012. [Online]. Available: <https://doi.org/10.1016/j.comcom.2012.05.015>

P. Somavat and V. Namboodiri, “Energy consumption of personal computing including portable communication devices,” *Journal of Green Engineering*, vol. 1, no. 4, pp. 447–445, 2011. [Online]. Available: <https://api.semanticscholar.org/CorpusID:15063492>

V. Namboodiri and A. Keshavarzian, “Alert: An adaptive low-latency event-driven MAC protocol for wireless sensor networks,” *J. Comput. Networks Commun.*, vol. 2011, pp. 195 685:1–195 685:19, 2011. [Online]. Available: <https://doi.org/10.1155/2011/195685>

V. Namboodiri and R. Pendse, “Bit level synchronized MAC protocol for multireader RFID networks,” *EURASIP J. Wirel. Commun. Netw.*, vol. 2010, 2010. [Online]. Available: <https://doi.org/10.1155/2010/956578>

V. Namboodiri and L. Gao, “Energy-aware tag anticollision protocols for RFID systems,” *IEEE Trans. Mob. Comput.*, vol. 9, no. 1, pp. 44–59, 2010. [Online]. Available: <https://doi.org/10.1109/TMC.2009.96>

V. Namboodiri and L. Gao, “Energy-efficient VoIP over wireless LANs,” *IEEE Trans. Mob. Comput.*, vol. 9, no. 4, pp. 566–581, 2010. [Online]. Available: <https://doi.org/10.1109/TMC.2009.150>

V. Namboodiri, L. Gao, and R. Janaswamy, “Power-efficient topology control for static wireless networks with switched beam directional antennas,” *Ad Hoc Networks*, vol. 6, no. 2, pp. 287–306, 2008. [Online]. Available: <https://doi.org/10.1016/j.adhoc.2007.01.003>

V. Namboodiri and L. Gao, “Prediction-based routing for vehicular *Ad Hoc* networks,” *IEEE Trans. Veh. Technol.*, vol. 56, no. 4, pp. 2332–2345, 2007. [Online]. Available: <https://doi.org/10.1109/TVT.2007.897656>

Peer-Reviewed Conference and Workshop Publications

V. Namboodiri, F. Garfias, A. Abraham, and S. Joseph, “On the application of accessible wayfinding systems for tourism,” in *The 2022 IEEE IoT Vertical and Topical Summit for Tourism*, September 2022.

S. Joseph, C. Brond, and V. Namboodiri, “Economic impact of adopting assistive technologies on quality adjusted life years and work productivity,” in *The Seventh International Conference on Universal Accessibility in the Internet of Things and Smart Environments SMART ACCESSIBILITY 2022*, June 2022.

F. Yan, V. Namboodiri, and H. He, “Common reality: An interface of human-robot communication and mutual understanding,” in *Social Robotics: 13th International Conference, ICSR 2021, Singapore, Singapore, November 10–13, 2021, Proceedings*.

- Berlin, Heidelberg: Springer-Verlag, 2021, p. 319–328. [Online]. Available: https://doi.org/10.1007/978-3-030-90525-5_27
- S. A. Cheraghi, V. Namboodiri, and G. Aarsal, “Cityguide: A seamless indoor-outdoor wayfinding system for people with vision impairments,” in *19th IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events, PerCom Workshops 2021, Kassel, Germany, March 22-26, 2021*. IEEE, 2021, pp. 105–110. [Online]. Available: <https://doi.org/10.1109/PerComWorkshops51409.2021.9431138>
- U. Das, V. Namboodiri, and H. He, “Pathlookup: A deep learning-based framework to assist visually impaired in outdoor wayfinding,” in *19th IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events, PerCom Workshops 2021, Kassel, Germany, March 22-26, 2021*. IEEE, 2021, pp. 111–116. [Online]. Available: <https://doi.org/10.1109/PerComWorkshops51409.2021.9431007>
- S. A. Cheraghi, V. Namboodiri, and K. Sinha, “IBeaconMap: Automated indoor space representation for beacon-based wayfinding,” in *Computers Helping People with Special Needs - 17th International Conference, ICCHP 2020, Lecco, Italy, September 9-11, 2020, Proceedings, Part I*, ser. Lecture Notes in Computer Science, K. Miesenberger, R. Manduchi, M. C. Rodriguez, and P. Penáz, Eds., vol. 12376. Springer, 2020, pp. 105–113. [Online]. Available: https://doi.org/10.1007/978-3-030-58796-3_14
- S. Joseph and V. Namboodiri, “Assessment of economic value of assistive technologies through quality-adjusted work-life years (QAWLY),” in *Computers Helping People with Special Needs - 17th International Conference, ICCHP 2020, Lecco, Italy, September 9-11, 2020, Proceedings, Part II*, ser. Lecture Notes in Computer Science, K. Miesenberger, R. Manduchi, M. C. Rodriguez, and P. Penáz, Eds., vol. 12377. Springer, 2020, pp. 480–488. [Online]. Available: https://doi.org/10.1007/978-3-030-58805-2_57
- S. A. Cheraghi, A. Almadan, and V. Namboodiri, “Cityguide: A seamless indoor-outdoor wayfinding system for people with vision impairments,” in *The 21st International ACM SIGACCESS Conference on Computers and Accessibility, ASSETS 2019, Pittsburgh, PA, USA, October 28-30, 2019*, J. P. Bigham, S. Azenkot, and S. K. Kane, Eds. ACM, 2019, pp. 542–544. [Online]. Available: <https://doi.org/10.1145/3308561.3354621>
- S. Joseph and V. Namboodiri, “Auxiliary location-based services for persons with disabilities: What do city planners and non-profit agencies think?” in *The 21st International ACM SIGACCESS Conference on Computers and Accessibility, ASSETS 2019, Pittsburgh, PA, USA, October 28-30, 2019*, J. P. Bigham, S. Azenkot, and S. K. Kane, Eds. ACM, 2019, pp. 621–623. [Online]. Available: <https://doi.org/10.1145/3308561.3354631>
- L. Baird, Z. Shan, and V. Namboodiri, “Automated dynamic detection of self-hiding behavior,” in *16th IEEE International Conference on Mobile Ad Hoc and Sensor Systems Workshops, MASS Workshops 2019, Monterey, CA, USA, November 4-7, 2019*. IEEE, 2019, pp. 87–91. [Online]. Available: <https://doi.org/10.1109/MASSW.2019.00024>
- S. A. Cheraghi, A. Sharma, V. Namboodiri, and G. Aarsal, “SafeExit4All: An inclusive indoor emergency evacuation system for people with disabilities,” in *Proceedings of the 16th Web For All 2019 Conference - Personalizing the Web, W4A 2019, San Francisco, CA, USA, May 13-15, 2019*. ACM, 2019, pp. 29:1–29:10. [Online]. Available: <https://doi.org/10.1145/3315002.3317569>
- N. M. Ravindran, S. A. Cheraghi, V. Namboodiri, and R. Babu, “GuideCall: Affordable and trustworthy video call-based remote assistance for people with visual impairments,” in

Proceedings of the 16th Web For All 2019 Conference - Personalizing the Web, W4A 2019, San Francisco, CA, USA, May 13-15, 2019. ACM, 2019, pp. 11:1–11:2. [Online]. Available: <https://doi.org/10.1145/3315002.3332442>

U. Das, V. C. Dev, and V. Namboodiri, “On the effectiveness of data aggregation to manage network congestion in Smart Grid AMI,” in *2018 IEEE Power & Energy Society Innovative Smart Grid Technologies Conference, ISGT 2018, Washington, DC, USA, February 19-22, 2018.* IEEE, 2018, pp. 1–5. [Online]. Available: <https://doi.org/10.1109/ISGT.2018.8403329>

S. A. Cheraghi, V. Namboodiri, and L. Walker, “GuideBeacon: Beacon-based indoor wayfinding for the blind, visually impaired, and disoriented,” in *2017 IEEE International Conference on Pervasive Computing and Communications, PerCom 2017, Kona, Big Island, HI, USA, March 13-17, 2017.* IEEE Computer Society, 2017, pp. 121–130. [Online]. Available: <https://doi.org/10.1109/PERCOM.2017.7917858>

V. Yadav, S. A. Cheraghi, and V. Namboodiri, “The OS elixir: On the impact of operating system upgrades on mobile device lifespan,” in *Sixth International Green and Sustainable Computing Conference, IGSC 2015, Las Vegas, NV, USA, December 14-16, 2015.* IEEE Computer Society, 2015, pp. 1–6. [Online]. Available: <https://doi.org/10.1109/IGCC.2015.7393737>

V. C. Dev, U. Das, V. Namboodiri, S. Chakraborty, V. Aravinthan, Y. Guo, and A. Srivastava, “Towards application-aware data concentration schemes for advanced metering infrastructures,” in *2015 IEEE International Conference on Smart Grid Communications, SmartGridComm 2015, Miami, FL, USA, November 2-5, 2015.* IEEE, 2015, pp. 440–445. [Online]. Available: <https://doi.org/10.1109/SmartGridComm.2015.7436340>

N. Alamatsaz, A. Boustani, M. Jadliwala, and V. Namboodiri, “AgSec: Secure and efficient CDMA-based aggregation for smart metering systems,” in *11th IEEE Consumer Communications and Networking Conference, CCNC 2014, Las Vegas, NV, USA, January 10-13, 2014.* IEEE, 2014, pp. 489–494. [Online]. Available: <https://doi.org/10.1109/CCNC.2014.6866615>

A. Boustani, N. Alamatsaz, M. Jadliwala, and V. Namboodiri, “LocJam: A novel jamming-based approach to secure localization in wireless networks,” in *11th IEEE Consumer Communications and Networking Conference, CCNC 2014, Las Vegas, NV, USA, January 10-13, 2014.* IEEE, 2014, pp. 336–344. [Online]. Available: <https://doi.org/10.1109/CCNC.2014.6866592>

M. Jadliwala, A. Maiti, and V. Namboodiri, “Social Puzzles: Context-based access control in online social networks,” in *44th Annual IEEE/IFIP International Conference on Dependable Systems and Networks, DSN 2014, Atlanta, GA, USA, June 23-26, 2014.* IEEE Computer Society, 2014, pp. 299–310. [Online]. Available: <https://doi.org/10.1109/DSN.2014.38>

A. Badruddoza, V. Namboodiri, and M. Jadliwala, “On the energy efficiency of dynamic spectrum access under dynamic channel conditions,” in *8th International Conference on Cognitive Radio Oriented Wireless Networks, CROWNCOM 2013, Washington, DC, USA, July 8-10, 2013,* D. Cabric and X. Cheng, Eds. ICST / IEEE Computer Society, 2013, pp. 31–36. [Online]. Available: <https://doi.org/10.1109/CROWNCom.2013.6636790>

B. Karimi, V. Namboodiri, and M. Jadliwala, “On the scalable collection of metering data in smart grids through message concatenation,” in *IEEE Fourth International Conference on Smart Grid Communications, SmartGridComm 2013, Vancouver, BC, Canada, October 21-24, 2013.* IEEE, 2013, pp. 318–323. [Online]. Available: <https://doi.org/10.1109/SmartGridComm.2013.6687977>

- B. Karimi and V. Namboodiri, "Capacity analysis of a wireless backhaul for metering in the Smart Grid," in *2012 Proceedings IEEE INFOCOM Workshops, Orlando, FL, USA, March 25-30, 2012*. IEEE, 2012, pp. 61–66. [Online]. Available: <https://doi.org/10.1109/INFCOMW.2012.6193520>
- V. Namboodiri and T. Ghose, "To cloud or not to cloud: A mobile device perspective on energy consumption of applications," in *2012 IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks, WoWMoM 2012, San Francisco, CA, USA, June 25-28, 2012*. IEEE Computer Society, 2012, pp. 1–9. [Online]. Available: <https://doi.org/10.1109/WoWMoM.2012.6263712>
- B. Karimi, V. Namboodiri, V. Aravinthan, and W. Jewell, "Feasibility, challenges, and performance of wireless multi-hop routing for feeder level communication in a smart grid," in *2nd International Conference on Energy-Efficient Computing and Networking 2011, e-Energy '11, New York, NY, USA - May 31 - June 01, 2011*, H. de Meer and D. Hutchison, Eds. ACM, 2011, pp. 31–40. [Online]. Available: <https://doi.org/10.1145/2318716.2318722>
- T. Ghose, V. Namboodiri, and R. Pendse, "An analytical study of power consumption in portable thin clients," in *Proceedings of the Global Communications Conference, GLOBECOM 2011, 5-9 December 2011, Houston, Texas, USA*. IEEE, 2011, pp. 1–5. [Online]. Available: <https://doi.org/10.1109/GLOCOM.2011.6134127>
- N. Jaggi, V. R. Giri, and V. Namboodiri, "Distributed reaction mechanisms to prevent selfish misbehavior in wireless Ad Hoc networks," in *Proceedings of the Global Communications Conference, GLOBECOM 2011, 5-9 December 2011, Houston, Texas, USA*. IEEE, 2011, pp. 1–6. [Online]. Available: <https://doi.org/10.1109/GLOCOM.2011.6134435>
- A. Badruddoza, V. Namboodiri, and N. Jaggi, "On the energy efficiency of cognitive radios - A study of the Ad Hoc wireless LAN scenario," in *2011 International Green Computing Conference and Workshops, IGCC 2012, Orlando, FL, USA, July 25-28, 2011*. IEEE Computer Society, 2011, pp. 1–8. [Online]. Available: <https://doi.org/10.1109/IGCC.2011.6008546>
- P. Somavat, S. Jadhav, and V. Namboodiri, "Accounting for the energy consumption of personal computing including portable devices," in *Proceedings of the 1st International Conference on Energy-Efficient Computing and Networking, e-Energy 2010, Passau, Germany, April 13-15, 2010*, H. de Meer, S. Singh, and T. Braun, Eds. ACM, 2010, pp. 141–149. [Online]. Available: <https://doi.org/10.1145/1791314.1791337>
- V. Namboodiri, "Towards sustainability in portable computing through cloud computing and cognitive radios," in *39th International Conference on Parallel Processing, ICPP Workshops 2010, San Diego, California, USA, 13-16 September 2010*, W. Lee and X. Yuan, Eds. IEEE Computer Society, 2010, pp. 468–475. [Online]. Available: <https://doi.org/10.1109/ICPPW.2010.69>
- M. Naeem, V. Namboodiri, and R. Pendse, "Energy implication of various VoIP codecs in portable devices," in *The 35th Annual IEEE Conference on Local Computer Networks, LCN 2010, 10-14 October 2010, Denver, Colorado, USA, Proceedings*. IEEE Computer Society, 2010, pp. 196–199. [Online]. Available: <https://doi.org/10.1109/LCN.2010.5735699>
- V. Namboodiri, "Are cognitive radios energy efficient? A study of the wireless LAN scenario," in *28th International Performance Computing and Communications Conference, IPCCC 2009, 14-16 December 2009, Phoenix, Arizona, USA*. IEEE Computer Society, 2009, pp. 437–442. [Online]. Available: <https://doi.org/10.1109/PCCC.2009.5403857>

V. Namboodiri and A. Keshavarzian, "Alert: An adaptive low-latency event-driven MAC protocol for wireless sensor networks," in *Proceedings of the 7th International Conference on Information Processing in Sensor Networks, IPSN 2008, St. Louis, Missouri, USA, April 22-24, 2008*. IEEE Computer Society, 2008, pp. 159–170. [Online]. Available: <https://doi.org/10.1109/IPSN.2008.23>

V. Namboodiri and L. Gao, "Towards energy-efficient VoIP over wireless LANs," in *Proceedings of the 9th ACM International Symposium on Mobile Ad Hoc Networking and Computing, MobiHoc 2008, Hong Kong, China, May 26-30, 2008*, X. Jia, N. B. Shroff, and P. Wan, Eds. ACM, 2008, pp. 169–178. [Online]. Available: <https://doi.org/10.1145/1374618.1374642>

V. Namboodiri and L. Gao, "Can we reduce wi-fi energy consumption during voip calls?" in *Proceedings of the 2007 ACM Conference on Emerging Network Experiment and Technology, CoNEXT 2007, New York, NY, USA, December 10-13, 2007*, J. Kurose and H. Schulzrinne, Eds. ACM, 2007, p. 47. [Online]. Available: <https://doi.org/10.1145/1364654.1364710>

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V. Namboodiri, L. Gao, and R. Janaswamy, "Power efficient topology control for wireless networks with switched beam directional antennas," in *IEEE 2nd International Conference on Mobile Adhoc and Sensor Systems, MASS 2005, November 7-10, 2005, The City Center Hotel, Washington, USA*. IEEE Computer Society, 2005. [Online]. Available: <https://doi.org/10.1109/MAHSS.2005.1542848>

V. Namboodiri, M. Agarwal, and L. Gao, "A study on the feasibility of mobile gateways for vehicular Ad Hoc networks," in *Proceedings of the First International Workshop on Vehicular Ad Hoc Networks, 2004, Philadelphia, PA, USA, October 1, 2004*, K. P. Laberteaux, R. Sengupta, C. Chuah, and D. Jiang, Eds. ACM, 2004, pp. 66–75. [Online]. Available: <https://doi.org/10.1145/1023875.1023886>

Classes Taught

Teaching assignments were 4 classes/year unless academic year release was budgeted in grants. F: fall semester, S: spring semester, XX: last two digits of year.

F22, F21 **Human Computer Interaction, CS 898CE**. This graduate class provides a comprehensive introduction to the dynamic field of human-computer interaction (HCI) and user experience (UX) design.

F22, F21, S14, S12, S11, S10, S09 **Wireless Networks, CS 737**. Covered all aspects of wireless networking involving every layer of the network stack except the physical layer. Application scenarios considered Internet of Things (IoT), Disaster Resiliency, Health, and Consumer Technologies.

S22, S21, S15, S13, S11, S10 **Design and Analysis of Algorithms, CS 560**. Introductory course to the design and analysis of algorithms for undergraduate students.

- F20, F19, F18, F17 **Accessible Computing, CS 898AZ**. This project-based class introduces graduate students to the topic of designing computing solutions to health disparities, with a particular focus on assistive technologies and accessibility. Interdisciplinary class with students and faculty from various disciplines involved. Projects have typically combined AI, computer vision, machine learning, and data science tools with pervasive and mobile computing systems or human-computer interaction challenges.
- S20, S19, F17, S16, F13, F12, F11 **Data Communication Networks, CS 736**, Introductory graduate class on computer networks and applications including socket-programming exercises. The 2011 class was taught completely online; since 2012 the class has been taught as a flipped classroom on multiple occasions.
- S18, S17, S14 **Mathematical Foundations of Computer Networks, CS 731**. Introduction to various mathematical tools (probability and statistics, stochastic systems, queuing theory, mathematical optimization, and game theory) that can be put to use in analyzing systems including computer networks.
- S16 **Drone Communications and Applications, CS 697**. This project-based class introduced various communications and networking paradigms involving UAVs to senior undergraduate students and graduate students.
- F15, F13, F12, F11, F10, F09 **Energy-Intelligent Mobile Computing, CS 837**. This project-based class introduced graduate students to consider the resource constraint of energy and battery life in computing and communicating systems and their applications.
- S14, S13, S12 **Smart Grid Applications, EE 877B**. This project-based class introduced graduate students to applications of Smart Grids and the design of smart and connected applications for electric power grids.
- S09, F08 **Data Structures and Algorithms CS 300**. First class on the use of data structures and algorithms targeted at sophomore-level undergraduate students.

Students Mentored

Ph.D. Students

- Francisco Rafful Garfais Tentative Dissertation Title: Seamless Indoor and Outdoor Accessible Wayfinding , expected December 2024.
- Ajay Abraham Tentative Dissertation Title: Planning and Design of Urban Infrastructure for Accessible Wayfinding , expected May 2024.
- Uddipan Das Dissertation Title: Algorithms and Frameworks Towards Sensing Data in Smart Cities, May 2020.
- Seyed Ali Cheraghi Dissertation Title: Beacon-Based Wayfinding for People with Disabilities, August 2019.
- Vishnu Dev Dissertation Title: Data Management for Smart and Sustainable Cities, August 2017.
- Babak Karimi Dissertation Title: Capacity Analysis and Data Concentration for Smart Grid Communication Networks at the Power Distribution Level. August 2014.
- Toolika Ghose Dissertation Title: Towards Sustainable Mobile Computing Through a Life Cycle Approach, December 2013.
- Anm Badruddoza Dissertation Title: On the Energy Efficiency of Cognitive Radio Communications in Ad Hoc Wireless LAN Scenarios, May 2013.

M.S Thesis Students

- Syed Taha Hasan Thesis Title: Experiences with smart and connected infrastructures for accessible wayfinding in a campus environment, July 2022
- Varsha Nagaraj Thesis Title: Design and implementation of a remote assistance application for persons with visual impairments, August 2021
- Naveen Mukundan Raveendran Thesis Title: GuideCall: A Smartphone Application for Remote Assistance through Video Calls for People with Visual Impairments, May 2019.
- Anup Sharma Thesis Title: Beacon Deployment Guide: A Study on Bluetooth Low Energy Beacon Infrastructure Setup for Indoor Wayfinding, August 2019.
- Andrew Stanton Thesis Title: Data Aggregation Algorithms for Smart Grids, May 2014.
- Surya Mohapatra Thesis Title: Implementation of a Secure Home Area Network in Smart Grids, December 2011
- Reshma Syeda Thesis Title: Energy-Efficiency of Cooperative Sensing Schemes in Ad hoc WLAN Cognitive Radios, December 2011.
- Suresh Ramamoorthy Thesis Title: Measurement and Modeling of Energy Consumption in Wireless LANs and RFID Systems, August 2011.
- Muhammed Naeem Thesis Title: Energy Implications of VoIP Codecs in Portable Devices, August 2011.
- Khubaib Alavi Thesis Title: I-Aloha: Intelligent Aloha Protocol for Efficient RFID Tag Reading, May 2011.
- David Cabrejos Thesis Title: Implementation of a Channel Selection Algorithm using Cognitive Radios, December 2010.
- Minhaj Uddin Thesis Title: Power Management of Access Points, December 2010
- Girish Solurvipakshiah Thesis Title: Study of Energy Efficiency of Portable Devices using Cloud Computing: The Case of Multimedia Applications, December 2010.
- Hemanth Kothuru Thesis Title: Study of Energy Efficiency of Portable Devices using Cloud Computing: The Case of Office Productivity Applications, December 2010.
- Shraddha Jadhav Thesis Title: Accounting of Energy Consumption of the Wi-Fi interface in Portable Devices, December 2010.
- Pui See Cheung Thesis Title: Experimental Evaluation of 802.11e Quality of Service in a Large Scale Network, August 2010
- Maheesha De Silva Thesis Title: An Experimental Study of EPCGlobal Class-1 Generation-2 Anti-Collision Protocol for RFID Systems, August 2010.
- Kavindya Deegala Thesis Title: Performance of Slotted-Aloha Anti-Collision Protocol for RFID Systems under Interfering Environments, August 2010.
- Aashish Devalla Thesis Title: Impact of Geographic Locations on Energy Savings in Wireless LAN, December 2009.

M.S Directed Project

- Matt Krehbiel December 2016

Bisrat August 2013
Gebrehiwot
Kiran Koshy, December 2012
Farid May 2012
Al-Zoubi
Sree Harish August 2010
Mandadi

Professional Activities

Lead for Wichita State University as a partner institution in the Alliance for Access to Computing Careers (AccessComputing)

NSF Review Panelist in 2014, 2015, 2016, 2017, 2018, 2019, 2020 for programs such as CNS-NeTS, CNS-FWHTF, IIS-CHS, CISE-REU, CISE-RET, CISE-CIVIC

NIDILRR Review Panelist in 2020 for the DRRP program

Publications Chair for IEEE NAPS 2019

Co-Chair of the Green Computing, Networking, and Communications Symposium at ICNC 2013.

Technical Program Committee member at Web4All 2021, IEEE ICDCS 2019, IEEE PerCom 2018-2021, IEEE INFOCOM 2013, 2014, IEEE SmartGridComm 2013, IEEE GLOBECOM 2009-2018, IEEE GREENCOM 2010, IEEE IPCC 2009, 2010, 2011, IEEE ICC 2009.

Reviewer for one or more papers in the following journals: Assistive Technology, Digital Medicine, ACM Transactions on Accessible Computing, IEEE Transactions on Smart Grids, Computer Communications Review, IEEE Communications Letters, IEEE Transactions on Computers, IEEE Transactions on Industrial Informatics, IEEE Transactions on Vehicular Technology, IEEE Transactions on Mobile Computing, IEEE Transactions on Parallel and Distributed Computing, IEEE Transactions on Automation Science and Engineering, IEEE Communications Magazine, IEEE Transactions on Wireless Communications.

Major University Service/Leadership Activities

2022–current School of Computing representative on the DEI Committee, WSU College of Engineering
2016–current Annual talk on Faculty Success at the new faculty orientation
2022–current Executive Council, WSU College of Engineering
2019–21 Member, Faculty Workload Committee, WSU College of Engineering
2019–21 Member, Research Council, WSU College of Engineering
2019–20 Member, School of Computing Taskforce, WSU College of Engineering
2015–current Mentor for seven junior faculty from various departments within the WSU College of Engineering
2018,2021 Member, Dean Search Committee, WSU College of Engineering
2014–16 Graduate Program Coordinator, MSCS and MSCN, WSU EECS Department
2014–16 Chair, Graduate Education Committee, WSU College of Engineering
2014–15 Chair, Committee on Learning Enhancement, WSU College of Engineering
2014–15 Member, Online Advisory Board, WSU College of Engineering Representative
2012–14 Member, Strategic Planning Committee, WSU College of Engineering