DENIZ GURKAN

Google Scholar: http://scholar.google.com/citations?user=cpfPcA4AAAAJ
LinkedIn: https://linkedin.com/in/denizgurkan
E-mail: dgurkan@kent.edu
Phone: (330) 672-3346

EDUCATION

Institution:	**University of Southern California (Los Angeles-USA)**
Dates:	01/1999 to 05/2003
Degrees Obtained:	Ph.D. (Electrical Engineering-Systems, *minor in Entrepreneurship*)
Doctoral Dissertation:	Experimental Demonstrations of All-Optical Routing Functions for WDM Optical Networks
Dissertation Chair:	Alan E. Willner, Ph.D. - Columbia

Institution:	**Bilkent University (Ankara-Turkey)**
Dates:	09/1996 to 12/1998
Degree Obtained:	M.S. (Electrical Engineering)
Master's Thesis:	Simulation and Modeling of HTTP/1.1 Performance Improvements
Thesis Advisor:	Erdal Arikan, Ph.D. - MIT

Institution:	**Bilkent University (Ankara-Turkey)**
Dates:	09/1992 to 06/1996
Degree Obtained:	B.S. (Electrical Engineering)
Senior Research Project:	Interpolation Implementation using Motion Vector Information in Video Transmission
Supervisor:	Levent Onural, Ph.D. - SUNY

PROFESSIONAL EXPERIENCE

8/2023 – present	**Professor** College of Aeronautics and Engineering, Kent State University
9/2010 – 8/2023	**Associate Professor** Department of Engineering Technology, University of Houston
2015 – present	**Joint Appointment in Computer Science** University of Houston
2004 – 8/2010	**Assistant Professor** Department of Engineering Technology, University of Houston
12/2003 – 05/2004	**Lecturer, Applied Mathematics Graduate Program** Claremont Graduate University, Claremont, CA
12/2003 – 05/2004	**Researcher, Mathematics Clinic** Claremont Graduate University, Claremont, CA
08/2003 – 05/2004	**Lecturer, Electrical Engineering** California State University, Long Beach, CA

08/2003 – 05/2004	**Post-Doc Researcher, Computer Networks Division** Information Sciences Institute, Marina Del Rey, CA
01/1999 – 08/2003	**Research and Teaching Assistant, Electrical Engineering** University of Southern California, Los Angeles, CA
06/1997 – 12/1998	**Research and Teaching Assistant, Electrical Engineering** Bilkent University, Ankara, Turkey
09/1995 – 05/1997	**Systems Engineer, Electronic Communication Systems** Electronics and Telecommunications, Inc., Ankara, Turkey

GRANTS AND AWARDS

11/2025 – 11/2026 **Ohio Cyber Range Institute: Local Government engagmeent and enrollment in the Ohio Persistent Cyber Improvement (O-PCI) Program**
University of Cincinnati (flow-through from the Ohio cybersecurity)
Total award: $30,000
Role: Senior Personnel (PI: Dr. McFarland)

09/2025 – 09/2026 **INSuRE-C (NSA NCAE Research): Test design for verification of compliance to the specification for a cryptographic protocol implementation**
NSA Problem: Cryptographic Protocol Analysis and Verification
Total award: Three Student Stipends
Role: Advisor Instructor (Research Scientist Nicholas Bastin)

04/2024 – present **Ohio Cyber Range Institute: Regional Programming Center**
Ohio cybersecurity coordination initiative
Total award: *Designation*
Role: Point of contact for Kent State University

06/2023 – present **National Center for Academic Excellence in Cyber Defense**
NSA designation for NCAE-CD of Kent State University
Total award: *Designation*
Role: Point of contact for Kent State University

10/2020 – 09/2025 **CC* Integration-Small: Integrating Application Agnostic Learning with FABRIC for Enabling Realistic High-Fidelity Traffic Generation and Modeling**
NSF – OAC and CISE
Total award: $299,956
Role: sole PI

08/2019 – 08/2022 **SATC: EDU: Network Design for Security using Protocol Trust Boundary Observations**
NSF – Secure and Trustworthy Cyberspace
Total award: $292,446
Role: PI (with co-PIs Drs. Chauvot and Horn)
REU supplement in 2020 ($8000, one undergraduate student)
RET supplement in 2021 ($20000, two high school teachers)

10/2019 – 10/2022 **CNS Core: Small: Realistic Traffic Generation through Application-Agnostic Learning**
NSF – CISE-CNS Core: Networking Technology and Systems
Total award: $345,841
Role: sole PI
REU supplement in 2020 ($8000, one undergraduate student)

10/2015 – 10/2020 **Network Function Insertion for Reliable and Secure Control Messaging over Commodity Transport**
DOE - Cyber Resilient Energy Delivery Consortium (CREDC)
Total award: $879,770
Role: subcontract PI (UH contact: Art Conklin)

01/2016 – 12/2019	**CC*DNI Network Infrastructure: Custom Science DMZ per Research Lab with a Secure Invitation to Opt-in** NSF Total award: $499,000 Role: sole PI
10/2015 – 10/2017	**CC*DNI Networking Infrastructure: Enabling Frictionless Scientific Data Transfers in the Texas Medical Center** NSF Total award: $499,837 Role: co-PI (PI: Jeffrey Early at Baylor College of Medicine)
09/2015 – 09/2016	**Industrial Control Systems and Software Defined Networking Cyber Range (SDN portion-only)** NSA Total award: $130,806 Role: SDN portion PI (PI: Art Conklin)
9/2013 – 9/2016	**CC-NIE Integration: Houston, We have Troubleshooting for the 100 Gbps Network!** NSF Total award: $900,000 Role: sole PI
10/2014 – 10/2015	**EAGER: Programmable Network Function Instantiation** NSF Total award: $135,628 Role: sole PI
10/2013 – 10/2015	**GENI as a Research and Development Lab: Advanced Experiments and Industry-Partnered Sustainability** National Science Foundation (BBN/Raytheon as GENI Project Office) Total award: $88,437 Role: sole PI
1/2014 – 6/2014	**GENI-FIRE: Research Collaborations Between US and Europe** NSF Travel Award (Germany) Total award: $15,000 Role: sole PI
1/2013 – 12/2013	**Software-Defined Security Use Cases and Experimentation** vArmour Inc. Total award: $34,000 Role: sole PI
1/2013 – 7/2014	**Emergency Management Portal/Incident Heat Map University of Houston,** Departments of Public Safety, IT, Facilities, University of Houston, Total award: $100,000 Role: sole PI
2/3013 – 2/ 2014	**Application Development for SDN Innovation Framework** Dell Inc. Total award: $25,000 Role: sole PI

9/2012 – 8/31/2013 **GENI Engineering Conference 15 at University of Houston**
National Science Foundation
Total award: $160,000
Role: sole PI

02/2012 **GENI Rack Deployment at University of Houston**
National Science Foundation (BBN/Raytheon as GENI Project Office)
Total award: A (ExoGENI project) rack with high-end computation and networking resources to serve as a node in the GENI infrastructure (one of first 11 to be awarded nationwide)
Total Award: ~$200,000 equipment
Role: Senior Personnel (Contact person for the rack)

10/2012 – 09/2013 **Physical Layer Measurement Abstractions for GENI Instrumentation and Measurement Framework**
National Science Foundation (BBN/Raytheon as GENI Project Office)
Total Award: $55,119
Role: sole PI

07/2011 – 12/2015 **Metadata Exchanges and Software-Defined Applications**
Infoblox Inc.
Total Award: $186,195
Role: sole PI

08/2010 – 07/2013 **Smart Grid Energy Training Coalition Program**
Department of Energy
Total Award: $2,500,000
Role: Senior Personnel (PI: Ray Cline, co-PI: Art Conklin)

09/2010 – 09/2011 **Research-based Enhancements of Computer Engineering Technology Program using Emerging Technologies**
QEP Curriculum Development Grant Program, University of Houston
Total Award: $20,000
Role: co-PI (PI: Farrokh Attarzadeh)

11/2009 – 11/2012 **Programmable Measurements over Texas-based Research Network: LEARN**
National Science Foundation (BBN Technologies as GENI Project Office)
Total award for 36 months: $210,000
Role: sole PI

06/2009 – 05/2010 **Continuation: Testbed Demonstration of Intelligent Sensor Nodes Compatible with IEEE 1451.1**
Mobitrum Corp.
Total award: $39,414
Role: sole PI

01/2009 – 05/2009 **Continuation of: Real-time Optimization Workflows in Oil Production Operations**
International Society of Petroleum Engineers
Total award: $12,500
Role: co-PI (co-PI: Jami Kovach)

09/2008 – 01/2009 **Real-time Optimization Workflows in Oil Production Operations**
Society of Petroleum Engineers, Gulf-Southwest
Total award: $12,500
Role: co-PI (co-PI: Jami Kovach)

09/2008 – 08/2009 **Data Plane Measurements for GENI Research Platform**
National Science Foundation (BBN Technologies as GENI Project Office)
Total award: $26,241
Role: sole PI

06/2008 – 09/2009 **Centralized Smart System for Code Re-use in Optical CDMA Networks**
Small Grants Program, University of Houston
Total award: $6,000
Role: sole PI

06/2008 – 05/2009 **Supplement: Testbed Demonstration of Intelligent Sensor Nodes Compatible with IEEE 1451.1**
Mobitrum Corp.
Total award: $2,000
Role: sole PI

06/2008 – 05/2009 **Testbed Demonstration of Intelligent Sensor Nodes Compatible with IEEE 1451.1**
Mobitrum Corp.
Total award: $17,256
Role: sole PI

03/2008 – 02/2010 **An Innovative Approach to Learning via Peer-to-Peer Undergraduate Mentoring in Engineering Technology Laboratories**
National Science Foundation (NSF)
Total award: $199,985
Role: co-PI (PI: Farrokh Attarzadeh)

March 3-4, 2008 **Travel Grant for GENI Engineering Conference, Arlington, VA**
GENI Project Office (GPO), NSF
Total award: ~$1,500 (travel expenses to attend the conference)
Role: sole PI

02/2008 – 02/2011 **REU Site: Undergraduate Research in Sensor Networks and Security Infrastructure**
National Science Foundation (NSF)
Total Award: $388,544
Role: Senior Personnel (advisor of 1-2 undergraduate students every summer)

October 9-11, 2007 **Travel Grant for GENI Engineering Conference, Minneapolis, MN**
GENI Project Office (GPO), NSF
Total award: ~$1,500 (travel expenses to attend the conference)
Role: sole PI

06/2006 – 09/2006 **Power Savings using Space-Time Coding and Distributed Estimation for Densely Distributed Sensor Networks**
Small Grants Program, University of Houston
Total award: $3,000
Role: PI

01/2006 **Optical E-Learning Laboratories**
ILX Lightwave Corp. Equipment Donation Award
Total award: $10,000-equivalent equipment
Role: sole PI

06/2005 **A New Optical Fiber Bragg Grating Sensor Method to Monitor the Cardiac Functions Using Ballistocardiography**
New Faculty Grant, University of Houston
Total award: $6,000
Role: sole PI

09/2005 **Optical Technologies Laboratory**
SPIE, Educational Equipment Grant
Total award: $2,000
Role: sole PI

02/2006 – 02/2007 **Collaborative research: An online laboratory for optical circuits**
National Science Foundation (NSF)
Total award: $125,000
Role: co-PI (co-PIs: Drs. Benhaddou and Mickelson)

09/2001 **Research paper ranked 1st**, upgraded to invited lecture, European Conference on Optical Communications, 2001

06/2000 **Best Research Paper Award**, University of Southern California, Electrical Engineering - Systems Dept., 2000

09/2002 **Travel Grant** USC – Women in Science and Engineering (WISE), European Conf. on Optical Comm., 2002

09/1992 – 12/1998 **Tuition/Stipend/Boarding Scholarship Award**, Bilkent University, Turkey, throughout B.S. and M.S., 1992-1998.

06/1992 **74th among 1 Million** in University Entrance Exam (similar to SAT), Turkey, 1992.

05/1992 **3rd at graduation** from Anatolian High School where the language of instruction is English, Turkey, 1992.

Highlights on Grant Awards: *My research activities have been awarded at over $3.2 million in federal grants (over $2.3 million as primary PI and by the National Science Foundation) and over $500K by major companies in computer networking industry since I have been promoted to Associate Professor.*

INTELLECTUAL PRODUCTS

1 - PATENTS

- **Patent**: Location-Based Network Routing, US Patent No. 9787586, October 10, 2017.
- **Patent**: "Reconfigurable optical recognition of bit information in a digital data stream with different bit rates," US Patent Serial No. 6751416, June 15, 2004.

2 - SOFTWARE PRODUCTS

Ongoing development effort generates the software infrastructure for cybersecurity experiments in research and education initiatives with an advanced orchestration capabilities:

1. **Cyber Range** - A suite of python software modules to conduct advanced repeatable research experiments in networking and educational modules:
    a. Developer and contributor
    b. `netexp` – Network experimentation framework for orchestration of experiments on virtualized network infrastructure with application setup, run, and collection of data
    c. `reference-experiment` – Reference virtualized networking research experiment orchestration using the `netexp` framework to automatically build a topology, control applications and attack surfaces, collect/download data
    d. `neted` – Education libraries to utilize network orchestration system in building course lab experiment topologies and making protocol observations.
        i. Exercises and auto-grading: Exercise modules that evaluate the learnings of particular expected protocol behavior, with an auto-grading capability.
        ii. Lab service: Included is a web service to host and serve student credentials, lab modules, along with keeping accounting of lab activity.
        iii. Client: All education modules are conducted on Jupyter notebooks.
    e. `neted-utils` – Network graph libraries along with packet send, receive and processing capabilities to interact with virtualized network topologies.
    f. `grader` – automated network and packet trace problem solver with integration into the education python libraries in `neted`
2. https://sdntrace-protocol.readthedocs.io - Documentation and a suite of software written in Python as a proof-of-concept protocol implementation of network tracing in software-defined networks with OpenFlow capable devices, Released on June 2015.
3. https://github.com/UH-SDN/softconf.d - OpenvSwitch configuration daemon using OFConfig 1.1. Released on May 6, 2013.

4. Contributor to the development and advancement of the python library GENI-LIB, ongoing since 2015: https://geni-lib.readthedocs.io (python library for orchestrating, running, and scaling experiments on GENI, CloudLab, and the Chameleon Cloud, utilized by many institutions such as University of Utah, University of Houston, and GENI project office (BBN/Raytheon – NSF's GENI project management contractors)

5. Advanced user and contributor to the development and advancement of the python network orchestration software suite, Virtual Topology Services, enables a scalable software-defined infrastructure. Ongoing since 2015: https://geni-vts.readthedocs.io

Highlights on Software Development: *Contributor and developer of major python libraries that enable repeatable computer networking experimentation, cyberexp, neted-utils, vts, and reference-experiment. Created the suite of libraries for hands-on lab modules, auto-grading, and exercises for computer networking education, neted.*

3 - REFEREED JOURNALS

**: Student co-authors*

1. Chauvot, Jennifer B.; Gurkan, Deniz; and Horn, Cathy (2023) "Exploring Network Security Educator Knowledge," Journal of Cybersecurity Education, Research and Practice: Vol. 2023: No. 2, Article 6. https://doi.org/10.32727/8.2023.20.
2. Catherine Horn, Deniz Gurkan, and Jennifer Chauvot, "Representing Patterns of Learning as a Function of Course Opportunities," *accepted for publication in Journal of Computer Science Education,* July 2023, https://jocse.org/articles/14/1/1/
3. Stuart Baxley*, Nicholas Bastin, Deniz Gurkan, and William A. Conklin, "End-to-End Security and Reliability using Network Functions: Resources, Protocol Design, and Network Overhead" *accepted for publication in International Journal of Critical Infrastructure Protection, November 2022,* https://doi.org/10.1016/j.ijcip.2022.100573.
4. Oluwamayowa Ade Adeleke*, Nicholas Bastin, and Deniz Gurkan, "Network Traffic Generation: A Survey and Methodology," ACM Computing Surveys, January 2022, Vol. 55, No. 2, https://doi.org/10.1145/3488375 [2020 Impact Factor: 10.282 (ranked 4/137 in Computer Science Theory & Methods)]
5. D. Gurkan, Syed Alamdar Hussain*, "Management and Plug and Play of Sensor Networks using SNMP," IEEE Transactions on Instrumentation and Measurement, vol.60, no.5, pp.1830-1837, https://doi.org/10.1109/TIM.2011.2113115, May 2011.
6. D. Gurkan and Fatima Merchant, "Interoperable Medical Instrument Networking and Access System with Security Considerations for Critical Care," *invited paper*, Journal of Healthcare Engineering, https://doi.org/10.1260/2040-2295.1.4.637, October 2010.
7. Richard Franzl*, D. Gurkan, D. Benhaddou, and A. Mickelson, "E-Learning Laboratories for Optical Circuits: Separation of Imperfections in Technology and Teaching Methodologies," International Journal of Modern Engineering (IJME), Spring 2008.
8. D. Gurkan, A. Mickelson, and D. Benhaddou, "Remote Laboratories for Optical Circuits," Special Issue on Online Laboratories of the IEEE Transactions on Education, https://doi.org/10.1109/TE.2007.900018, vol. 51, no. 1, February 2008.
9. S. Kumar, A. E. Willner, D. Gurkan, K. R. Parameswaran, and M. M. Fejer, "All-optical half adder using an SOA and a PPLN waveguide for signal processing in optical networks," Optics Express, Vol. 14, Issue 22, pp. 10255-10260, 2006.
10. C. Yu, Z. Pan, Y. Wang, Y. W. Song, D. Gurkan, M.C. Hauer, D. Starodubov, and A. E. Willner, "Polarization-Insensitive All-Optical Wavelength Conversion Using Dispersion-Shifted Fiber With a Fiber Bragg Grating and a Faraday Rotator Mirror," IEEE Photonics Technology Letters, vol. 16, no. 8, August 2004.
11. D. Gurkan, S. Kumar, A. E. Willner, K. R. Parameswaran, and M. M. Fejer, "Simultaneous label swapping and wavelength conversion of multiple independent WDM channels in an all-optical MPLS network using PPLN waveguides as wavelength converters," Special Issue on "Optical Networking," IEEE-OSA Journal on Lightwave Technology, November 2003.

12. J. E. McGeehan, S. Kumar, D. Gurkan, S. M. R. Motaghian Nezam, J. Bannister, J. Touch, and A. E. Willner, "All-optical decrementing of a packet's time-to-live (TTL) field and subsequent dropping of a zero-TTL packet," Special Issue on "Optical Networking," IEEE-OSA Journal on Lightwave Technology, November 2003.

13. A. E. Willner, D. Gurkan, A. B. Sahin, J. E. McGeehan, and M. C. Hauer, "All-optical header recognition for optically-assisted routing in next-generation optical networks," **invited paper**, IEEE-OSA Optical Communications Magazine, May 2003.

14. A. E. Willner, M. C. Cardakli, O. H. Adamczyk, Y-W. Song, D. Gurkan, "Key building blocks for all-optical networks," **invited paper,** The Institute of Electronics, invited paper, Information and Communication Engineers (IEICE) Trans. On Communications, Vol. E83-B, No. 10, October 2000, pp. 2166-2177.

15. M. C. Cardakli, D. Gurkan, S. A. Havstad, A. E. Willner, K. R. Parameswaran, M. M. Fejer, and I. Brenner, "Tunable all-optical time-slot-interchange and wavelength conversion using difference-frequency-generation and optical buffers," IEEE Photonics Technology Letters, vol. 14, no. 2, February 2002.

4 - REFEREED PROCEEDINGS

1. Stuart Baxley*, Deniz Gurkan, Hamidreza Validi and Illya V. Hicks, "Graph Representation of Computer Network Resources for Precise Allocations" (in collaboration with Rice University), *invited paper, IEEE International Conference on Computer Communications and Networks (ICCCN 2022), virtual, July 25-28, 2022.*
2. Levent Dane* and Deniz Gurkan, "Measuring Consistency Metric for Web Applications," *2022 IEEE Annual Conference on Computing and Communications Workshop and Conference*, https://doi.org/10.1109/CCWC54503.2022.9720827, Online/Las Vegas, NV, Jan 26-29, 2022.

3. Adeleke Oluwamayowa*, Nicholas Bastin, and Deniz Gurkan, "Network Testing Using a Novel Framework for Traffic Modeling and Generation," *The 29th International Conference on Computer Communications and Networks (ICCCN 2020)*, IEEE, Hawaii (Virtual), https://doi.org/10.1109/ICCCN49398.2020.9209685, Aug 3-6, 2020.

4. Levent Dane* and Deniz Gurkan, "NetForager: Geographically-Distributed Network Performance Monitoring of Web Applications," *2020 IEEE Annual Conference on Computing and Communications Workshop and Conference*, https://doi.org/10.1109/CCWC47524.2020.9031171, Las Vegas, NV, Jan 4-6, 2020.

5. Stuart Baxley*, Nicholas Bastin, and Deniz Gurkan, “Analysis of In-Order Packet Delivery Network Policy Enforcement Function,” *2018 IEEE INFOCOM WKSHPS: GENI Experimenter Contest,* Honolulu, HI, April 15-19, 2018. (Demonstration won 2nd place)

6. Deniz Gurkan, Gandhimathi Velusamy*, and Abdul Navaz*, “Experiments on Networking Requirements of Hadoop,” *IEEE International Conference on Network Protocols – CNERT Workshop*, https://doi.org/10.1109/ICNP.2014.87, 2014, October.

7. Revanth Narisetty* and Deniz Gurkan, “Identification of Network Measurement Challenges in OpenFlow-based Service Chaining,” *Proceedings of the 39th IEEE Local Computer Networks Conference (LCN), Workshop on Network Measurements*, https://doi.org/10.1109/LCNW.2014.6927718, 2014.

8. Levent Dane*, Deniz Gurkan, "GENI with a Network Processing Unit: Enriching SDN Application Experiments," *Research and Educational Experiment Workshop (GREE), 2014 Third GENI*, https://doi.org/10.1109/GREE.2014.27, pp.9,14, 19-20 March 2014.

9. Gandhimathi Velusamy*, Deniz Gurkan, Sandhya Narayan, Stuart Baily, "Fault-Tolerant OpenFlow-Based Software Switch Architecture with LINC Switches for a Reliable Network Data Exchange," *Research and Educational Experiment Workshop (GREE), 2014 Third GENI*, https://doi.org/10.1109/GREE.2014.17, pp.43,48, 19-20 March 2014.

10. Bahaa Araji*, Deniz Gurkan, "Embedding Switch Number, Port Number, and MAC Address (ESPM) within the IPv6 Address," *Research and Educational Experiment Workshop (GREE), 2014 Third GENI*, https://doi.org/10.1109/GREE.2014.20, pp.69,70, 19-20 March 2014.

11. Anatoliy Malishevskiy*, Deniz Gurkan, Levent Dane, Revanth Narisetty, Sandhya Narayan, Stuart Bailey, "OpenFlow-Based Network Management with Visualization of Managed Elements," *Research and Educational Experiment Workshop (GREE), 2014 Third GENI*, https://doi.org/10.1109/GREE.2014.21, pp.73,74, 19-20 March 2014.

12. Deniz Gurkan, Kiran Vemuri*, Parth Gala*, Anatoliy Malishevskiy*, and Anand Daga*, “Emergency Management through Sensors of Enterprise Systems,” *Proceedings of the IEEE Sensors Apps. Sym., https://doi.org/10.1109/SAS.2014.6798927,* February 2014, New Zealand.

13. RajaRevanth Narisetty*, Levent Dane, Anatoliy Malishevskiy*, Deniz Gurkan, Stuart Bailey, Sandhya Narayan, and Shivaram Mysore. "OpenFlow Configuration Protocol: Implementation for the of Management Plane." In *Research and Educational Experiment Workshop (GREE), 2013 Second GENI*, https://doi.org/10.1109/GREE.2013.21, pp. 66-67. IEEE, 2013.

14. Sofia Shahid*, Karthik Ram Narumanchi*, and Deniz Gurkan, “Plug-in Electric Vehicle Battery Sensor Interface in Smart Grid Network for Electricity Billing,” *Proceedings of the IEEE Sensors Applications Symposium*, https://doi.org/10.1109/SAS.2012.6166314, February 2012, Brescia, Italy.

15. Michael Wang, Anjing Wang, B. Bathula, Caroline Lai, Ilia Baldine, Cathy Chen, Debjyoti Majumder*, Deniz Gurkan, George Rouskas, Rudra Dutta, Keren Bergman, Demonstration of QoS-Aware Video Streaming over a Metro-Scale Optical Network Using a Cross-Layer Architectural Design," *OSA/IEEE Optical Fiber Communications Conference,* March 2011.

16. D. Gurkan, "Smart Sensor Networking and Interoperability," **invited paper** at the American Society of Civil Engineers Annual Meeting, March 2010.

17. Hafsa Farooqui*, D. Gurkan, and Fatima Merchant, "Tools for Optimizing HIPAA Compliance and Penetration Testing for EHR," accepted to the *Annual Meeting of Biomedical Engineering Society (BMES)*, October 2009.

18. Farrokh Attarzadeh, D. Gurkan, Mequanint Moges, Miguel Ramos, Victor Gallardo, Mehrube Mehrubeoglu, Reddy Talusani, "NSF Grantee Presentation: Results Of An Innovative Approach To Learning Via Peer-To-Peer Undergraduate Mentoring In Engineering Technology Laboratories," *Proceedings of the ASEE Annual Meeting*, 2009.

19. Farrokh Attarzadeh, D. Gurkan, Mequanint Moges, Miguel Ramos, Victor Gallardo, Mehrube Mehrubeoglu, Reddy Talusani, "NSF Grantee Presentation: Results Of An Innovative Approach To Learning Via Peer-To-Peer Undergraduate Mentoring In Engineering Technology Laboratories," *Proceedings of the ASEE Annual Meeting*, 2009.

20. Farrokh Attarzadeh, D. Gurkan, Mequanint Moges, Miguel Ramos, Victor Gallardo, Mehrube Mehrubeoglu, Reddy Talusani, "NSF Grantee Presentation: Results Of An Innovative Approach To Learning Via Peer-To-Peer Undergraduate Mentoring In Engineering Technology Laboratories," *Proceedings of the ASEE Annual Meeting*, 2009.

21. Farrokh Attarzadeh, D. Gurkan, Mequanint Moges, Miguel Ramos, Victor Gallardo, Mehrube Mehrubeoglu, Reddy Talusani, and Shruti Karulkar, "Perception of Undergraduate Freshman Students on Role Models and Correlation with their Education Background," *Proceedings of the ASEE Annual Meeting*, 2009.

22. Mehrübe Mehrübeoğlu, Farrokh Attarzadeh, and D. Gurkan, "Comparative Evaluation of Laboratory Teaching in AC Circuit Analysis Course," *Proceedings of the Frontiers in Education Conference*, 2009.

23. R. Franzl* and D. Gurkan, "Implementation of an IEEE 1451.1 Compatible Multiple NCAP Controller using LabView," *Proceedings of the IEEE Sensor Applications Symposium*, 2009, New Orleans, LA.

24. S. Gumudavelli*, D. Gurkan, and Ray Wang, "Emulated Network of IEEE 1451 Application with Multiple Smart Sensor Reports," *Proceedings of the IEEE Sensor Applications Symposium*, 2009, New Orleans, LA.

25. S. Manda* and D. Gurkan, "IEEE 1451.0 Compatible TEDS Creation Using .NET Framework," *Proceedings of the IEEE Sensors Applications Symposium*, 2009, New Orleans.

26. S. Gumudavelli*, P. Thongpithoonrat*, D. Gurkan, P. K. McKneely, and F. Chapman, "Medical Instrument Data Networking," *Proceedings of the IEEE Engineering in Medicine and Biology Conference*, August 20-25, 2008, Vancouver, Canada.

27. P. Thongpithoonrat*, S. Gumudavelli*, D. Gurkan, P. K. McKneely, and F. Chapman, "Networking and Plug-and-Play of Bedside Medical Instruments," *Proceedings of the IEEE Engineering in Medicine and Biology Conference*, August 20-25, 2008, Vancouver, Canada.

28. D. Gurkan, X. Yuan, D. Benhaddou, A. Singla, R. Franzl*, H. Ma*, H. Liu, F. Figueroa, and J. Morris, "Sensor Networking with IEEE 1451 Compatibility Testing," *Proceedings of the ASCE Earth and Space Conference* 2008, March 2-4, Long Beach, CA.

29. A. Bhambri*, D. Gurkan, and A. Ozkaya*, "Response Characterization of a Fiber Bragg Grating Sensor to Different Sound Tones," *Proceedings of the ASCE Earth and Space Conference* 2008, March 2-4, Long Beach, CA.

30. Anshul Singla*, H. Ma*, R. Franzl*, H. Liu*, D. Gurkan, D. Benhaddou, X. Yuan, J. Morris, M. Turowski, and F. Figueroa, "Design of a Test Suite for NCAP-to-NCAP Communication based on IEEE 1451," *Proceedings of the IEEE Sensor Applications Symposium* 2008.

31. Richard Franzl*, Jonathan A. Morris, and D. Gurkan, "Implementation of IEEE 1451.1 Conformance/Functionality Testing using LabView," *Proceedings of the IEEE Sensor Applications Symposium* 2008.

32. P. K. McKneely, F. Chapman, and D. Gurkan, "Plug-and-Play and Network-Capable Medical Instrumentation and Database with a Complete Healthcare Technology Suite: MediCAN," 2007 *Proceedings of the Joint Workshop on High Confidence Medical Devices, Software, and Systems and Medical Device Plug-and-Play Interoperability* (HCMDSS - MD PnP 2007), 25-27 June 2007 in Boston, MA.

33. D. Gurkan, X. Yuan, D. Benhaddou, F. Figueroa, and J. Morris, "UH-SSST: A Sensor Networking Testbed with IEEE1451 Compatibility for Space Exploration," *Proceedings of the IEEE 3rd International Conference on Testbeds and Research Infrastructure for the Development of Networks and Communities (TridentCom),* 2007.

34. D. Gurkan, X. Yuan, D. Benhaddou, F. Figueroa, and J. Morris, "Sensor Networking Testbed with IEEE 1451 Compatibility and Network Performance Monitoring," *Proceedings of the IEEE Sensor Applications Symposium* 2007.

35. R. Franzl*, P. McKneely, F. Chapman, D. Gurkan, "Application of Sensor Networking Standardization Efforts to Implementation of a Bed-Side Health Monitoring System," *Proc. of the Annual Conference of Houston Society for Engineering in Medicine and Biology,* 2007.

36. A. Bhambri*, D. Gurkan, "Characterization of an Optical Fiber Sensor to Monitor Typical Frequency Components of Heartsounds," *Proceedings of the Annual Conference of Houston Society for Engineering in Medicine and Biology* 2007.

37. D. Gurkan, A. Mickelson, D. Benhaddou, and Z. Pan, "NSF Grantee Presentation: Results of a Collaborative Remote "Optical Circuits" Laboratory Implementation," *NSF Grantee poster presentation at the ASEE Annual Conference*, Hawaii, June 2007.

38. F. Attarzadeh, V. Gallardo, D. Gurkan, and E. Barbieri, "Teaching and Graduate Assistants Training," *Proceedings of the ASEE-Gulf Southwest Annual Meeting*, February 2007.

39. Richard Franzl*, D. Gurkan, D. Benhaddou, and A. Mickelson, "E-Learning Laboratories for Optical Circuits: Separation of Imperfections in Technology and Teaching Methodologies," *International Journal of Modern Engineering (IJME) - INTERTECH International Conference*, October 2006.

40. Anh Nguyen*, D. Gurkan, "Optical CDMA Code Collision and Translation Performance Analysis," *Proceedings of the 31st Annual IEEE Conference on Local Computer Networks (LCN)*, October 2006.

41. S. Chacon, D. Benhaddou, D. Gurkan, "Secure Voice over the Internet Protocol (VoIP) using Virtual Private Networks (VPN) and Internet Protocol Security (IPSec)," *IEEE Region 5 Technical, Professional, and Student Conference*, April 2006.

42. S. Chacon, D. Benhaddou, D. Gurkan, "Experimental Design of a Laboratory for Voice Over IP using SIP," *Proceedings of the ASEE-Gulf Southwest Annual Meeting*, March 2006.

43. D. Benhaddou, D. Gurkan, H. Kodali, E. McKenna, A. Mickelson and F. Barnes, "Online Laboratory for Optical Circuits Courses: Effective concept mapping," *Proceedings of the ASEE-Gulf Southwest Annual Meeting*, March 2006.

44. D. Gurkan, F. Attarzadeh, D. Benhaddou, V. Gallardo, and S. Chacón, "Learning-Centered Laboratory Instruction for Engineering Technology," *Proceedings of the ASEE-Gulf Southwest Annual Meeting*, March 2006.

45. F. Attarzadeh, D. Benhaddou, D. Gurkan, and R. Khalili, "Innovative Improvements to Engineering Technology Laboratory Education to Engage, Retain and Challenge Students of the 21st Century," *Proceedings of the ASEE-Gulf Southwest Annual Meeting*, March 2006.

46. D. Gurkan, D. Starodubov, and X. Yuan, "Monitoring of the Heartbeat Sounds using an Optical Fiber Bragg Grating Sensor," *Proceedings of the 4th IEEE International Conference on Sensors*, A3L-C, Irvine, November, 2005.

47. V. Wongvilaivarin*, D. Gurkan, H. Malki, "Wireless Communication Application of J2ME for a Restaurant Carry-Out Ordering Scheme," *Proceedings of the 3rd International Conference on Computing, Communications and Control Technologies* (CCCT '05), Austin TX, July 2005.

48. E. McKenna, R. Direen, F. Barnes, D. Gurkan, A. Mickelson, and D. Benhaddou, "E-learning Environmental Design of a Distributed Online Laboratory for Optical Circuits Courses," *Proceedings of the ASEE Annual Conference*, https://peer.asee.org/15476, Portland, OR, May 2005.

49. D. Gurkan, E. Cumberbatch, M. de Pass, H. Morris, "Identification of Semiconductor Parameters from Gate Capacitance Data," *Proceedings of the 4th Southern California Applied Mathematics Symposium* (SoCAMS), May 2004.

50. S. Kumar, D. Gurkan, A. E. Willner, K. Parameswaran, M. Fejer, "All-optical half adder using a PPLN waveguide and an SOA," *Proceedings of the Optical Fiber Communications Conference'04*, Los Angeles, CA, March 2004.

51. P. Ebrahimi, D. Gurkan, A. B. Sahin, D. S. Starodubov, and A. E Willner, "Experimental demonstration of multiple-wavelength hard limiting receiver for reducing MAI noise in a 2-D time and wavelength O-CDMA system," *Proceedings of the European Conference on Optical Communications'03*, Rimini, Italy, September 2003.

52. D. Gurkan, S. Kumar, A. B. Sahin, A. E. Willner, K. R. Parameswaran, M. M. Fejer, D. S. Starodubov, J. Bannister, P. Kamath, and J. Touch, "All-optical wavelength and time 2-D code converter for dynamically reconfigurable O-CDMA networks using a PPLN waveguide," *Proceedings of the Optical Fiber Communications Conference'03*, paper FD, Atlanta, GA, March 2003.

53. A. B. Sahin, P. Saghari, L. Yan, D. Gurkan, and A. E. Willner, "Bias-induced diversity-detection (BIDD) technique for robust transmission of subcarrier-multiplexed channels," *Proceedings of the Optical Fiber Communications Conference'03*, Atlanta, GA, March 2003.

54. Z. Yu, Z. Pan, Y. Wang, Y. W. Song, D. Gurkan, M. C. Hauer, D. Starodubov, and A. E. Willner, "Polarization-insensitive four-wave mixing wavelength conversion using a fiber Bragg grating and a Faraday rotator mirror," *Proceedings of the Optical Fiber Communications Conference'03*, Atlanta, GA, March 2003.

55. J. E. McGeehan, S. Kumar, D. Gurkan, J. Bannister, J. Touch, and A. E. Willner, "Optical time-to-live (TTL) decrementing and subsequent dropping of an optical packet," *Proceedings of the Optical Fiber Communications Conference'03*, Atlanta, GA, March 2003.

56. D. Gurkan, S. Kumar, A. E. Willner, K. R. Parameswaran, and M. M. Fejer, "Simultaneous and independent label swapping of multiple WDM channels in an all-optical packet-switched network using PPLN waveguides as wavelength converters", *Proceedings of the European Conference on Optical Communications'02*, paper 5.5.7, Copenhagen, Denmark, September 2002.

57. D. Gurkan, M. Hauer, A. B. Sahin, Z. Pan, S. Lee, A. E. Willner, K. R. Parameswaran, and M. M. Fejer, "Demonstration of multi-wavelength all-optical header recognition using a PPLN and optical correlators," European Conference on Optical Communications'01, paper We.B.2.5 **(ranked 1st in optical networking category)**, Amsterdam, The Netherlands, October 2001.

58. D. Gurkan and A. E. Willner, "Transient behavior of L-band and C-band EDFAs in add/drop multiplexed 40-channel WDM network," *Proceedings of the Conference on Lasers and Electro-Optics'01*, paper CThH5, Baltimore, MD, May 2001.

59. P. Ebrahimi, M. C. Hauer, Q. Yu, R. Khosravani, D. Gurkan, D. W. Kim, D. W. Lee and A. E. Willner, "Statistics of polarization dependant gain in Raman fiber amplifiers due to PMD," *Proceedings of the Conference on Lasers and Electro-Optics'01*, paper CtuJ1, Baltimore, MD, May 2001.

60. M. C. Cardakli, D. Gurkan, S. A. Havstad, and A. E. Willner, "Variable-bit-rate header recognition for reconfigurable networks using fiber-Bragg-grating tunable optical correlators," *Proceedings of the Conference on Optical Fiber Communications'00*, paper TuN2, Baltimore, MD, February 2000.

61. M. C. Cardakli, D. Gurkan, S. A. Havstad, A. E. Willner, K. R. Parameswaran, M. M. Fejer, and I. Brenner, "All-optical time-slot-interchange and wavelength conversion using difference-frequency-generation and FBGs," *Proceedings of the Conference on Optical Fiber Communications '00*, **Post-Deadline paper PD-34**, Baltimore, MD, February 2000.

Highlights on Refereed Articles: *All journals are in the web of science citation index.*

Google scholar page: https://scholar.google.com/citations?user=cpfPcA4AAAAJ

TEACHING EXPERIENCE (* Graduate Course)

Kent State University
Fundamentals of Networked Infrastructure and labs
IoT Security of Engineering Systems and Labs
Network Instrumentation and Forensic Analysis and Labs

University of Houston
Optical Networking*
Sensor Networks*
Network Management*
Optical Communications Labs (new labs)*
Network Programming*
Computer Networks (new labs – ELET 4421)
Advanced Computer Networking (new labs – ELET 4325)
Network Security (new labs – ELET 6313 and CIS 6325 Cybersecurity MS programs)*

California State University at Long Beach, Electrical Engineering BS program (2003-2004)
Probability and Statistics for Engineers
Semiconductor Electronics

Claremont Graduate University, Applied Mathematics PhD program (2003-2004)
Simulation Methods*

Undergraduate and Graduate Courses Taught at the University of Houston (*data when made available since 2010*)

Course name	**Overall Teaching Effectiveness of the Instructor or *Overall Quality of the Course* (when my course material was taught by a teaching fellow) (section/college mean)**
ELET 6300 Network Programming	Fall 2012 (4.52/3.89), Spring 2014 (4.38/3.94), Spring 2015 (3.92/4.05), Fall 2016 (4.45/4.07), Spring 2018 (4.25/4.06)
ELET 6317 Optical Networks	Spring 2011 (5/3.85), Fall 2011 (4.53/3.85), Spring 2013 (4.28/3.88)
ELET 6312 Network Management	Spring 2012 (4.32/3.93), Fall 2013 (4.62/3.88)
ELET 4421 Computer Networks (started teaching with new lab modules and curriculum from Fall 2015 onwards)	Spring 2011 (2.82/3.82), Fall 2011 (3.83/3.85), Spring 2012 (3.91/3.87), Fall 2012 (3/3.89), Fall 2015 (3.55/3.97), Spring 2016 (4.3/4.06), Fall 2016 (4.41/4.07), Spring 2017 (4.5/4.09), Fall 2017 (4.46/4.06), Spring 2018 (*4.36/4.01*), Fall 2018 (*4.63/3.97*), Spring 2019 (4.55/4.02), Fall 2019 (*4.46/3.95*), Spring 2020 (4.75/4.02), Spring 2021 (*4.37/3.98*), Fall 2021 (*3.83/4.05*)
ELET 6313/CIS 6325 Network Security (started teaching with new lab modules and curriculum)	Fall 2017 (4, 4.62/4.06), Fall 2018 (4.5, 4.71/4.02), Fall 2019 (3.41, 4.23/4), Fall 2020 (4.5, 4.48/3.99), Fall 2021 (4.6, 4.65/4.05)
ELET 4325 Advanced Computer Networks (with new lab modules and curriculum from Fall 2019 onwards)	Fall 2019 (4.23/4), Spring 2020 (4.5/4.02), Fall 2020 (4.5/3.99), Spring 2021 (4.41/4.03), Fall 2021 (3.75/4.05)

EDUCATION OUTREACH

Computer Networking Course Content Development: Developed novel content for teaching computer networking with hands-on laboratories to conduct protocol observations

- Running an outreach to high school teachers in the region to provide support in adopting the course content and lab modules in their classrooms
- Presented at the WeTeachCS Summit 2018 and 2019 to solicit feedback and evangelize the content among the networking, cybersecurity, and CS teachers in Texas high schools.

Workshop on "Internet, names, and addresses": The 26thAnnual Conference for Young Women in Grades 6, 7 and 8, Their Teachers, Parents and Counselors, Feb. 2018 and 2019, Houston, TX.

Computer Networking Curriculum for High School CS Education:

- Taught at the Clements High School Senior CS Project Class, Spring 2018, Sugarland TX.
- Provided a training workshop to the Fort Bend ISD High School CS Teachers on "Teaching Computer Networking"
- Hosting two high school computer science teachers as part of the NSF supplement for Research Experience for Teachers (RET) during Summer 2022

Highlights on Teaching Experience: *Created new lab modules and curriculum for three courses on computer networking, totaling nearly 20 lab modules, course documentation that is web based and with hands-on lab modules where applicable*

THESES AND DISSERTATIONS SUPERVISED

Chaired MS Project and Thesis Committee:

1. Ning Yao: (Master's Project Committee Chair – 2006 Spring) *MPLS interfacing to increase Mobile IP performance.* University of Houston

2. Kaushik Ramanathan: (Master's Project Committee Chair – 2006 Fall) *Convergence of layer 2 and layer 3.* University of Houston

3. Zhe Zhu: (Master's Thesis Committee Chair – 2006 Summer) *Route Optimization in Mobile IPv4 and Analysis of Throughput.* University of Houston

4. Thien-Thuy Tran: (Master's Thesis Committee Chair – 2006 Fall) *Reconfigurable optical add-drop multiplexer technology and system implementations.* University of Houston

5. Anshul Bhambri: (Master's Thesis Committee Chair – 2007 Fall) *Optical fiber Bragg grating biomedical sensor system for heart sound monitoring.* University of Houston

6. Anh Ngyuen: (Master's Thesis Committee Chair – 2007 Spring) *Optical CDMA performance analysis with contention resolution.* University of Houston

7. Shivangi Bhatt: (Master's Thesis Committee Chair – 2007 Fall) *Optical CDMA centralized smart system and distributed system comparative study.* University of Houston

8. Richard Franzl: (Master's Thesis Committee Chair – 2007 Fall) *Plug-and-play sensor networking.* University of Houston

9. Aslihan Ozkaya: (Master's Thesis Committee Chair – 2008 Spring) *Optical fiber Bragg grating sensor development and testing.* University of Houston

10. Anshul Singla: (Master's Thesis Committee Chair – 2008 Summer) *Sensor networking with IEEE 1451 standard.* University of Houston

11. Sindhu Manda: (Mater's Project Committee Chair – 2008 Fall) *TEDS implementation of IEEE 1451.0.* University of Houston

12. Pongnarin Thonpithoonrat: (Master's Thesis Committee Chair – 2008 Fall) *Closely-coupled networking for healthcare networks.* University of Houston

13. Woowon Jang: (Master's Project Committee Chair – 2008 Summer) *NS-2 implementation of IEEE 802.11e patch for pre-emptive prioritization.* University of Houston

14. Suman Gumudavelli: (Master's Thesis Committee Chair – 2009 Summer) *Networking of IEEE 1451.1 Compatible Smart Sensor Nodes* University of Houston

15. Roopa Krishnappa: (Master's Thesis Committee Chair – 2009 Fall) *Data plane measurements for GENI.* University of Houston

16. Radhika Zanwar: (Master's Thesis Committee Chair – 2010 Spring) *Workflow Creation in Joint Venture Reporting* University of Houston

17. Neha Bhongale: (Master's Thesis Committee Chair – 2009 Fall) *Workflow Analysis in Joint Venture Reporting* University of Houston

18. Chris DeVito: (Master's Thesis Committee Chair – 2009 Fall) *Integration of Physical Layer Measurements into perfSONAR Software Architecture* University of Houston

19. Hafsa Farooqui: (Master's Project Committee Chair – 2009 Fall) *Security Issues in Healthcare Information Technology* University of Houston

20. Madeeha Naaz: (Mater's Project Committee Chair – 2009 Fall) *Optical Powermeter Creation using Photodetectors* University of Houston

21. Ashwin Juvva: (Master's Thesis Committee Chair – 2010 Summer) *SNMP-enabled Smart Sensor Nodes with IEEE 1451.1, .0, and .5 Plug-and-Play Capabilities* University of Houston

22. Shantanu Mujumdar: (Master's Thesis Committee Chair – 2010 Spring) *Simulation Study for a Tightly-Coupled CAN System in Medical Instrument Networking Applications using Matlab.* University of Houston in Electrical and Computer Engineering

23. Rakesh Chintha: (Master's Project Committee Chair – 2009 Fall) *Creation of a User Interface with Artificial Intelligence Programming Practices* University of Houston

24. Raj Gautam: (Master's Thesis Committee Chair – 2009 Summer) *User Interface Design for Configurable and Programmable Measurements at a GENI Node* University of Houston

25. Sphurthi Annamraju (Master's Thesis Committee Chair – 2010 Fall) *Middleware Design for Sensor Networks* University of Houston

26. Maanasa Madiraju (Master's Thesis Committee Chair – 2010 Fall) *Control Framework Emulation and Implementation for GENI Platform* University of Houston

27. Syed Alamdar Hussain (Master's Thesis Committee Chair – 2010 Fall) *Sensor Network Management using SNMP and Sensor MIB Design* University of Houston

28. Aparna Kulkarni (Master's Project Committee Chair – 2011 Summer) U*nified measurement data exchange of production operations in the oil and gas industry* University of Houston

29. Janaki Kuruganti (Master's Thesis Committee Chair – 2011 Fall) *Sensor Network Data Exchange Management using Ganglia* University of Houston

30. Kashyap Naraparaju (Master's Project Committee Chair – 2011 Fall) *Deployment of Eucalyptus Clusters as End Points to University of Houston, Rice University* University of Houston

31. Karthik Ram Narumanchi (Master's Project Committee Chair – 2011 Fall) *LEARN and GENI Integration using ORCA as a Control Framework* University of Houston

32. Sofia Shahid (Master's Project Committee Chair – 2012 Spring) *Networking and Sensor Integration for Smart Grid Applications* University of Houston

33. Divya Pathiramanna (Master's Project Committee Chair – 2012 Spring) *Optical Burst Switching Re-defined on a Software-Defined Networking Platform* University of Houston

34. Harsha Natarajan (Master's Project Committee Chair – 2012 Fall) *OpenFlow Application on Dynamic Circuit Networking* University of Houston

35. Arshad Adam Sait (Master's Project Committee Chair – 2013 Spring) *Quality of Service Implementation in Software-Defined Networking* University of Houston

36. Huy Vo (Master's Project Committee Chair – 2012 Fall) *Interoperable Data Exchange for Emergency Management Applications* University of Houston

37. Anand Arun Daga (Master's Thesis Committee Chair – 2012 Fall) *Feasibility of IF-MAP Protocol Implementation for Interoperable Data Exchange at the University of Houston Information Technology Departments* University of Houston Computer Science Department

38. Bahaa Araji (Master's Thesis Committee Chair – 2014 Spring) *Location-based addressing for IPv6 with OpenFlow Protocol* University of Houston

39. Levent Dane (Master's Thesis Committee Chair – 2014 Summer) *Data Plane Acceleration for Software-Defined Networks* University of Houston

40. Frank Mueller (Master's Project Committee Chair – 2013 Fall) *Connectivity Concerns for OpenFlow-based Networks* University of Houston

41. Noe Nevarez (Master's Project Committee Chair – 2012 Fall) *Detection and Automated Blocking of DoS Attacks using Software-Defined Networking Paradigm* University of Houston

42. Srujan Sama (Master's Project Committee Chair – Fall 2013) *Wireless Connectivity Options in OpenFlow Protocol Networking* University of Houston

43. Parth Gala (Master's Project Committee Chair – Spring 2014) *Interoperable Data Exchange in Information Technology* University of Houston

44. Padmaja Dittavi (Master's Project Committee Chair – Spring 2013) *Data Center Networking* University of Houston

45. Anatoliy Malishevski (Master's Project Committee Chair – Fall 2014) *Implementation of Network Management Functions in a Software-Defined Network Environment* University of Houston

46. Gandhimathi Velusamy (Master's Thesis Committee Chair – Spring 2014) *Network Programming Experiences for Undergraduate Networking Course and Labs on a Nationwide Testbed* University of Houston

47. RajaRevanth Narisetty (Master's Thesis Committee Chair – Fall 2013) *Software-defined Distributed Security in Data Center Networks* University of Houston

48. Rohit Bagli (Master's Project Committee Chair – Summer 2014) *DNS based network complexity index and network management implications*

49. Kiran Vemuri (Master's Thesis Committee Chair – December 2014) *Policy Carry-Over for mobility in Software Defined Networks*

50. Chanpol Visitsathapong (Master's Thesis Committee Chair – December 2014) *Protocol independent forwarding element development using the Erlang programming language*

51. Satyajeet Padmanabhi (Master's Thesis Committee Chair – Summer 2015) *Measurement strategies for networking testbeds with security experiments*

52. Abdul Navaz (Master's Thesis Committee Chair – Summer 2015) *Distributed redundancy-based applications with software-based forwarding elements*

53. Long Tran (Master's Thesis Committee Chair – Fall 2015) *Networking testbed measurement infrastructure considerations*

54. Ateeth Kumar Thirukkovulur (Master's Thesis Committee Chair – Summer 2015) *Network debugging implementation with wireshark and network flow separation* University of Houston Electrical and Computer Engineering Department

55. Shishir Malali (Master's Project Committee Chair – Spring 2014) *Wireless Experience Metering at the University of Houston*

56. Shyam Kundooru (Master's Thesis Committee co-Chair – Spring 2015) *Interoperable Data Exchange with Effective Linked Data*

57. Norarat Nuemket (Master's Project Committee Chair – Summer 2015) *Software-defined Exchange Point Implementation with east-west controller communications*

58. Veronica Camarillo (MS project Committee Chair – Summer 2015) *Aggregate manager-based deployment of an SDN overlay in UH*

59. Geetanjali Kamte (MS thesis committee chair – Fall 2015) *Network processor unit integration with network testbeds*

60. Shyma Sumesh (MS project committee chair – Fall 2014) *Data Center Network Design Refresh To Enable Advanced Connectivity*

61. Amirali Kouhi (MS Thesis Committee Chair – Fall 2015) *SDNTrace for Network Debugging of SDN*

62. Long Tran (MS Thesis Committee Chair – Spring 2016) *Path Trace for Legacy Layer 2 Path Finding*

63. Sudarshan Gururaj (MS project committee chair – Fall 2017) *NAT network function image development for network orchestration system*

64. Praveen Mala (Master's Thesis Committee Chair – 2012 Fall) *OpenFlow Implementation with an Innovative Data Plane Concept* University of Houston Computer Science Department

65. Stuart Baxley (MS Thesis Committee Chair – Spring 2018) *Network Function Development for a Resilient UDP Data Transfer,* University of Houston, Engineering Technology

Membership of MS Project and Thesis Committee:

1. Veravat Wongvilaivarin: (Master's Project Committee Member – 2005 Spring) *Cell phone user interface design for lunch delivery.* University of Houston

2. Makrand Wagh: (Master's Thesis Committee Member – 2006 Fall) *Development of an RFID Web-based access and tracking software.* University of Houston, in Industrial Engineering

3. Mi Ryeo Cia Park: (Master's Thesis Committee Member – 2008 Summer) *RFID in warehouse for supply shain management.* University of Houston, in Industrial Engineering

4. Jing Zheng: (Master's Thesis Committee Member – 2008 Summer) *Task Scheduling with Resource Constraint in Heterogeneous Computing System Using Real-Value Particle Swarm Optimization Algorithms* University of Houston

5. Haoying Liu (Master's Thesis Committee Member – 2008 Summer) *A Fault Tolerant Efficient Scheduling Method for Improved Network Delay in Distributed Sensor Networks* University of Houston

6. Dapo Oguntoyinbo: (Master's Thesis Committee Member – 2007 Fall) Content-Addressable Memories University of Houston in Electrical and Computer Engineering

7. Mona Thaker: (Master's Thesis Committee Member – 2007 Fall) *Analysis of network latencies in Video conferencing using a custom FPGA based video conferencing system* University of Houston in Electrical and Computer Engineering

8. Priti Patel: (Master's Thesis Committee Member – 2007 Fall) *Centralized Key Management on Reconfigurable SoCs* University of Houston in Electrical and Computer Engineering

9. Lasya Kesireddy: (Master's Thesis Committee Member – 2007 Fall) *Design methodologies of Hardware Encryption and Decryption* University of Houston in Electrical and Computer Engineering

10. Madhurima Pore: (Master's Thesis Committee Member – 2007 Fall) *Network on a Chip* University of Houston in Electrical and Computer Engineering

11. Julian Naravo: (Master's Thesis Committee Member – 2010 Spring) *Physical Layer Impairments on a Deployed Network for Technology For All Initiative in Houston* University of Houston

12. Mustafa Bayraktar (Master's Thesis Committee Member – 2011 Summer) I*mage guided preoperative planning for aortic valve replacement* University of Houston

13. Bekir Sahin (Master's Project Committee Member – 2011 Summer) *Kinematic analysis of multiple degrees of freedom robots* University of Houston

14. Haitham Aldmour (Master's Thesis Committee Member – 2011 Spring) *Analysis of the Availability Construct of Dynamic Circuit Networks* University of Houston

15. Joseph Mathew (Master's Thesis Committee Member – 2011 Spring) *Region Matching for Content based Image Retrieval* University of Houston Computer Science Department

16. Charu Hans (Master's Thesis Member – 2011 Spring) *Quantitative Analysis of Multispectral Urine Sediments with Decision Fusion* University of Houston, Computer Science Department

17. Jeremy Turnball (Master's Project Committee Member – 2012 Spring) *Implementation of a SCADA Laboratory with Networking* University of Houston

18. Arijit Bose (Master's Thesis Committee member – 2012 Spring) *Automated Spatial Alignment of 3D Torso Images* University of Houston Computer Science Department

Chaired PhD Thesis Dissertations:

1. Levent Dane (PhD Thesis Committee Chair – Spring 2020) *Geographically Distributed Internet Application Data Collection Framework,* University of Houston, Computer Science (now at Lowe's Data Analytics team)

2. Adeleke Oluwamayowa (PhD Thesis Committee Chair – Fall 2020) *Application Agnostic Network Traffic Modeling for Realistic Traffic Generation*, University of Houston, Computer Science (now at Amazon AWS Infrastructure Security team)

3. Stuart Baxley (PhD Thesis Committee Chair – Summer 2022) *Resource Utilization in Network Orchestration using Graph-based Bin Packing Algorithms,* University of Houston, Computer Science (now at Sandia National Lab team)

Membership of PhD Dissertation Committee:

1. Il Mo Jung: (Dissertation Committee Member – 2007 Fall) *Cross-Layer Traffic Control through the Wireless Channel State Extraction from Data Link Layer* University of Houston in Electrical and Computer Engineering

2. Zhifeng (Jeff) Luo: (co-advisor - PhD Thesis, Fall 2009) *Cooperative communication based on IDMA* South China University of Technology, School of Electronic and Information Engineering

3. Poonam Beniwal: (PhD Dissertation Committee Member – 2022 Summer) *Impact of Video Compression and Metrics to Assess Image Quality for Automated Video Analytics in Video Surveillance Systems*, Computer Science, University of Houston

Undergraduate Research Student Mentoring

1. Alexander Duvall, Senior in Computer Engineering Technology, University of Houston, "Instructor User Interface Design for the NSF project: SATC: EDU: Network Design for Security using Protocol Trust Boundary Observations," *NSF Research Experiences for Undergraduates awardee, 2020-2021*.
2. Brian Arahill, Information Technology Security, Baker College, "IoT Traffic Generation Testbed for the NSF project: CNS Core: Small: Realistic Traffic Generation through Application-Agnostic Learning," *NSF Research Experiences for Undergraduates awardee, 2020-2021*.

Highlights of Student Mentoring and Advising: *PhD thesis committee chair for 3 students (all after 2014), MS thesis committee chair for 65 students (over 45 since 2010), MS or PhD committee member for 20 students. Undergraduate student mentoring for 2 students with participation costs awarded by NSF REU grants.*

PROFESSIONAL COMMITTEE MEMBERSHIP AND LEADERSHIP EXPERIENCES

02/2025 – present	**Founding Faculty Advisor, Cyber Citizen Club** School of Engineering, Kent State University
09/2025 – 06/2026	**Chair, School of Engineering Director Search Committee** School of Engineering, Kent State University
09/2024 – 06/2025	**Chair, Cybersecurity Engineering Search Committee** School of Engineering, Kent State University
01/2024 – 08/2025	**Founding Faculty Advisor, WiCyS** Women in Cybersecurity WiCyS-KSU Student Chapter College of Aeronautics and Engineering, Kent State University
08/2023 – present	**Faculty Lead, Course Curriculum Development Committee** Computer Engineering Technology and Cybersecurity Engineering College of Aeronautics and Engineering, Kent State University
08/2023 – present	**Member, Engineering Tenure and Promotion Committee** College of Aeronautics and Engineering, Kent State University
08/2023 – present	**Member, Student Grievance Committee** College of Aeronautics and Engineering, Kent State University
11/2023 – present	**Member, Tenure and Promotion Committee** Provost's Office, Kent State University
08/2023 – present	**Chair, Cybersecurity Academic Committee** Representatives of 10+ university-wide cybersecurity programs Kent State University
11/2023 – 06/2024	**Member, CS Chair Search Committee** Department of Computer Science, Kent State University
09/2021 – 05/2023	**Faculty Activity Report Evaluation Committee** Chair, Department of Engineering Technology
01/2021 – 05/2023	**Dean's Advisory Committee** College of Technology
01/2021 – 09/2021	**Graduate and Professional Studies University Committee** Dean's Appointee for the College of Technology Graduate Student Affairs Subcommittee Member
05/2020 – 05/2023	**WiCyS Women in CyberSecurity** Women in Cybersecurity UH (WiCyS-UH) Student Chapter Faculty Advisor WiCyS Houston Affiliate Founding Secretary
2020	**Member,** UH Research Budget Transparency University Committee
2020	**Member,** UH Institute for Resilient Infrastructure and Smart Cities Planning Committee
2020 Spring	**Member, Chair Search Committee** Department of Engineering Technology, University of Houston
2017 – 2020	**Chair, Graduate Academic Programs (MS-ET)** Department of Engineering Technology, University of Houston
2006 – 2015	**Graduate Program Coordinator, Network Communications (MS-ET)** Department of Engineering Technology, University of Houston
2017 Spring	**Member, Dean Search Committee** College of Technology, University of Houston

2014 – 2015	**Member, Faculty Senate** Member of the Graduate and Professional Studies Committee
2014 – 2015	**Chair, Graduate Program Evaluation Committee** Faculty Senate, GPSC subcommittee, University of Houston
2014 – 2023	**Member, SETG Technical Advisory Group** Representing University of Houston in Southeast Texas GigaPop (100 Gbps to Internet2 through Two NSF CC-NIE grant awards)
2014 Spring	**Member, Faculty Search Committee** Department of Information Logistics Technology, Information Systems Security, University of Houston
2012 – 2016	**Member, LEARN Technical Advisory Group** Representing University of Houston in Lonestar Education and Research Network of Texas
2012 – 2016	**Co-Chair (together with Dan Schmiedt), Internet2 Software-Defined Networking Workgroup** Nationwide research testbed organization
2012 – 2015	**Member, Graduate Professional Studies Council** University of Houston
2012 Spring	**Member, Faculty Search Committee** Department of Engineering Technology, University of Houston
2011 – 2013	**Chair, Graduate Academic Committee** College of Technology, University of Houston
2006 – 2014	**Member, Graduate Academic Committee** College of Technology, University of Houston
2004 – 2005	**Member, Equipment and Facilities Committee** Department of Engineering Technology, University of Houston

Highlights on Service: *Served as a graduate coordinator for over 15 years while contributing to the 5 times increase in enrollment in the MS program. Served in various chair, dean, and faculty search committees throughout my tenure. High impact technical service in the region through service in the SETG technical advisory committee overseeing the upgrade of the networks to 100 Gbps, impacting the broader higher education and K-12 community broadband access for nearly 10 years.*

EDITORIAL/REVIEW EXPERIENCE

Associate Editor (2009 – 2017)
IEEE Transactions on Instrumentation and Measurement

Invited Reviewer
Computer and Information Science and Engineering

Proposal Panel Review, **National Science Foundation,**
2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2023.

Proposal Panel Review, Department of Energy,
2015, 2016, 2023.

Journal Reviewer (intermittent)

IEEE Transactions on Network and Service Management, IEEE Transactions on Education, IEEE/OSA Journal of Lightwave Technology, IEEE Photonic Technology Letters, IEEE Journal on Selected Topics in Quantum Electronics, OSA Optics Express, EURASIP Journal on Applied Signal Processing, ICC 2005 Optical Networking

PROFESSIONAL SOCIETY ACTIVITIES

Workshop Organization co-chair
Infocom 2023 CNERT, Computer and Networking Experimental Research using Testbeds Workshop

Workshop Organization co-chair
Cybersecurity Experimentation Testbed (CSET 2023), August 2023

Infragard Houston Chapter, Member

Conference Technical Program co-Chair
International Conference on Communications and Computer Networks, 2021

Past Member, Technical Advisory Group of the Southeast GigaPoP (SETG) of Houston
Metro network serving the Texas Medical Center, Baylor College of Medicine, Rice University, Houston Community College, University of Houston and others in Houston metro area. The fiber backbone is the Research and Education Network of Houston (RENoH).

Conference Chair
GENI Engineering Conference (GEC15), October 22-25, 2012 Houston
IEEE Sensor Applications Symposium 2013

Conference Steering Committee Member
IEEE Sensor Applications Symposium 2013, 2014, 2015

Technical Program co-Chair
IEEE ICCCN-2021 (The International Conference on Computer Communications and Networks)

Technical Committee Membership
IEEE ICCCN2020 (The 29th International Conference on Computer Communications & Networks)
IEEE ICCCN Software-Defined Networking Track 2015 (TPC co-chair)
IEEE ICCCN Software-Defined Networking Track 2014 (TPC co-chair)
1st Sensor Application Development Workshop co-hosted with IEEE Sensor Applications Symposium 2014 – Organizer in collaboration with Dr. Justin Cappos at NYU
IEEE Sensor Applications Symposium 2008 - 2015
FLAIRS 2006 - Special Track on Intelligent Distributed Sensor Networks
IEEE 3rd Mobility Conference
IEEE Tridentcom 2012

Technical Committee Chair
IEEE Sensor Applications Symposium 2010, 2011, 2012, 2014

Technical Program Committee Member
IEEE CCWC 2020 Networking track papers
IEEE/ACM SuperComputing 2019, 2020 – INDIS Workshop

Highlights on Professional Society Engagement: *Organized major conferences in computer networking field as a steering committee member, technical program chair and general chair for nearly 10 conferences in addition to numerous membership roles in technical program committees and editorial assignments.*

PRESENTATIONS AND WORKSHOPS

Organizer

SDN Workshop for Network Engineers in LEARN
December 9-11, 2013 - LEARN Quarterly meeting

Workshop on Joint Venture Production Reporting and Production Operations
April 6th, 2009, *SPE Digital Energy Conference 2009,* Houston, TX

Workshop on **"How to Integrate LEARN to Research Activities in Texas"**
February 18th, 2011, *University of Houston, TLC2,* Houston, TX

Special Session Organizer – PlugFest for IEEE 1451 Standard
IEEE Sensor Applications Symposium 2009-2007.

Co-Chair: IEEE Sensors Applications Symposium, 2011, San Antonio, TX
Chair: IEEE Sensors Applications Symposium, 2013, Galveston, TX

Presenter

Speaker – CREDC Industry Workshop 2020, Houston, TX
Panel: What's next? Looking 5 to 10 years ahead
Deniz Gurkan "Emulation of Real-Time Environments"

Speaker – WeTeachCS Summit 2019
Deniz Gurkan "Teaching Computer Networking Protocol Behaviors," June 2019, Austin, TX.

Speaker – WeTeachCS Summit 2018
Deniz Gurkan and Nicholas Bastin, "Observations of Computer Networking Protocol Behaviors on Jupyter Notebooks," June 2018, Austin, TX.

Invited Panelist – IEEE Conference on Communications and Network Security 2016
Panel I: Securing the Software Defined Networks: From Theory to Practice
IEEE CNS, 17-19 October 2017, Philadelphia, PA USA

Teaching Guidelines
2004 – 2011 (every fall and spring semesters) Graduate Laboratory Assistant Orientation at Engineering Technology Department, University of Houston

Presentation – NSF-GENI Engineering Conferences (GEC)
Mar 4th, 2008, "GENI Measurements," GEC 2, Arlington, VA.
Oct 30th, 2008, "Data Plane Measurements," GEC 3, Palo Alto, CA.
Apr 1st, 2009, "External Measurement Tools for GENI," GEC 4, Miami, FL.

Jun 26th, 2009, "GENI Measurement Architecture," First GENI Measurement Workshop, Madison, WI, web-based.
July 27, 2010, "GENI LEARN and Measurements," GEC8, San Diego, CA.
Nov 2, 2010, "GENI LEARN Integration," GEC9, Washington DC.
July 30, 2011, "IF-MAP for GENI I&M Data Exchange," GEC11, Denver CO.
Nov 2, 2011, "IF-MAP Implementation of Measurement Data Exchange," GEC12, Kansas City.
Oct 23-25, 2012, "SDN and Programmability in GENI," Panel Participation, GEC15, Houston.
Mar 19-21, 2013, "SDN Experiments on GENI," invited presenter, GEC16, Salt Lake City, UT.
October 29, 2013, "SDN Applications and Experimentation on GENI," invited presenter, GEC18, Brooklyn, NY.

Software and Integration Demonstrations at GENI Engineering Conferences:
GENI is a nationwide (linked globally to others) network research and education testbed funded at $50+ million by the National Science Foundation

Multiple demonstration teams in each GENI Engineering Conferences (GEC) of GEC11 – GEC22.

Invited Speaker – IEEE Infocom Workshop on Software-Defined and Context-aware Cognitive Radio Networks 2017 (SDN Use Cases: Software-Defined Infrastructure with Advanced Abstractions for Orchestration)

geni-lib Python Library Tutorial at GENI Regional Workshop
May 24th, 2017 – TAMU GENI Regional Meeting

Panel Speaker – NSF CC* PI meeting, Cyberinfrastructure to Support Large Data Transfers in Genomics Research, 2017

Invited Panel Member – IEEE Conference on Communications and Network Security, 2016.

Invited Keynote Speaker – GENI-NICE 2015

Invited Panel Member – GREE (GENI Research and Education Experiments) Workshop on Software Defined Networking (SDN), and your experiment-based research experience
SDN and experimental research, March 19, 2014, Atlanta

Invited Speaker – GENI-FIRE, US-Europe Collaboration Workshop
SDN Applications, October 15, 2013, Belgium.

Invited Talk – Army Research Laboratory
SDN Applications, December 19, 2013, Mayland.

Speaker – 7th Annual EMAT Symposium: Share the Vision
Deniz Gurkan and Joe Mendez, "Integrating Campuses & Emergency Operations Center via IF-MAP", Feb. 2014, San Marcos, TX.

Invited Speaker – LEARN: Technology Innovations
September 27, 2011, LEARN Board of Directors Meeting

Invited Speaker – 1451 Standards and Sensor Networking Demonstration
March 5th, 2009*,* Wireless Connections in Space Meeting, *NASA Engineering and Safety Center at Langley Research Center*, web-based

Invited Speaker – 1451 Standards for Aerospace Applications
April 22nd, 2009, CCSDS-SOIS Spring 2009 Technical Meeting, *Consultative Committee for Space Data Systems (CCSDS) hosted by NASA at Colorado Springs,* web-based

Invited paper presentation – Smart Sensor Networking and Interoperability
March 2010, *American Society of Civil Engineers, Earth and Space Conference*
Speaker – Standards Compliance Testing
NIST – Sensor Standards Harmonization Work Group Meetings, Washington, DC
April 30th 2008, "IEEE 1451 Deployment and Conformance Testing Considerations,"
June 26th 2007, "Testbed of Smart Sensors: Test Procedures for 1451 Compatibility,"