Thidapat (Tam) Chantem

Electrical and Computer Engineering, Virginia Polytechnic Institute and State University
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Current Position

Associate Professor in the Department of Electrical and Computer Engineering at Virginia Tech

Education

University of Notre Dame, Notre Dame, Indiana, USA
  Ph.D. – Computer Science and Engineering, May 2011
  M.S. – Computer Science and Engineering, May 2008

Iowa State University, Ames, Iowa, USA
  B.S. – Computer Engineering, May 2005
  B.S. – Computer Science, May 2005
  Minor – French

Research Interests

Energy/thermal/reliability-aware system-level design, hardware/software codesign, real-time embedded systems, and cyber-physical systems, especially intelligent transportation systems

Professional Experience

2020–Present: Associate Professor, Department of Electrical and Computer Engineering, Virginia Tech.

May 2021–July 2021: Air Force Office of Sponsored Research Summer Faculty Fellow.

2016–2020: Assistant Professor, Department of Electrical and Computer Engineering, Virginia Tech.

May 2015–July 2015: Air Force Office of Sponsored Research Summer Faculty Fellow.

2011–2016: Assistant Professor, Department of Electrical and Computer Engineering, Utah State University.

Summer 2011: Research Assistant Professor, Department of Computer Science and Engineering, University of Notre Dame.

Research Impacts (As of 02/03/22)

Total number of citations:	1,327
H-index:	16
i10-index:	21

Book Chapters

Y. Ma, J. Zhou, **T. Chantem**, R.P. Dick, and X.S. Hu, "Resource Management for Improving Overall Reliability of Multi-Processor Systems-on-Chip", In "Dependable Embedded Systems", J. Henkel and N. Dutt (Editors), pages 233–246, Embedded Systems. Springer, Cham, 2021.

Editorship

T. Chantem, N. Guan, and D. Liu, "Sustainable Embedded Software and Systems", *Sustainable Computing: Informatics and Systems*, volume 22, June 2019, Pages 152–154 (Editorial).

Invited Journal Publications

J. Yi, C. Poellabauer, X.S. Hu, **T. Chantem**, L. Zhang, "Dynamic Channel Reservations for Wireless Multihop Communications", *Mobile Computing and Communications Review*, Volume 14, Number 3, July 2010.

T. Chantem, X.S. Hu, C. Poellabauer, J. Yi, and L. Zhang, "Network-Aware, Energy-Conscious, Fair Service for Real-Time Applications on Multiprocessor SoC", In *SIGBED Review, Special Issue on the Work-in-Progress (WIP) Session at the 2009 IEEE Real-Time Systems Symposium (RTSS)*, volume 7, number 1, January 2010.

Peer-Reviewed Journal Publications

G.J. Hannoun, P. Murray-Tuite, K. Heaslip, and **T. Chantem**, "Sequential Optimization of an Emergency Response Vehicle's Intra-link Movement in a Partially Connected Vehicle Environment", in *Transportation Research Record (TRB)*, Volume 2675, Number 11, pages 413–423, November 2021. **Impact factor: 1.560**

N. Weidler, R.M. Gerdes, and **T. Chantem**, "On the Limitations of Obfuscating Redundant Circuits in Frustrating Hardware Trojan Implantation", in *Springer Journal of Hardware and Systems Security*, Volume 5, Number 1, pages 75–87, March 2021.

Y. Ma, J. Zhou, **T. Chantem**, R. P. Dick, and X. S. Hu, "Improving Reliability of Real-Time Embedded Systems on Integrated CPU and GPU Platforms", in *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, Volume 39, Number 10, pages 2218–2229, October 2020. **Impact factor: 2.089**

G.J. Hannoun, P. Murray-Tuite, K. Heaslip, and **T. Chantem**, "Meso- and Micro-scopic Routing of an Emergency Response Vehicle with Connected Vehicle Technologies", in *International Journal of Emerging Technology and Advanced Engineering*, Volume 10, Number 4, April 2020. **Impact factor: 6.351**

Y. Ma, J. Zhou, **T. Chantem**, R. P. Dick, S. Wang and X. S. Hu, "On-Line Resource Management for Improving Reliability of Real-Time Systems on "Big–Little" Type MPSoCs," in *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, volume 39, Number 1, pages 88–100, January 2020. **Impact factor: 2.089**

G.J. Hannoun, P. Murray-Tuite, K. Heaslip, and **T. Chantem**, " Facilitating Emergency Response Vehicles' Movement through a Road Segment in a Connected Vehicle Environment", *IEEE Transactions on Intelligent Transportation Systems (IEEE ITS)*, volume 20, number 9, pages 3546–3557, September 2019. **Impact factor: 4.051**

A. Mukherjee and **T. Chantem**, "Energy Management of Applications With Varying Resource Usage on Smartphones", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, volume 37, number 11, pages 2416–2427, November 2018. **Impact factor: 2.089**

Y. Ma, **T. Chantem**, R.P. Dick, and X.S. Hu, "Improving System-Level Lifetime Reliability of Multicore Soft Real-Time Systems", *IEEE Transactions on Very Large Scale Integration Systems (TVLSI)*, volume 25, number 6, pages 1895–1905, June 2017. **Impact factor: 1.744**

E. Meissner, **T. Chantem**, and K. Heaslip, "Optimizing Departures of Automated Vehicles from Highways while Maintaining Mainline Capacity", *IEEE Transactions on Intelligent Transportation*

Systems (IEEE ITS), Volume 17, number 12, pages 3498 - 3511, December 2016. **Impact factor: 4.051**

S. Hong, **T. Chantem**, and X.S. Hu, "Local-Deadline Assignment for Distributed Real-Time Systems", *IEEE Transactions on Computers (IEEE TC)*, volume 64, number 7, pages 1983–1997, July 2015. **Impact factor: 3.051**

D. Desiraju, **T. Chantem**, and K. Heaslip, "Minimizing the Disruption of Traffic Flow of Automated Vehicles During Lane Changes", *IEEE Transactions on Intelligent Transportation Systems (IEEE ITS)*, volume 16, number 3, pages 1249–1258, June 2015. **Impact factor: 4.051**

T. Chantem, X.S. Hu, and R.P. Dick "Temperature-Aware Scheduling and Assignment for Hard Real-Time Applications on MPSoCs", *IEEE Transactions on Very Large Scale Integration Systems (TVLSI)*, volume 19, number 10, pages 1884–1897, October 2011. **Impact factor: 1.744**

T. Chantem, X.S. Hu, and M.D. Lemmon, "Generalized Elastic Scheduling for Real-Time Tasks", *IEEE Transactions on Computers (IEEE TC)*, volume 58, number 4, pages 480–495, March 2009. **Impact factor: 3.051**

Peer-Reviewed Conference Publications

A. Willcock, N. Fisher, and **T. Chantem**, "Demand Characterization of CPS with Conditionally-Enabled Sensors", In *Proceedings of the International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA)*, pages 149–158, August 2021. **Acceptance Rate: 42%**.

P. Oza and **T. Chantem**, "A Traffic Infrastructure-Enabled Task Scheduling in Vehicular Edge Computing Networks", In *Proceedings of the Junior Researcher Workshop on Real-Time Computing*, April 2021. **Acceptance Rate: N/A%**.

P. Oza and **T. Chantem**, "Timely and Non-Disruptive Response of Emergency Vehicles: A Real-Time Approach", In *Proceedings of International Conference on Real-Time Networks and Systems (RTNS)*, pages 192–203, April 2021. **Acceptance Rate: 48%**.

A. Mukherjee, R. Gerdes, and **T. Chantem**, "Trusted Verification of Over-the-Air (OTA) Secure Software Updates on COTS Embedded Systems", *Proceedings of the Workshop on Automotive and Aerial Vehicle Security (AutoSec)*, February 2021. **Acceptance Rate: N/A%**.

A. Mukherjee and **T. Chantem**, "An Integrated Energy Management Framework for Multiple Side-by-Side Applications on Smartphones", In *Proceedings of the International Conference on Embedded Software and Systems (ICESS)*, pages 1–8, December 2020. **Acceptance Rate: 41%**.

A. Mukherjee, T. Mishra, **T. Chantem**, and N. Fisher, "Tensity-Aware Optimized Scheduling of Parallel Real-Time Tasks on Multiprocessors", In *Proceedings of the International Conference on Embedded Software and Systems (ICESS)*, pages 1–8, December 2020. **Acceptance Rate: 41%**.

P. Oza, **T. Chantem**, and P. Murray-Tuite, "A Coordinated Spillback-Aware Traffic Optimization-nand Recovery at Multiple Intersections ", In *Proceedings of the International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA)*, pages 1–10, August 2020. **Acceptance Rate: 37%**.

T. Mishra, **T. Chantem**, and R. Gerdes, "TEECheck: Securing Intra-Vehicular Communication Using Trusted Execution", In *Proceedings of International Conference on Real-Time Networks and Systems (RTNS)*, pages 128–138, June 2020. **Acceptance Rate: N/A%**. **Outstanding Paper Award**

P. Oza, M. Foruhandeh, R. Gerdes and **T. Chantem**, "Secure Traffic Lights: Replay Attack Detection for Model-based Smart Traffic Controllers", *Proceedings of the Workshop on Automotive and Aerial Vehicle Security (AutoSec)*, pages 5–10, March 2020. **Acceptance Rate: N/A**.

M. Foruhandeh, Y. Man, R. Gerdes, M. Li, **T. Chantem**, "SIMPLE: Single-Frame based Physical

Layer Identification for Intrusion Detection and Prevention on In-Vehicle Networks", In *Proceedings of the Annual Computer Security Applications Conference (ACSAC)*, pages 229—244, December 2019. **Acceptance Rate: 23%**.

A. Mukherjee, T. Mishra, **T. Chantem**, N. Fisher, and R.M. Gerdes, "Optimized Trusted Execution for Hard Real-Time Applications on COTS Processors", In *Proceedings of the International Conference on Real-Time Networks and Systems (RTNS)*, pages 50–60, November 2019. **Acceptance Rate: 54%**.

A.A. Al-Hashimi, P. Oza, R.M. Gerdes, and **T. Chantem**, "The Disbanding Attack: Exploiting Human-in-the-loop Control in Vehicular Platooning", In *Proceedings of the International Conference on Security and Privacy in Communication Networks (SecureComm)*, pages 163–183, October 2019. **Acceptance Rate: 25%**.

P. Oza and **T. Chantem**, "A Real-Time Server Based Approach for Safe and Timely Intersection Crossings", In *Proceedings of the International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA)*, pages 1–12, August 2019. **Acceptance Rate: 50%**. **Best Paper Award**

B. Peng, N. Fisher, and **T. Chantem**, "Fast and Effective Multiframe-Task Parameter Assignment Via Concave Approximations of Demand", In *Proceedings of the EuroMicro Conference on Real-Time Systems (ECRTS)*, pages 20:1–20:22, July 2019. **Acceptance Rate: 34%**.

M. Nasri, **T. Chantem**, G. Bloom, and R.M. Gerdes, "On the Pitfalls and Vulnerabilities of Schedule Randomization against Schedule-Based Attacks", In *Proceedings of the Real-Time and Embedded Technology and Applications Symposium (RTAS)*, pages 103–116, March 2019. **Acceptance Rate: 25%**.

S. Bijinemula, A. Willcock, **T. Chantem**, and N. Fisher, "An Efficient Knapsack-Based Approach for Calculating the Worst-Case Demand of AVR Tasks", In *Proceedings of the Real-Time Systems Symposium (RTSS)*, pages 384–395, December 2018. **Acceptance Rate: 22.3%**

Y. Ma, **T. Chantem**, R.P. Dick, and X.S. Hu, "Improving Reliability for Real-Time Systems through Dynamic Recovery", In *Proceedings of the Design, Automation, & Test in Europe Conference (DATE)*, pages 515–520, March 2018. **Acceptance Rate: 23.7%**

Y. Ma, **T. Chantem**, R.P. Dick, S. Wang, and X.S. Hu, "An On-Line Framework for Improving Reliability of Real-Time Systems on Big-Little Type MPSoCs", In *Proceedings of the Design, Automation, & Test in Europe Conference (DATE)*, pages 446–451, March 2017. **Acceptance Rate: 24.0%**

B. Peng, N. Fisher, and **T. Chantem**, "MILP-based Deadline Assignment for End-to-End Flows in Distributed Real-Time Systems", In *Proceedings of the International Conference on Real-Time Networks and Systems (RTNS)*, pages 13–22, October 2016. **Acceptance Rate: 45.0%**

J. Patterson and **T. Chantem**, "EDF-hv: An Energy-Efficient Semi-Partitioned Approach for Hard Real-Time Systems", In *Proceedings of the International Conference on Real-Time Networks and Systems (RTNS)*, 267-276, October 2016. **Acceptance Rate: 45.0%**

S. Arunachalam, **T. Chantem**, R.P. Dick, and X. Hu, "An Online Wear State Monitoring Methodology for Off-the-Shelf Embedded Processors", In *Proceedings of the International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS)*, pages 114–123, October 2015. **Acceptance Rate: 26.0%**

Y. Ma, **T. Chantem**, R.P. Dick, and X. Hu, "Improving Lifetime of Multi-core Real-Time Systems through Global Utilization Control", In *Proceedings of the Great Lakes Symposium on VLSI (GLSVLSI)*, May 2015. **Acceptance Rate: 28.0%**

T. Chantem and R.M. Gerdes, "A Node Allocation Algorithm for Resilient CPSs Under Energy-Exhaustion Attack", In *Proceedings of the Workshop on Low-Power Dependable Computing (LPDC)*, November 2014. **Acceptance Rate: N/A**

T. Chantem, Y. Xiang, X.S. Hu, and R.P. Dick, "Enhancing Multicore Reliability through Wear Compensation in Online Assignment and Scheduling", In *Proceedings of the Design, Automation, & Test in Europe Conference (DATE)*, pages 1373–1378, March 2013. **Acceptance Rate: 16.4%**

S. Hong, **T. Chantem**, and X.S. Hu, "Meeting End-to-End Deadlines Through Distributed Local Deadline Assignments", In *Proceedings of the Real-Time Systems Symposium (RTSS)*, pages 183–192, November 2011. **Acceptance Rate: 21.0%**

T. Chantem, J. Yi, S. Hong, X.S. Hu, C. Poellabauer, and L. Zhang, "An Online Holistic Scheduling Framework for Energy-Constrained Wireless Real-Time Systems", In *Proceedings of the International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA)*, pages 267–276, August 2011. **Acceptance Rate: 32.0%**

S. Hong, **T. Chantem**, and X.S. Hu, "Meeting End-to-End Deadlines Through Distributed Local Deadline Assignment", In *Proceedings of the Real-Time and Embedded Technology and Applications Symposium (RTAS), Work-In-Progress*, April 2011. **Acceptance Rate: N/A**

Y. Xiang, **T. Chantem**, R.P. Dick, X.S. Hu, and L. Shang, "System-Level Reliability Modeling for MPSoCs", In *International Conference on Hardware-Software Codesign and System Synthesis (CODES+ISSS)*, pages 297–306, October 2010. **Acceptance Rate: 34%**

T. Chantem, X.S. Hu, C. Poellabauer, J. Yi, and L. Zhang, "Network-Aware, Energy-Conscious, Fair Service for Real-Time Applications on Multiprocessor SoC", In *Proceedings of the Real-Time Systems Symposium (RTSS), Work-In-Progress*, December 2009. **Acceptance Rate: N/A**

T. Chantem, X.S. Hu and R.P. Dick, "Online Work Maximization Under a Peak Temperature Constraint", In *Proceedings of the International Symposium on Low Power Electronics and Design (ISLPED)*, pages 105–110, August 2009. **Acceptance Rate: 25.0%**

D.R. Bild, S. Misra, **T. Chantem**, P. Kumar, R.P. Dick, X.S. Hu, L. Shang, and A. Choudhary, "Temperature-Aware Test Scheduling for Multiprocessor Systems-On-Chip", In *Proceedings of the International Conference on Computer-Aided Design (ICCAD)*, pages 59–66, November 2008. **Acceptance Rate: 26.6%**

T. Chantem, X. Wang, M.D. Lemmon, and X.S. Hu, "Period and Deadline Selection for Schedulability in Real-Time Systems", In *Proceedings of the EuroMicro Conference on Real-Time Systems (ECRTS)*, pages 168–177, July 2008. **Acceptance Rate: 29.4%**

T. Chantem, R.P. Dick and X.S. Hu, "Temperature-Aware Scheduling and Assignment for Hard Real-Time Applications on MPSoCs", In *Proceedings of the Design, Automation, & Test in Europe Conference (DATE)*, pages 288–293, March 2008. **Acceptance Rate: 23.6%**

T. Chantem, X.S. Hu, and M. Lemmon, "Period and Deadline Selection Problem for Real-Time Systems", In *Proceedings of the Real-Time Systems Symposium (RTSS), Work-In-Progress*, December 2007. **Acceptance Rate: N/A**

M. Lemmon, **T. Chantem**, X.S. Hu, and M. Zyskowski, "On Self-Triggered Full Information H-infinity Controllers", In *Proceedings of the International Conference on Hybrid Systems: Computation and Control (HSCC)*, pages 371–384, April 2007. **Acceptance Rate: 25.0%**

B. Mochocki, D. Rajan, X.S. Hu, C. Poellabauer, K. Otten, and **T. Chantem**, "Network-Aware Dynamic Voltage and Frequency Scaling", In *Proceedings of the Real-Time and Embedded Technology and Applications Symposium (RTAS)*, pages 215–224, April 2007. **Acceptance Rate: 28.4%**

T. Chantem, X.S. Hu, and M.D. Lemmon, "Generalized Elastic Scheduling", In *Proceedings of the Real-Time Systems Symposium (RTSS)*, pages 236–245, December 2006. **Acceptance Rate: 24.2%**

F. Morcos, **T. Chantem**, P. Little, T. Gasiba, and D. Thain, "iDIBS: An Improved Distributed Internet Backup System", In *Proceedings of the International Conference on Parallel and Distributed Systems (ICPADS)*, pages 58–67, July 2006. **Acceptance Rate: 38.0%**

X.S. Hu, **T. Chantem**, and M.D. Lemmon, "Optimal Elastic Scheduling", In *Proceedings of the*

Real-Time and Embedded Technology and Applications Symposium (RTAS), Work-In-Progress, April 2006. **Acceptance Rate: N/A**

Other Publications

G.J. Hannoun, P. Murray-Tuite, K. Heaslip, and **T. Chantem**, "Using Connected Vehicle Technology to Improve Emergency Response Vehicle Travel in an Urban Transportation Network", In *INFORMS Annual Meeting*. Seattle, WA, October 2019.

G.J. Hannoun, P. Murray-Tuite, K. Heaslip, and **T. Chantem**. "Sequential Optimization of the Intra-link Movement of an Emergency Response Vehicle Along Transportation Segments in the Connected Vehicle Environment", In *INFORMS Annual Meeting*. Phoenix, AZ, November 2018.

G.J. Hannoun, P. Murray-Tuite, K. Heaslip, and **T. Chantem**. "Facilitating the Emergency Response Vehicles movement through a transportation network link in a connected vehicle environment", In *INFORMS Annual Meeting*. Houston, TX, October 2017.

Refereed Posters

"Procrastinating Control-Flow Integrity for Hard Real-Time Systems", In *Design Automation Conference*, San Francisco, December 2021.

G.J. Hannoun, P. Murray-Tuite, K. Heaslip, and **T. Chantem**, "Sequential Optimization of an Emergency Response Vehicle's Intra-link Movement in a Partially Connected Vehicle Environment", In *Transportation Research Board (TRB) Meeting*, Virtual Conference, January 2021.

G.J. Hannoun, P. Murray-Tuite, K. Heaslip, and **T. Chantem**, "Sequential Optimization of an Emergency Response Vehicle's Intra-link Movement in a Partially Connected Vehicle Environment", In *Transportation Research Board Annual Meeting*, Jan 2021.

Gaby Joe Hannoun1,*, Pamela Murray-Tuite2, Kevin Heaslip3, Thidapat Chantem4 Y. Ma, **T. Chantem**, R.P. Dick, and X. Hu, "Improving Lifetime of Multi-core Real-Time Systems through Global Utilization Control", In *Great Lakes Symposium on VLSI (GLSVLSI)*, May 2015.

T. Chantem, "Semi-Automated Emergency Response Systems", In *NSF Early-Career Investigators Workshop on Cyber-Physical Systems in Smart Cities*, April 2015.

J. Yi, C. Poellabauer, X.S. Hu, **T. Chantem**, and L. Zhang, "Energy Efficient Real-Time Communication for Wireless Multihop Networks", In *International Conference on Mobile Computing and Networking (Mobicom)*, September 2010.

Grants and Sponsored Programs (Total: $4.17M, Share: $1.77M)

"Collaborative Research: CPS: Medium: Timeliness vs. Trustworthiness: Balancing Predictability and Security in Time-Sensitive CPS Design", **T. Chantem (PI–Lead Institution)**, N. Fisher (PI), Ning Zhang (PI), Cong Liu (PI), R. Gerdes (Co-PI), $1,199,566, Personal share: $240,000, National Science Foundation, 02/01/21–01/31/24.

"NSF Engineering Research Center for Advancing Sustainability through Powered Infrastructure for Roadway Electrification (ASPIRE)", R. Zane (PI), S. Nazarian (Co-PI), C. Fawson (Co-PI), K. Gkritza (Co-PI), Q. Lv (Co-PI), $3,500,000. Virginia Tech is a participant: R. Gerdes (VT PI), **T. Chantem (VT Co-PI)**. VT share: $793,332 , Personal share: $251,996, National Science Foundation, 09/01/20–08/31/25.

"Securing Time-Sensitive Cyber-Physical Systems (CPS)", **T. Chantem (PI)** and R. Gerdes (Co-PI), $793,431, Personal share: $396,716, Commonweath Cyber Initiative, 11/06/19–08/31/22.

"S²ERC: Compiler Tools for Software Anti-Tamper", **T. Chantem (PI)**, E. Tilevich (Co-PI), Matthew Hicks (Co-PI), and C. Clancy (Co-PI), $650,000, Personal share: $224,281, National Science Foundation/Office of the Secretary of Defense, 08/01/18–02/29/20.

"S^{2}ERC: Compiler Tools for CPI Protection–Phase II", **T. Chantem (PI)**, E. Tilevich (Co-PI), and C. Clancy (Co-PI), $250,000, Personal share: $101,912, National Science Foundation/Office of the Secretary of Defense, 08/10/17–08/09/18.

"S^{2}ERC: Compiler Tools for CPI Protection–Phase I", **T. Chantem (PI)**, E. Tilevich (Co-PI), and C. Clancy (Co-PI), $238,637, Personal share: $96,317, National Science Foundation/Office of the Secretary of Defense, 09/14/16–07/31/17.

"CSR: Small: Collaborative Research: Exploiting Predictability & Interdependency of Physical Parameters for Resource-Efficient Integration of Real-Time Embedded Systems", **T. Chantem (PI–Lead Institution)**, N. Fisher (PI), $499,050, Personal share: $375,001, National Science Foundation, 09/01/16–08/30/19.

"CPS: Synergy: Collaborative Research: Semi-Automated Emergency Response System", **T. Chantem (PI–Lead Institution)**, P. Murray-Tuite (PI), R.M. Gerdes (Co-PI), and K. Heaslip (Co-PI), $749,882, Personal share: $375,000, National Science Foundation, 01/01/16–12/31/19.

"Resilient CPS Testbed", **T. Chantem (PI)**, $13,000, Air Force Research Laboratory, August 2015 (permanent equipment loan).

"CSR: Small: Collaborative Research: Reliability Driven Resource Management of Multi-Core Real-Time Embedded Systems", **T. Chantem (PI)**, R.P. Dick (PI), and X.S. Hu (PI), $499,552, Personal share: $166,222, National Science Foundation, 10/01/13–09/30/16.

"Real-Time Traffic Management to Maximize Throughput of Automated Vehicles", **T. Chantem (PI)**, $50,000, Mountain Plains Consortium/United States Department of Transportation, 07/24/13–11/30/15.

"Real-Time System Design on Stochastic Processors", **T. Chantem (PI)**, $18,299 Research Catalyst Program, Utah State University, 01/01/13–11/30/13..

"Graduate Research Symposium", R. McCumbers, **T. Chantem**, and C. Shea, $12,200, Funding for New Initiatives in Graduate Studies Program, University of Notre Dame, April 2008.

Invited Talks

"Reliability-Driven Resource Management for Real-Time Applications on Multi-Procesor System On-Chips (MPSoCs)", *Graduate Seminar*, Virginia Commonwealth University, Richmond, VA, March 2019.

"Semi-Automated Transportation Systems", *CREST/PRESTO Big Data Areas Joint PI Meeting with NSF/DATAIA Researchers*, Kyoto, Japan, March 2019.

"Semi-Automated Emergency Response Systems", *JST-NSF Joint Big Data Workshop and Symposium*, Tokyo, Japan, May 2016.

"An Online Wear State Monitoring Methodology for Off-the-Shelf Embedded Processors", *Graduate Seminar*, Wayne State University, Detroit, MI, October 2015.

"A Proactive System-Level Approach to Resilience for CPS", *Summer Faculty Final Presentation*, Rome, NY, July 2015.

"Semi-Automated Emergency Response Systems", *NSF Early-Career Investigators Workshop on Cyber-Physical Systems in Smart Cities*, Seattle, WA, April 2015.

"An Efficient Framework for the Design of Resilient Cyber-Physical Systems Under Energy-Exhaustion Attacks", *Seminar*, Space Dynamic Laboratory, Logan, UT, April 2015.

"Enhancing Multicore Reliability through Wear Compensation in Online Assignment and Scheduling", *Seminar*, University of Michigan, Ann Arbor, MI, November 2013.

"Making the Most out of Your Research: A (Fairly) New Assistant Professor's Perspectives", *8th Annual CSE-SRS Poster Contest*, University of Notre Dame, Notre Dame, IN, November 2013.

"System-Level Reliability Modeling for MPSoCs", *1st RIIF Workshop: Towards Standards for Specifying and Modelling the Reliability of Complex Electronic Systems*, Grenoble, France, March 2013.

Presentations

"Semi-Automated Emergency Response Systems", *CENTRA (Collaborations to ENable TRansnational cyberinfrastructure Applications) Meeting: Connecting Data, Applications and People in Smart Cyberinfrastructure and IoT*, Jeju, Korea, April 2019.

"An Active Defense Mechanism for Physical-Layer Attacks in Adversarial Environments", *Semiannual S2REC Showcase*, Virginia Tech, Arlington, VA, November 2017.

"Compiler Tools for CPI Protection", *Semiannual S2REC Showcase*, Georgetown University, Washington, D.C., May 2017.

"Resource Management in Real-Time Embedded Systems and Cyber-Physical Systems", *ECE Industrial Advisory Committee Meeting*, Department of Electrical and Computer Engineering, Arlington, VA, April 2017.

"Reliability Optimization in MC^2 Systems", *Dagstuhl Seminar on Mixed Criticality on Multicore / Manycore Platforms*, Schloss Dagstuhl, Wadern, Germany, March 2017.

"EDF-hv: An Energy-Efficient Semi-Partitioned Approach for Hard Real-Time Systems", *International Conference on Real-Time Networks and Systems (RTNS)*, Brest, France, October 2016.

"Research in System-Level Design", *ECE Industrial Advisory Committee Meeting*, Department of Electrical and Computer Engineering, Utah State University, Logan, UT, November 2015.

"A Node Allocation Algorithm for Resilient CPSs Under Energy-Exhaustion Attack", *Workshop on Low-Power Dependable Computing (LPDC)*, Dallas, TX, November 2014.

"Enhancing Multicore Reliability through Wear Compensation in Online Assignment and Scheduling", *Design, Automation, & Test in Europe (DATE)*, Grenoble, France, March 2013.

"Local-Deadline Assignment for Distributed Real-Time Systems", *Graduate Colloquium*, Department of Electrical and Computer Engineering, Utah State University, Logan, UT, April 2012.

"Past, Present, and Future Research Topics in Embedded Real-Time System Design", *ECE Industrial Advisory Board Meeting*, Department of Electrical and Computer Engineering, Utah State University, Logan, UT, November 2011.

Panelist, *Graduate Student Panel on How To Do Research*, Department of Computer Science and Engineering, University of Notre Dame, Notre Dame, IN, September 2010.

"Network-Aware, Energy-Conscious, Fair Service for Real-Time Applications on Multiprocessor SoC", *Real-Time Systems Symposium (RTSS), Work-In-Progress*, Washington, DC, December 2009.

"Online Work Maximization Under a Peak Temperature Constraint", *International Symposium on Low Power Electronics and Design (ISLPED)*, San Francisco, CA, August 2009.

Panelist, *Graduate School Forum*, University of Notre Dame, Notre Dame, IN, October 2008.

"Period and Deadline Selection Problem for Real-Time Systems", *Real-Time Systems Symposium (RTSS), Work-In-Progress*, Tucson, AZ, December 2007.

"Research Topics in Real-Time Systems", *Hope College National Science Foundation Research Experience for Undergraduates Program*, University of Notre Dame, Notre Dame, IN, July 2007.

"iDIBS: An Improved Distributed Internet Backup System", *International Conference on Parallel and Distributed Systems (ICPADS)*, Minneapolis, MN, July 2006.

"Optimal Elastic Scheduling", *Control Systems Research Group Seminar*, University of Notre Dame, Notre Dame, IN, July 2006.

"Optimal Elastic Scheduling", *Real-Time and Embedded Technology and Applications Symposium*

(RTAS), Work-In-Progress, San José, CA, April 2006.

Student Supervision

Postdocs
  Dr. Anway Mukherjee, 2019–2020 (Senior embedded software engineer at Lucid Motors).

Ph.D. Students
  Anway Mukherjee, August 2019
  Tanmaya Mishra, in progress (expected August 2021)
  Pratham Rajan Oza, in progress (expected August 2021)
  Amir Fakhim-Babaei, in progress (expected May 2025)

M.S. Students
  Srinath Arunachalam, December 2015 (Senior engineer at HARMAN International)
  Sandeep Kumar Bijinemula, December 2018 (Real-time systems software engineer at Vidyo)
  Divya Desiraju, August 2013 (Engineer at ON Semiconductor)
  Harshitha Gandra, December 2021
  Tanmaya Mishra, May 2019 (Ph.D. student at VT)
  Rajarshi Mukherjee (expected December 2022)
  Pratham Rajan Oza, May 2019 (Ph.D. student at VT)
  Anushka Pakrashi, May 2014 (Patent engineer at Patent Law Works)
  Jesse Patterson, August 2016 (U.S. Navy)
  Nathanael Weidler, May 2014 (Ph.D. student at Utah State University)
    · Master's Fellowship

M.E. Students
  Sajan Ronvelwala, May 2021 (Rincon Research Corporation)
  Dhanush Sureshbabu, December 2021 (Qualcomm)

Undergraduate Research Assistants
  Ahmed Abouelhagag, Summer 2018
  Kaitlyn Christensen, Spring 2015
  William Hatch, Fall 2012
  Cody Herndon, Fall 2011–Spring 2015
    · Engineering Undergraduate Research Program (EURP) Award Recipient
  Kyle Hinchcliff, Spring 2013
  Jaque Johansen, Fall 2013–Spring 2014
  Jared Key, Spring 2013–Spring 2014
  Eric Meissner, Spring 2013–Spring 2016

High School Interns
  Elena Bachman, Summer 2018
  Skylar Brodowski, Spring 2017–Summer 2018
  Shelby Cordova, Fall 2017–Summer 2018
  Aditi Jain, Summer 2018
  Mathias Jaldin, Spring 2021–Summer 2021
  Zeinab Mukhtar, Summer 2019
  Omar Nasir, Fall 2018–Summer 2019
  Ehtasham Sarwar, Fall 2019–Summer 2020
  Divya Sharma, Summer 2020–Present
  Suwara Sinprakop, Spring 2017–Summer 2017
  Nathan Spivy, Summer 2018

Teaching Experience

Instructor, ECE 2574–Data Structures and Algorithms, Virginia Tech, Fall 2020.

Instructor, ECE 4550/5550G–Advanced Real-Time Systems, Virginia Tech, Spring 2017, Spring 2018, Spring 2019, Spring 2020, Spring 2021, Spring 2022.

Instructor, ECE 2524–Intro to Unix for Engineers, Virginia Tech, Fall 2016, Fall 2017, Fall 2018, Fall 2019, Fall 2021.

Instructor, ECE 7930–Low Power Computing, Utah State University, Fall 2015.

Instructor, ECE 5780–Real-Time Systems, Utah State University, Spring 2012, Spring 2013, Spring 2014, Spring 2015, Spring 2016.

Instructor, ECE 2700–Digital Circuits, Utah State University, Fall 2011, Fall 2012, Spring 2013, Fall 2013, Spring 2014, Fall 2014, Spring 2015, Spring 2016.

Instructor, CSE 60435/40435–Low Power Computing, University of Notre Dame, Spring 2011.

Striving for Excellence in College and University Teaching Certificate, The Kaneb Center for Teaching and Learning, University of Notre Dame, May 2010.

Guest Lecturer, CSE 60321 – Advanced Computer Architecture, Instructor: Dr. X. Sharon Hu, University of Notre Dame, Spring 2010.

Guest Lecturer, CSE 40391/60391 – Linear Programming and Algorithms, Instructor: Dr. Amitabh Chaudhary, University of Notre Dame, Spring 2009, Spring 2010, and Spring 2011.

Professional Services

Panelist: *National Science Foundation*

Associate Editor: *ACM Transactions on Design Automation of Electronic Systems (TODAES)* (2020–Present)

Associate Editor: *IEEE Transactions on Computers (IEEE TC)* (2021–Present)

Associate Editor: *ACM Transactions on Cyber-Physical Systems (TCPS)* (2021–Present)

Special Issue Guest Editor: *Sustainable Computing: Informatics and Systems (SUSCOM), Special Issue on Sustainable Embedded Software and Systems* (2017–2018)

Chair : *Technical Committee on Real-Time Systems (TCRTS) Community Outreach Subcommittee* (2022–2023)

TODAES Best Paper Committee: 2021

Program Chair: *International Conference on Embedded Software and Systems (ICESS)*

Track Chair: *IEEE Symposium on VLSI (ISVLSI)*

Track Co-Chair: *Real-Time Systems Symposium (RTSS)*

Seminar Co-Chairs: *International Real-Time Scheduling Open Problems Seminar (RTSOPS)*

Organizer: *Workshop on Low-Power Dependable Computing (LPDC)*

Publicity Chair: *Real-Time Systems Symposium (RTSS)*

Publicity Chair: *International Conference on Real-Time Networks and Systems (RTNS)*

Publication Chair: *International Conference on Embedded Software and Systems (ICESS)*

Technical Program Committee: *Real-Time Systems Symposium (RTSS), Euromicro Conference on Real-Time Systems (ECRTS), Real-Time and Embedded Technology and Applications Symposium (RTAS), Design, Automation, and Test in Europe Conference (DATE), Design Automation*

Conference (DAC), International Conference Embedded and Real-Time Computing Systems and Applications (RTCSA), International Conference on Real-Time Networks and Systems (RTNS), International Conference on Embedded Software (EMSOFT), International Symposium on High-Performance Computer Architecture (HPCA), Inernational. Conference on Green and Sustainable Computing Conference (IGSC), International Conference on Embedded Software and Systems (ICESS), International Conference on the Internet of Things (IoT), International Conference on Embedded and Ubiquitous Computing (EUC), Work-in-Progress, Demo, and Poster session, International Conference on Cyber-Physical Systems (ICCPS), Workshop on Mixed Criticality Systems (WMC), Workshop on Low-Power Dependable Computing (LPDC), EEE Globecom Workshops on Edge Computing for Cyber Physical Systems (EDGE-CPS), International Workshop on Interoperable Infrastructures for Interdisciplinary Big Data Sciences (IT4RIs)

Session Chair: *Design, Automation, and Test in Europe Conference (DATE), Euromicro Conference on Real-Time Systems (ECRTS), Real-Time Systems Symposium (RTSS), International Green and Sustainable Computing Conference (IGSC)*

Journal Reviewer: *IEEE Transactions on Computers (IEEE TC), IEEE Transactions on Very Large Scale Integration Systems (IEEE TVLSI), IEEE Transactions on Circuits and Systems-Part I (TCAS-I), IEEE Transactions on Emerging Topics in Computing (TETC), ACM Transactions on Embedded Computing Systems (TECS), IEEE Transactions on Sustainable Computing (T-SUSC), IEEE ET Cyber-Physical Systems: Theory & Applications (IET CPS), IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (IEEE TCAD), IEEE Transactions on Intelligent Transportation Systems, IEEE Transactions on Industrial Informatics (IEEE TII), IEEE Transactions on Neural Networks and Learning Systems (TNNLS), IEEE Transactions on Multi-Scale Computing Systems, Transactions on Design Automation of Electronic Systems (TODAES), Real-Time Systems (TIME), Integration, the VLSI Journal, Elsevier Transportation Research Part C: Emerging Technologies, Sensors, IET Cyber-Physical Systems: Theory & Applications, IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences, International Journal of Autonomous and Adaptive Communications Systems, (IJAACS), Journal of Applied Mathematics (JAM), Design Automation for Embedded Systems (DAEM)*

Conference Reviewer: *Real-Time Systems Symposium (RTSS), International Symposium on Low Power Electronics and Design (ISLPED), Real-Time and Embedded Technology and Applications Symposium (RTAS), Euromicro Conference on Real-Time Systems (ECRTS), International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA), Design, Automation, and Test in Europe Conference (DATE), Design Automation Conference (DAC), International Parallel & Distributed Processing Symposium (IPDPS), International Conference for Hardware/Software Codesign and System Synthesis (CODES+ISSS), Journal of Systems Architecture (JSA), Journal of Scheduling (JOSH) International Green Computing Conference (IGCC) , Workshop on Operating Systems Platforms for Embedded Real-Time applications (OSPERT) Workshop on Low-Power Dependable Computing (LPDC) , Symposium On Applied Computing (SAC), International Midwest Symposium on Circuits and Systems (MWSCAS), Annual Computer Security Applications Conference (ACSAC)*

College and Departmental Services

Equity Manager Search Committee, Virginia Tech, 2021.

Computer Systems Area Chair, Department of Electrical and Computer Engineering, Virginia Tech, 2020–2022.

Computer Systems Area Recruiting Representative, Department of Electrical and Computer Engineering, Virginia Tech, 2019.

Faculty Search Committees, Department of Electrical and Computer Engineering, Virginia Tech, 2018–Present.

Computer Systems Area Recruiting Representative, Department of Electrical and Computer Engi-

neering, Virginia Tech, 2019.

CyberX Design Committee, Virginia Tech National Capital Region, May 2017–2018.

Diversity Committee, Department of Electrical and Computer Engineering, Virginia Tech, August 2016–2018.

Search Committee for Transportation Research Assistant Professor, 2013.

Assessment Committee, Department of Electrical and Computer Engineering, Utah State University, January 2012–July 2016.

Curriculum Committee, Department of Electrical and Computer Engineering, Utah State University, January 2011–December 2012.

Outreach

Invited Speaker, TechGirls Etiquette Dinner, Blacksburg, Virginia, July 2017.

Urban Alliance Mentor, 2017–Present.

Arlington and Fairfax Regional Science and Engineering Fairs Judge, 2017–Present.

Engineering State Challenge Session Host, 2012–2016.

Awards and Honors

Air Force Office of Sponsored Research Summer Faculty Fellow, U.S. Air Force, May–July 2021.

Advisor of the Year, Department of Electrical and Computer Engineering, Utah State University, 2016.

Air Force Office of Sponsored Research Summer Faculty Fellow, U.S. Air Force, May–July 2015.

Outstanding Research Assistant Award, Department of Computer Science and Engineering, University of Notre Dame, May 2011.

Outstanding Graduate Student Teacher Award for Excellence in Teaching, Kaneb Center for Teaching and Learning, University of Notre Dame, May 2011.

Graduate Assistance in Areas of National Need (GAANN) Fellow, Department of Computer Science and Engineering, University of Notre Dame, 2010-2011.

Student Research Symposium Best Poster Winner (Faculty Choice), Department of Computer Science and Engineering, University of Notre Dame, November 2008.

Outstanding Teaching Assistant Award, Department of Computer Science and Engineering, University of Notre Dame, May 2008.

Professional Memberships

Institute of Electrical and Electronic Engineers (IEEE), Student Member 2006, Member 2011, Senior Member 2018.

Association for Computing Machinery (ACM), 2011–Present.