Denis Ulybyshev, Ph.D.

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EDUCATION

Ph.D., M.S. Computer Science Purdue University, Cumulative/Major GPA: 3.62 / 3.78 May, 2019
M.S. Automatic Control Systems Bauman Moscow State Technical University June, 2004
Cumulative GPA: 3.93 out of 4

SUMMARY

Assistant Professor in Computer Science at Tennessee Technological University and Cybersecurity Education, Research and Outreach Center (CEROC). Earned Ph.D. and Master's degrees in Computer Science from Purdue University in 2019 and Master's degree in Automatic Control Systems from Bauman Moscow State Technical University in 2004. Knowledgeable innovator in Cybersecurity, Artificial Intelligence, Distributed Systems, and Assistive Software for Visually Impaired Users with 23 academic peer-reviewed publications, 7 awards, and 10 years of research in the United States. As a PI/Co-PI, have been serving in 7 research and educational grants with the total funds of $4,779,408 in 2019 - 2022. As a PhD student, made significant contributions to writing five funded research grant proposals in 2015 - 2018, obtaining more than $1.2 million. Currently advise 2 PhD, 1 Master's, and 7 Undergraduate students. Served as Academic Adviser for 6 Master's students who successfully graduated and earned Master's degrees in Computer Science at Tennessee Technological University. Have 8 years of industrial experience in developing software for mass market, including firmware for printers at "Samsung Electronics", software for industrial control systems at "Schneider Electric", and software for healthcare industry.

ACADEMIC POSITIONS

1. Tenure-Track Assistant Professor

Department of Computer Science, Tennessee Technological University **Aug. 2019 – Present**

Teaching

Course Title	Semester	Course Description
Software & Systems Security	Spring 2023	Introduction to practices of secure programming and DevOps security. Techniques to find and exploit various vulnerabilities in applications. Mitigation strategies to prevent software vulnerabilities, including static source code analysis, compiler-based and runtime-based memory protection techniques, secure data containers, code obfuscation. Security assessment methodologies for software systems.
Assembly Programming Language	Fall 2022	Basics of Assembly programming language, using MASM. x86 32-bit architecture
Application Security	Spring 2022, Spring 2023	Techniques to find and exploit various vulnerabilities in applications. Strategies to prevent software vulnerabilities, including static source code analysis, compiler-based and runtime-based memory protection techniques, database encryption, secure data containers, code obfuscation. Fundamentals of hardware-based data protection, including Intel® SGX and ARM® TrustZone® technologies.
IT Security	Fall 2021	Introduces assets for typical IT infrastructure, potential threats to assets and protection mechanisms, common associated vulnerabilities, response to security incidents, administrative aspects of Information Security.
Computer Science Seminar	Fall 2021	Methodologies to read/write research papers; academic peer-review procedure. Introduces faculties and their research projects to new graduate students.
Cyber Security Labs	Summer 2020, 2021, 2022	Cyber Security Labs for Governor's School of Emerging Technologies (GSET): exploits and protection mechanisms for buffer/ integer overflows in C/C++ applications, cross-site scripting, and SQL injection attacks
Internet Security	Fall 2020	Security threats at different layers of the TCP/IP protocol stack, vulnerabilities exploitation techniques and protection mechanisms

Course Title	Semester	Course Description
Cryptography & Network Security	Spring 2020, 2021, 2022	Information assurance and cyber defense fundamentals, cryptographic protocols, digital signatures, hash functions, key exchange protocols, authentication. Fundamentals of IPSec, SSL, VPN protocols. This course won an EDGE Curriculum grant from Tennessee Technological University
Database Management Systems	Fall 2019	Relational model, intermediate/ advanced SQL, concurrency control, database security

Research

Project Title	Terms	Funded by	Project Description and Accomplishments
Context-Aware Moving Target Defense and Cyber Risk Assessment for Computing Systems	Jan. 2021 – present	Dept. of Computer Science at Tennessee Tech University	Designed and developed a framework to evaluate cyber risks for software and hardware, for the existing and newly designed computing systems. Papers [4], [21] are published. Patent application is submitted to USPTO, under review.
Visually Impaired Friendly Information System for Campuses and Smart Cities (VLICS)	July 2021 – present	Dept. of Computer Science, Faculty Research Award, Tennessee Tech University	Mobile application for visually impaired users is being developed and tested in Tennessee Tech university campus. NSF Convergence (Track H) grant proposal has been submitted in July 2022, under review
Data Protection in Space Infrastructure	July 2020 – Dec.22	NASA, Marshall Space Flight Center	Software solution to protect data in wireless sensor network in transit and at rest for space infrastructure has been developed. Research paper [5] is published.
Data Protection and Mobile Field Diagnostics in Cyber-Physical Systems	Aug. 2019- present	Dept. of Computer Science at Tennessee Tech University	Developed a software solution to deliver sensor data from field devices to high-level servers in a protected form, so that data analysis runs on trustworthy data. Research papers [3], [6], [7], [10] are published.
Data Protection in Permissioned Blockchain Platforms	Aug. 2019 - present	Dept. of Computer Science at Tennessee Tech University	Developed a spreadsheet/JSON-based data container, integrated with IBM® Hyperledger Fabric, PostgreSQL® RDBMS and Microsoft® Excel®, to prevent and detect data leakages; provide fine-grained role-based and attribute-based access control. Research papers [1], [8], [9] are published.
Secure Monitoring and Notification System for Cloud Infrastructures	July 2021 – present	Dept. of Computer Science at Tennessee Tech University	Research prototype has been designed and implemented; conference paper [2] is published.

Advising

I currently advise 2 PhD, 1 Master's, and 7 Undergraduate students. 6 Master's students for whom I served as an Academic Adviser at Tennessee Tech University, successfully graduated and earned Master's degrees in Computer Science.

2. Research Assistant

Department of Computer Science, Purdue University **Jan. 2013 – May, 2019**

Project Title	Terms	Funded by	Project Description and Accomplishments
Situational Awareness and Targeted Information Propagation	Spring 2019	Bilsland Dissertation Fellowship from Purdue University	Contributed to developing a machine learning-based engine for multi-modal data processing, supporting targeted on-demand information propagation, providing data protection at rest and in transit.

Project Title	Terms	Funded by	Project Description and Accomplishments
Data Leakage Detection and Privacy-preserving Data Dissemination	Fall 2017 - Spring 2018	Purdue University Computer Science Dept., Corporate Partners	Designed and developed a framework for privacy-preserving data communications, providing secure cross-domain software distribution. Blockchain-based technology is applied to ensure provenance data integrity. Published peer-reviewed conference papers [12], [13], [14] and a journal paper [22]. Prototype demo video [30] is available.
Secure V2X (Vehicle-to-Everything) Systems	Spring 2017	Qatar National Research Fund (member of Qatar Foundation)	Designed and developed a mechanism for secure V2X communications, enabling data protection at rest and in transit, as well as role-based and attribute-based access control and capabilities of building analytics over encrypted vehicle records. Project resulted in publishing peer-reviewed conference papers [11], [15].
Secure / Resilient Systems and Data Dissemination / Provenance; Adaptable Service Compositions in Trusted & Untrusted Cloud	Spring 2017, 2016	Northrop Grumman Cybersecurity Research Consortium	Designed and implemented "WAXEDPRUNE" (Web-based Access to Encrypted Data Processing in Untrusted Environments) framework for data protection in transit and at rest, with capabilities of detecting data leakages, made by insiders. Peer-reviewed paper [16] has been published. Demo videos [28], [29] are available. The prototype was selected by Northrop Grumman to be demonstrated at their exhibition "Tech Expo 2016"
End-to-End Security Policy-Auditing and Enforcement in Untrusted Cloud	Spring 2015	Northrop Grumman Cybersecurity Research Consortium	Contributed to developing a privacy-preserving data communication framework for Service-Oriented Architectures. The project won best poster award [38] at 16th CERIAS Security Symposium (#1 out of 43 posters). Peer-reviewed paper [17] has been published.
Robust Distributed Wind Power Engineering	Spring 2013 – Fall 2014	NSF	Designed and implemented a robust crack detection algorithm for wind turbine blades, using vibro-acoustic analysis. Peer-reviewed paper [18] has been published.

3. Teaching Assistant

Department of Computer Science, Purdue University **Aug. 2012 – Dec. 2018**

Course Title	Terms/Dates	Course Description
Information Systems / Relational Databases	Fall 2018, Fall 2016, Fall 2015	Relational Models, ER-diagrams, SQL/ PLSQL; Dependencies and Normal Forms; Concurrency Control; NoSQL Databases; Database Security; Hadoop, Spark; Information Retrieval
Data Structures and Algorithms	Summer 2018	Basic data structures (array, linked list, stack, queue, heap, hash table, tree, trie, dictionary) and algorithms, using C/C++
Distributed Databases	Spring 2015	Concurrency Control Algorithms, Commitment Protocols (PAXOS), Privacy Preservation and Identity Management in Distributed Systems
Cryptography	Fall 2012	Symmetric Encryption (DES, AES); Asymmetric Encryption (Diffie-Hellman, RSA, Elliptic Curves); Digital Signatures; Hash Functions; HMAC; PKI (Public Key Infrastructure); Kerberos

RESEARCH INTERESTS

1. Web/ Database/ OS/ Cloud/ Blockchain-based systems security.
2. Cryptography.
3. Assistive software for visually impaired people.
4. Cyber risk assessment, Moving Target Defense (MTD).
5. Cyber-Physical Systems: SCADA systems and Programmable Logical Controllers, industrial communication protocols, mobile diagnostics.
6. Distributed systems: blockchain-based technologies, transaction management systems.
7. Language-based security: compiler-based and runtime-based memory protection techniques.
8. Machine learning: anomaly detection, recommendation systems.
9. Information retrieval: web search, Search Engine Optimization.
10. Vehicle-to-Everything (V2X) communication systems.

CONFERENCE PAPERS (peer-reviewed)

1. Massengille, J., T. Burks, R. Mitchell, J. Tice, D. Ulybyshev, "Data Protection and Export for Transaction Ledgers in Permissioned Blockchain Platforms", *IEEE 19th Intl. Conf. on Software Architecture Companion (ICSA-C)*, pp. 175 – 182, 2022.
2. Ujiie, R., V. Kholodilo, B. Northern, D. Ulybyshev. "Secure Monitoring and Notification System for Cloud Infrastructures", *IEEE SoutheastCon Conf*., pp. 787 – 792, 2022.
3. Seyler, T. and D. Ulybyshev, "SEMAFORE: Secure Mobile Field Diagnostics for Cyber-Physical Systems", *IEEE 6th World Conf. on Smart Trends in Systems Security and Sustainability (WorldS4)*, 2022. Accepted, in-press.
4. Northern, B. and D. Ulybyshev, "Building Secure Environments for Microservices", *Intl. Workshop on Secure and Reliable Microservices and Containers (SRMC), co-located with 41st IEEE Intl. Symp. on Reliable Distributed Systems (SRDS)*, pp. 27 – 31, 2022.
5. Burks, T., Cathey, G., Kholodilo, V., Ulybyshev, D., Pearce, M., Marcrum, T., Coultis, M., Van Neste, C., Northern, B., Gupta, M., Boyd, D. "Quasi-Wireless Capacitive Power Transfer with Secure Data Acquisition for Robotic Systems in Space Infrastructure", 2021 *IEEE International Conference on Wireless for Space and Extreme Environments (WiSEE)*, pp. 78 – 83, 2021.
6. Mithu, M. R. A., Rogers, M., Ulybyshev, D., Manicavasagam, R., & Asmar Awad, R. "Feature Classification for Control System Devices", *The International FLAIRS Conference Proceedings*, *34*. 2021.
7. Ulybyshev, D., I. Yilmaz, B. Northern, V. Kholodilo, and M. Rogers. "Trustworthy Data Analysis and Sensor Data Protection in Cyber-Physical Systems." *In Proc. of the 2021 ACM Workshop on Secure and Trustworthy Cyber-Physical Systems, in conjunction with ACM CODASPY 2021*, pp. 13 – 22. ACM, 2021.
8. Ulybyshev, D., C. Bare, K. Bellisario, V. Kholodilo, B. Northern, A. Solanki, T. O'Donnell. "Protecting Electronic Health Records in Transit and at Rest." *IEEE 33-rd Intl. Symposium on Computer-Based Medical Systems (CBMS)*, pp. 449-452, IEEE, 2020.
9. Yilmaz, I., A. Siraj and D. Ulybyshev, "Improving DGA-Based Malicious Domain Classifiers for Malware Defense with Adversarial Machine Learning." *4-th IEEE Conf. on Information and Communication Technology (CICT)*, pp. 1-6, IEEE, 2020.
10. Mithu, M. R. A., V. Kholodilo, R. Manicavasagam, D. Ulybyshev and M. Rogers, "Secure Industrial Control System with Intrusion Detection". *33-rd Intl. FLAIRS conf.*, AAAI, 2020.
11. Ulybyshev, D., A. Oqab Alsalem, B. Bhargava, S. Savvides, G. Mani, and L. Ben Othmane. "Secure Data Communication in Autonomous V2X Systems." In *2018 IEEE International Congress on Internet of Things (ICIOT)*, pp. 156-163. IEEE, 2018. (*Acceptance rate: 18.57%*).
12. Ulybyshev, D., M. Villarreal-Vasquez, B. Bhargava, G. Mani, S. Seaberg, P. Conoval, R. Pike, and J. Kobes. "(WIP) 'Blockhub': Blockchain-based Software Development System for Untrusted Environments." In *2018 IEEE International Conf. on Cloud Computing (CLOUD)*, pp. 582-585, IEEE, 2018. (*Acceptance rate: 18.97%*).
13. Mani, G., D. Ulybyshev, B. Bhargava, J. Kobes, and P. Goyal. "Autonomous Aggregate Data Analytics in Untrusted Cloud." In *2018 IEEE First International Conf. on Artificial Intelligence and Knowledge Engineering (AIKE)*, pp. 138-141. IEEE, 2018.
14. Mani, G., B. Bhargava, P. Angin, M. Villarreal-Vasquez, D. Ulybyshev, and J. Kobes. "Machine Learning Models to Enhance the Science of Cognitive Autonomy." In *2018 IEEE First International Conf. on Artificial Intelligence and Knowledge Engineering (AIKE)*, pp. 46-53. IEEE, 2018.
15. Sardesai, S., D. Ulybyshev, L. ben Othmane, and B. Bhargava. "Impacts of Security Attacks on The Effectiveness of Collaborative Adaptive Cruise Control Mechanism." In *2018 IEEE International Smart Cities Conf. (ISC2)*, pp. 1-5. IEEE, 2018.
16. Ulybyshev, D., B. Bhargava, M. Villarreal-Vasquez, A. Oqab Alsalem, D. Steiner, L. Li, J. Kobes, H. Halpin, and R. Ranchal. "Privacy-preserving Data Dissemination in Untrusted Cloud." In *2017 IEEE 10th International Conf. on Cloud Computing (CLOUD)*, pp. 770-773. IEEE, 2017. (*Acceptance rate: 18%*).
17. Qu, C., D. A. Ulybyshev, B. K. Bhargava, R. Ranchal, and L. T. Lilien. "Secure Dissemination of Video Data in Vehicle-to-Vehicle Systems." In *2015 IEEE 34th Symposium on Reliable Distributed Systems Workshop (SRDSW)*, pp. 47-51. IEEE, 2015.
18. Myrent, N. J., D. E. Adams, G. Rodriguez-Rivera, D. A. Ulybyshev, J. Vitek, E. Blanton, and T. Kalibera. "A Robust Algorithm to Detecting Wind Turbine Blade Health Using Vibro-acoustic Modulation and Sideband Spectral Analysis." In *33rd Wind Energy Symposium*, p. 1001. 2015.
19. Ulybyshev, Denis. "Comparison of Fuzzy and Regular Least-Squares Methods in the Random Noise Filtering Problem," Trans. of 5-th Intl. Symp. "Smart Control Systems 2002". Caluga (2002), ISBN 5 – 7038 – 2049 – 9, pp. 320-323 (in Russian).
20. Ulybyshev, Denis. "Fuzzy Least-Squares Method and its Modifications for Different Kinds of Fuzzy "AND" Operation in the Random Noise Filtering Problem," Trans. of Intl. Symp. "Reliability and Quality". Penza (2003), ISBN 5 – 94170 – 031 – 8, pp. 203-207 (in Russian).

JOURNAL PAPERS (peer-reviewed)

21. Northern, B., Burks, T., Hatcher, M., Rogers, M., Ulybyshev, D. "VERCASM-CPS: Vulnerability Analysis and Cyber Risk Assessment for Cyber-Physical Systems." *Information* 2021, *vol. 12*, p. 408.
22. Ulybyshev, D., B. Bhargava, and A. Oqab-Alsalem. "Secure Data Exchange and Data Leakage Detection in an Untrusted Cloud." Springer Journal on Applications of Computing and Communication Technologies, on 1-st *International Conference on Application of Computing and Communication Technologies*, vol. 899, pp. 99-113. Springer, Singapore, 2018. (*Acceptance rate: 27.5%*)

CONFERENCE PAPERS (not peer-reviewed)

23. Ulybyshev, D. "Supervisory Control and Data Protection in Cyber-Physical Systems", *In Proceedings of ACM Mid-Southeast 2021 Conference*, p. 62.
24. Ulybyshev, D. "Secure Communications in Industrial Control Systems", *In Proceedings of ACM Mid-Southeast 2019 Conference*, p.71.
25. Ulybyshev, Denis, Servio Palacios, Ganapathy Mani, Aala Oqab Alsalem, Bharat Bhargava, and Puneet Goyal. "On-the-fly Analytics over Encrypted Records in Untrusted V2X Environments." ICACEEE, 2018, Zurich.

THESIS

26. Ulybyshev, Denis, "Data Protection in Transit and at Rest with Leakage Detection". Ph.D. Thesis, Purdue University, Department of Computer Science, May 2019.
27. Ulybyshev, Denis, "Energy Management Control System for High-Voltage Substations". M.S. Thesis, Bauman Moscow State Technical University, Department of Automatic Control Systems, 2004.

DEMO VIDEOS

28. WAXEDPRUNE: privacy-preserving data communication framework: prototype demo video
    https://www.dropbox.com/s/30scw1srqsmyq6d/BhargavaTeam_DemoVideo_Spring16.wmv?dl=0, accessed: Jul.2019
29. WAXEDPRUNE: data leakage detection and search over encrypted data: prototype demo video
    https://www.dropbox.com/s/oxgy7xsovcrkel9/NGCRC-2017-WaxedPrune-Demo.wmv?dl=0, accessed: Jul.2019
30. Blockchain-based privacy-preserving data communication in Intelligent Autonomous Systems
    https://www.dropbox.com/s/x3l8w9l49am2cnw/Demo_NGCRC_Bhargava_Compiled.mp4?dl=0, accessed: Jul.2019

PRESENTATIONS AT CONFERENCES, SYMPOSIA AND WORKSHOPS

31. C. Bare, B. Northern, V. Kholodilo, A. Solanki, Y. Durova, A. Malkhasov, B. Westbrook and D. Ulybyshev, "Secure Container for Data Protection in Transit and at Rest", ACM Mid-Southeast Chapter Conference Proceedings, p.56, 2019 (1-st place award, 1 out of 7)
32. D. Ulybyshev, "Secure / Resilient Systems and Data Dissemination / Provenance", NGC Research Consortium Symposium at Purdue University, Nov. 2017
33. D. Ulybyshev, B. Bhargava, M. Villarreal-Vasquez, A. Alsalem, D. Steiner, L. Li, J. Kobes, H. Halpin, R. Ranchal, L. Lilien, "Blockhub: Blockchain-based Secure Cross-domain Software Development and Sharing System", Purdue University Computer Science Lawson Poster Showcase, Sep. 2017
34. D. Ulybyshev, B. Bhargava, L. Li, J. Kobes, D. Steiner, H. Halpin, B. An, M. Villarreal, R. Ranchal, "Privacy-Preserving Data Dissemination and Data Leakage Detection in Untrusted Cloud". Global Security and Defense Innovation Symposium, Dec. 2016
35. D. Ulybyshev, B. Bhargava, L. Li, J. Kobes, D. Steiner, H. Halpin, B. An, M. Villarreal, R. Ranchal, "Authentication of User's Device and Browser for Data Access in Untrusted Cloud", 17th CERIAS Security Symposium, Apr. 2016 https://www.cerias.purdue.edu/symposium/index.php/posters/year/2016/998-DCA
36. D. Ulybyshev, B. Bhargava, C. Qu, R. Ranchal, L. Lilien, "Secure data dissemination in Vehicle-to-Vehicle Systems", 17th CERIAS Security Symposium, Apr. 2016
    https://www.cerias.purdue.edu/assets/symposium/2016-posters/14B-A99.pdf
37. "Privacy-preserving Data Dissemination and Adaptable Service Compositions in Trusted and Untrusted Cloud", NGC Research Consortium Symposium, Apr. 2016
38. R. Ranchal, D. Ulybyshev, P. Angin and B. Bhargava. "PD3: Policy-based Distributed Data Dissemination", 16th CERIAS Security Symp., Mar. 2015. (best poster award, #1 out of 43)
    https://www.cerias.purdue.edu/assets/symposium/2015-posters/A61-FBE.pdf

GRANTS

1. "Mobile Navigation, Object Detection, Recommendation and Notification Software Assistant for Visually Impaired People in Campuses and Smart Cities". Faculty Research Award, funded by Tennessee Technological University. Lead PI: Denis Ulybyshev. July 01, 2021 – June 30, 2022. Amount: $9,995.
2. "CyberCorps Scholarship for Service (Renewal): An Enhanced and Integrated Scholar Experience in Cybersecurity". Funded by NSF CyberCorps Scholarship for Service (SFS) program. PI: Dr. Muhammad Ismail, Co-PIs: Eric Brown, Drs. Maanak Gupta, Denis Ulybyshev. August 2021 – July 2026. Amount: $ 4,443,669.
3. "Quasi-Wireless Capacitive (QWiC) Surface Power for Adaptive and Reconfigurable Sensor Elements on Space Infrastructure", funded by NASA. Lead PI: Dr. Charles Van Neste, Co-PIs: Drs. Denis Ulybyshev, Satish Mahajan, Maanak Gupta. July 01, 2020 – June 30, 2021, no cost extension till December 31, 2022. Amount: $152,810.
4. "A Pilot Education Program for Connected and Automated Electric Vehicles (CAEVs)", funded by DENSO North American Foundation. Lead PI: Dr. Pingen Chen, Co-PIs: Drs. Steven Anton, Stephen Canfield, Vahid Motevalli, Mohan Rao, Muhammad Ismail, Denis Ulybyshev, Syed Rafay Hasan. July 01, 2020 – April 30, 2022. Amount: $157,964.
5. "Shift Left Early: Secure Software Engineering for Undergraduate Students", participant support from NSF Cyber Training Curriculum Development Mini Grant (NSF Award #1730105), from Dakota State University. PI: Dr. Akond Rahman. Co-PI: Dr. Denis Ulybyshev. November 19, 2020 – March 08, 2021. Amount: $5,000.
6. URECA! Team grant from Tennessee Technological University for research project "Secure Container for Data Protection in Transit and at Rest". Lead PI: Dr. Denis Ulybyshev. Nov. 08, 2019 – April 30, 2020. Amount: $4,928.
7. EDGE Course and Curriculum grant from Tennessee Technological University for CSC 4575 "Info Assurance & Cryptography" course. Lead PI: Dr. Denis Ulybyshev. Amount: $5,570.
8. EDGE Course and Curriculum grant from Tennessee Technological University for CSC 4100 "Operating Systems" course. Lead PI: Dr. Denis Ulybyshev. Amount: $4,400.

GRANT PROPOSALS UNDER REVIEW

1. NSF Convergence Accelerator Track H: Visually Impaired Friendly Information and Navigation System for Campuses and Smart Cities (VLICS). Lead PI: Denis Ulybyshev. Grant proposal was submitted to NSF in July 2022. Amount: $749,999

PATENTS

1. B. Northern, D. Ulybyshev, M. Rogers, M. Hatcher, T. Burks, "Systems and methods for cyber risk assessment for computing systems", submitted to USPTO, under review

PROFESSIONAL ACTIVITIES AND SERVICE

External

1. Technical Program Committee member for IEEE Intl. Workshop on Secure and Reliable Microservices and Containers, co-located with SRDS 2022 conference.
2. Program Committee member for ACM Workshop on Secure and Trustworthy Cyber-Physical Systems, in conjunction with ACM CODASPY, 2021, 2022.
3. Peer reviewer for Multidisciplinary Digital Publishing Institute, "Software" journal since December 2022.
4. Peer reviewer for IEEE "Internet of Things" journal, December 2022.
5. Poster session judge for "Women in Cybersecurity (WiCyS) 2022" conference.
6. Program Committee member for 16th International Conference on Cyber Warfare and Security, 2020-21, jointly organized by Tennessee Tech University and Oakridge National Labs (ORNL). Poster session chair.
7. Program Committee member for Springer journal, Special Issue on "Advancement and Trends in Green Cloud Computing, Blockchain and IoT for Modern Applications and Systems", 2020.
8. Program Committee member for "Women in Cybersecurity (WiCyS) 2020" conference.
9. Technical Program Committee member of "Workshop on Machine Learning for Security and Cryptography, 2019"

Internal

1. Department of Computer Science Diversity Committee member, Tennessee Tech University **Jul. 2021 – present**
2. College of Engineering Academic Misconduct Committee member, Tennessee Tech University **Aug. 2021 - present**
3. Faculty Advisor, Department of Computer Science International Collegiate Programming Contest (ICPC) Club, Tennessee Tech University **Sep. 2021 - present**
4. Faculty Senate, Academic Council member, Tennessee Tech University **Jan. 2022 - May 2022**
5. Department of Computer Science Eminence Award Committee, Tennessee Tech University **Jan. 2022 - Mar. 2022**

6. Faculty Mentor for two mentees in the "Red Shirt" program aiming to help students in the pre-major to get admitted into the Computer Science program, Tennessee Tech University **Oct. 2020 – May 2022**
7. Cyber Security Curriculum Committee member, Department of Computer Science, Tennessee Tech University **Aug. 2019 – present**
8. Graduate Committee member, Dept. of Computer Science, Tennessee Tech University **Sep. 2019 – present**
9. PhD Representative, Webmaster at Computer Science Grad. Student Board, Purdue University **2012 – 2017**

ACADEMIC ADVISORS

- Prof. Suresh Jagannathan (Purdue University) **Aug. 2012 – Dec. 2014**
- Prof. Bharat Bhargava (Purdue University) **Jan. 2015 – May, 2019**

INDUSTRIAL POSITIONS

- **Cybersecurity Software Engineer**
  Company: Coze Health, LLC **June 2018 - Dec. 2018**
  Accomplishments:
  - Contributed to development of a secure HIPAA-compliant software product (MVP prototype) for video conferencing, message chat, fax and electronic surveys, using end-to-end encryption, two-factor authentication and firewalls
  - Contributed to developing cloud-based solutions for storing and processing encrypted Electronic Medical Records, using Amazon EC2 cloud infrastructure

- **Software Engineer (Intern)**
  Company: Flexware Innovations **May 2017 - Aug. 2017**
  Accomplishments:
  - Designed and developed a meeting room calendar management system (based on Microsoft Outlook and Google calendars), integrated into cloud-based Automation System with "Ignition" SCADA
  - Developed Failure-Mode-Effect Analysis (FMEA) project for battery management system (for 'A123 Systems' company)

- **Software Engineer**
  Company: Raduga-Krovlia LLC **July 2009 - July 2012**
  Accomplishments:
  - Designed and developed automatic control systems for rolling mills. More than 100 items were sold and are being used by customers
  - Developed a corporate website, applied search-engine optimization techniques, which brought the web site to Google Top-10 for several relevant search queries
  - Developed a context web-advertisement methodology

- **Embedded Software Engineer**
  Company: Samsung Electronics **Apr. 2007 - Feb. 2009**
  Accomplishments:
  - Designed and developed firmware (mass-storage component) for multifunction
  - Peripherals (MFPs) and printers, including hard disk drivers. Thousands of printers and MFP were sold all over the World
  - Designed and developed an automated firmware testing tool (for mass-storage component)

- **Software Developer, Technical Marketing Engineer**
  Company: Schneider Electric **Sep. 2003 - Jan. 2007**
  Accomplishments:
  - Designed and developed Energy Management Control Systems for compressor plants, gas-turbine power stations, high-voltage substations, in integration with Siemens, OMRON hardware
  - Deployed 16 Industrial Control Systems on customer sites
  - Designed and developed software for Building Management systems

AWARDS AND FELLOWSHIPS

1. ***1-st Place Award*** in the Graduate Programs student presentations competition of the ACM Mid-Southeast Chapter Conference (#1 out of 7 presentations) **Nov. 2019**

2. ***CERIAS 2019 Diamond Award*** for Outstanding Academic Achievement (#1 out of ~95 students) **Apr. 2019**

3. ***Second Best Poster Award*** at 20-th CERIAS Information Security Symposium **Apr. 2019**
(selected as #2 out of 44 by Corporate Partners of Computer Science Department, Purdue University)

4. ***Bilsland Dissertation Award Fellowship*** (tuition funds for Spring, 2019) **Aug. 2018**

5. ***Purdue Computer Science Corporate Partners Award*** (research funds for 2017-2018 Academic year) **Apr. 2017**
Pool of corporate partners, including Northrop Grumman, Qualcomm, Intel, Raytheon, Eli Lilly,
ranked research proposal as #1 out of 21

6. ***Purdue Computer Science Harris Teaching Award*** for "Supporting Women in Core Classes" **Apr. 2017**

7. ***Best Poster Award*** at 16-th CERIAS Information Security Symposium **Mar. 2015**
(selected as #1 out of 43 by Corporate Partners of Computer Science Department, Purdue University)
Poster: "PD3: Policy-based Distributed Data Dissemination"
Winner's certificate: https://www.cs.purdue.edu/homes/dulybysh/Images/CeriasCertificate-dulybysh.jpg

8. ***Echelon LonWorks DEVICE Certified Developer*** #200525 (in Building Management Systems) **Aug. 2005**

LANGUAGES

- English (Good), Russian (Fluent), German (basic), Korean (basic)

PROFESSIONAL MEMBERSHIPS

- Member of the Institute of Electrical and Electronics Engineers (IEEE) **Dec. 2020 – present**
- Member of the Association for Computing Machinery (ACM) **Nov. 2020 – present**
- Member of Information Systems Security Association (ISSA), Indiana Chapter **Jan. 2018 – Jan. 2019**