

# Denis Ulybyshev, Ph.D.

Email: [dulybyshev@tntech.edu](mailto:dulybyshev@tntech.edu)  
Homepage: <https://sites.tntech.edu/dulybyshev/>  
Address: 1020 Stadium Drive, Cookeville, TN, 38501

Office Phone: (931) 372 6127  
LinkedIn: <https://www.linkedin.com/in/denisulybyshev/>  
GitHub: <https://github.com/Denis-Ulybyshev>

## 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 (top-10 in Russia) 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. degree 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 Cyber Security, Artificial Intelligence, Blockchain-based Technologies and Databases with 21 academic publications, 7 awards, and 9 years of research in the United States. As a PI/Co-PI, obtained \$85,341 of research grant funds in 2019 – 2021. As a PhD student, made significant contributions to writing six funded research proposals in 2015-2018, obtaining more than \$1.2 million. Currently advise two PhD students, five Master's students, four Fast Track and 24 Undergraduate students. 8 years of industrial experience in developing large-scale 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
Database Management Systems	Fall 2019	Relational model, intermediate/ advanced SQL, concurrency control, database security
Information Assurance & Cryptography	Spring 2020, 2021, 2022	Information assurance and cyber defense fundamentals, security models and policies, cryptographic protocols. This course won an EDGE Curriculum grant from Tennessee Technological University
Cyber Security Labs for Governor's School of Emerging Technologies (GSET)	Summer 2020, 2021	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, security threats for web applications, vulnerabilities exploitation techniques and protection mechanisms
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	Covers methodology to read/write research publications and academic peer-review procedure.
Application Security	Spring 2022	Techniques to find and exploit various vulnerabilities in programming languages, blockchain-based and web applications, database management systems. Mitigation strategies to prevent software vulnerabilities, including static source code analysis, compiler-based and runtime-based memory protection techniques, database encryption, secure data containers, and code obfuscation are covered, as well. Fundamentals of hardware-based data protection, including Intel® SGX and ARM® TrustZone® technologies.

## Research

Project Title	Dates	Funded by	Project Description and Accomplishments
Vulnerability Analysis and Cyber Risk Assessment for Computing Systems	Jan. 2021 – present	Dept. of Computer Science at Tennessee Tech University	Framework to evaluate cyber risk for software and hardware components, as well for the entire existing and newly designed computing systems. Journal paper [17] is published. Provisional patent application is pending.
Visually impaired - Friendly Information System for Campuses and Smart Cities	July 2021 – present	Dept. of Computer Science, Faculty Research Award, Tennessee Tech University	Mobile application for visually impaired people has been developed and tested in Tennessee Tech University campus.
Data Protection in Space Infrastructure	July 2020 – June 2021	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 [3] 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 [4], [5], [8] 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 accepted, in-press.
A Secure Container for Data Protection in Transit and at Rest	Aug. 2019-Dec. 2020	Dept. of Computer Science, URECA! grant at Tennessee Tech University	Developed a spreadsheet/JSON-based container, integrated with PostgreSQL, to prevent data leakages and provide fine-grained access control. Research papers [6] and [7] are published.
Data Protection in Permissioned Blockchain Platforms	Jan. 2021 - present	Dept. of Computer Science at Tennessee Tech University	Conference paper [1] is accepted, in-press.

## Advising

I currently advise two PhD students, five Master's students, four Fast Track and 24 Undergraduate students.

## Graduated Students

Student's Name	Earned Degree	Graduation Term	Appointment after Graduation
Christian Bare	Master's	Spring 2020	Software Engineer at "Aristocrat" company. Master of Business Administration (MBA) program at Tennessee Technological University

## 2. Research Assistant

Department of Computer Science, Purdue University

Jan. 2013 – May, 2019

Project Title	Terms / Dates	Funded by	Project Description and Accomplishments
Situational Awareness and Targeted Information Propagation	Spring 2019	Bilsland Dissertation Fellowship from Purdue University	Contributed to developing a real-time machine learning-based engine for multi-modal data processing. Targeted on-demand information propagation algorithm pushes the relevant data to the relevant subjects. Data subsets are protected at rest and in transit

Project Title	Terms / Dates	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, including Northrop Grumman	Designed and developed a framework for privacy-preserving data communications. The approach provides secure cross-domain software distribution and development. Blockchain-based technology is applied to ensure provenance data integrity and record every software access, transfer, and update in a public ledger. Published peer-reviewed conference papers [10], [11], [12] and a journal paper [18]. Prototype demo video [28] 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 (Vehicle-to-Everything) communications, enabling data protection at rest and in transit. Solution provides data confidentiality, integrity, role-based and attribute-based access control, as well as capabilities of building analytics over encrypted vehicle records. Experiments were conducted on a trade-off between vehicle's safety and cybersecurity. Project resulted in publishing peer-reviewed conference papers [9], [13].
Secure / Resilient Systems and Data Dissemination / Provenance	Spring 2017	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 several types of data leakages, made by insiders [14]. Demo video [27] is available
Privacy-Preserving Data Dissemination and Adaptable Service Compositions in Trusted & Untrusted Cloud	Spring 2016	Northrop Grumman Cybersecurity Research Consortium	Designed and implemented a framework for selective data dissemination using role-based and attribute-based access control. Prototype demo video [26] is 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 that supports role-based and attribute-based access control in Service-Oriented Architecture. The project won best poster award [36] at 16-th CERIAS Security Symposium (#1 out of 43 posters). Peer-reviewed paper [15] 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 [16] 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. Cryptography
2. Web/ Database/ OS/ Cloud security
3. Language-based security: compiler-based and runtime-based memory protection techniques
4. Cyber-Physical Systems: secure SCADA systems, smart building management systems, secure Programmable Logical Controllers
5. Distributed systems: blockchain-based technologies, transaction management systems
6. Machine learning: anomaly detection, targeted data propagation, recommendation systems
7. Information retrieval: web search, Search Engine Optimization
8. Vehicle-to-Everything communication systems

## CONFERENCE PAPERS (peer-reviewed)

1. Massengille, J., Burks, T., Mitchell, R., Tice, J., Ulybyshev, D. "Data Protection and Export for Transaction Ledgers in Permissioned Blockchain Platforms", 3rd IEEE Workshop on Blockchain-based Architectures (BlockArch) 2022, in conjunction with 19th IEEE Intl. Conf. on Software Architecture (ICSA), accepted, in-press
2. Ujii, R., Kholodilo, V., Northern, B., Ulybyshev, D. "Secure Monitoring and Notification System for Cloud Infrastructures", IEEE Southeastcon conference, 2022, accepted, in-press
3. 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)*, 2021, pp. 78-83.
4. Mithu, M. R. A., Rogers, M., Ulybyshev, D., Manicavasagam, R., & Asmar Awad, R. (2021). "Feature Classification for Control System Devices", *The International FLAIRS Conference Proceedings*, 34.
5. Ulybyshev, Denis, Ibrahim Yilmaz, Bradley Northern, Vadim Kholodilo, and Michael 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.
6. Ulybyshev, Denis, Christian Bare, Kristen Bellisario, Vadim Kholodilo, Bradley Northern, Abhijeet Solanki, Timothy 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.
7. Yilmaz, Ibrahim, Ambareen Siraj and Denis 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.
8. Mithu, M Rayhan Ahmed, Vadim Kholodilo, Rajesh Manicavasagam, Denis Ulybyshev and Michael Rogers, "Secure Industrial Control System with Intrusion Detection". *33-rd Intl. FLAIRS conf.*, AAAI, 2020.
9. Ulybyshev, Denis, Aala Oqab Alsalem, Bharat Bhargava, Savvas Savvides, Ganapathy Mani, and Lotfi 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%).
10. Ulybyshev, Denis, Miguel Villarreal-Vasquez, Bharat Bhargava, Ganapathy Mani, Steve Seaberg, Paul Conoval, Robert Pike, and Jason 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%).
11. Mani, Ganapathy, Denis Ulybyshev, Bharat Bhargava, Jason Kobes, and Puneet 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.
12. Mani, Ganapathy, Bharat Bhargava, Pelin Angin, Miguel Villarreal-Vasquez, Denis Ulybyshev, and Jason 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.
13. Sardesai, Shantanu, Denis Ulybyshev, Lotfi ben Othmane, and Bharat 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.
14. Ulybyshev, Denis, Bharat Bhargava, Miguel Villarreal-Vasquez, Aala Oqab Alsalem, Donald Steiner, Leon Li, Jason Kobes, Harry Halpin, and Rohit 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%).
15. Qu, Chenyang, Denis A. Ulybyshev, Bharat K. Bhargava, Rohit Ranchal, and Leszek 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.

16. Myrent, Noah J., Douglas E. Adams, Gustavo Rodriguez-Rivera, Denis A. Ulybyshev, Jan Vitek, Ethan Blanton, and Tomas 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.

### **JOURNAL PAPERS (peer-reviewed)**

17. 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.
18. Ulybyshev, Denis, Bharat Bhargava, and Aala 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)**

19. Ulybyshev, D. "Supervisory Control and Data Protection in Cyber-Physical Systems", *In Proceedings of ACM Mid-Southeast 2021 Conference*, p. 62.
20. Ulybyshev, D. "Secure Communications in Industrial Control Systems", *In Proceedings of ACM Mid-Southeast 2019 Conference*, p.71.
21. 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.
22. 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).
23. 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).

### **THESIS**

24. Ulybyshev, Denis, "Data Protection in Transit and at Rest with Leakage Detection". Ph.D. Thesis, Purdue University, Department of Computer Science, May 2019.
25. 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**

26. WAXEDPRUNE: privacy-preserving data communication framework: prototype demo video  
[https://www.dropbox.com/s/30scw1srqsmymq6d/BhargavaTeam\\_DemoVideo\\_Spring16.wmv?dl=0](https://www.dropbox.com/s/30scw1srqsmymq6d/BhargavaTeam_DemoVideo_Spring16.wmv?dl=0), accessed: Jul.2019
27. WAXEDPRUNE: data leakage detection and search over encrypted data: prototype demo video  
<https://www.dropbox.com/s/oxgy7xsovrkel9/NGCRC-2017-WaxedPrune-Demo.wmv?dl=0>, accessed: Jul.2019
28. Blockchain-based privacy-preserving data communication in Intelligent Autonomous Systems  
[https://www.dropbox.com/s/x3l8w9l49am2cnw/Demo\\_NGCRC\\_Bhargava\\_Compiled.mp4?dl=0](https://www.dropbox.com/s/x3l8w9l49am2cnw/Demo_NGCRC_Bhargava_Compiled.mp4?dl=0), accessed: Jul.2019

### **PRESENTATIONS AT CONFERENCES, SYMPOSIA AND WORKSHOPS**

29. 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)
30. D. Ulybyshev, "Secure / Resilient Systems and Data Dissemination / Provenance", NGC Research Consortium Symposium at Purdue University, Nov. 2017
31. 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
32. 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
33. 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>
34. 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>
35. "Privacy-preserving Data Dissemination and Adaptable Service Compositions in Trusted and Untrusted Cloud", NGC Research Consortium Symposium, Apr. 2016

36. 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. Lead PI: Dr. Ambareen Siraj, Co-PIs: Eric Brown, Drs. Maanak Gupta, Akond Rahman, 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. Pinggen 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.

## PROFESSIONAL ACTIVITIES AND SERVICE

### External

1. Program Committee member for ACM Workshop on Secure and Trustworthy Cyber-Physical Systems, in conjunction with ACM CODASPY, 2021, 2022
2. 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.
3. 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
4. Program Committee member for “Women in Cybersecurity WiCyS 2020” conference
5. Technical Program Committee member of “Workshop on Machine Learning for Security and Cryptography, 2019”

### Internal

- |   |                             |
|---|-----------------------------|
| 1. Department of Computer Science Diversity Committee, Tennessee Tech University  | <b>Jul. 2021 – present</b>  |
| 2. College of Engineering Academic Misconduct Committee, Tennessee Tech University  | <b>Aug. 2021 - present</b>  |
| 3. Department of Computer Science International Collegiate Programming Contest (ICPC) Club, Tennessee Tech University   | <b>Sep. 2021 - present</b>  |
| 4. Faculty Senate, Academic Council, Tennessee Tech University  | <b>Jan. 2022 - present</b>  |
| 5. Department of Computer Science Eminence Award Committee, Tennessee Tech University   | <b>Jan. 2022 - present</b>  |
| 6. Faculty Mentor for two mentees in the “Red Shirt” program aiming to help students in the CS pre-major to get admitted into the Computer Science program, Tennessee Tech University | <b>Oct. 2020 – present</b>  |
| 7. Cyber Security Curriculum Committee member, Dept. of Computer Science, Tennessee Tech University   | <b>Aug. 2019 – present</b>  |
| 8. Graduate Committee member, Dept. of Computer Science, Tennessee Tech University  | <b>Sept. 2019 – present</b> |
| 9. Fast Track Committee member, Dept. of Computer Science, Tennessee Tech University  | <b>Jan. 2021 – present</b>  |
| PhD Representative, Webmaster at Computer Science Graduate Student Board, Purdue University   | <b>2012 – 2017</b>          |

## ACADEMIC ADVISORS

- |  |                              |
|--|------------------------------|
| • Prof. Suresh Jagannathan (Purdue University) | <b>Aug. 2012 – Dec. 2014</b> |
| • Prof. Bharat Bhargava (Purdue University)    | <b>Jan. 2015 – May, 2019</b> |

## 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, 2012 - July, 2009  
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 (selected as #2 out of 44 by Corporate Partners of Computer Science Department, Purdue University) Apr. 2019
4. **Bilsland Dissertation Award Fellowship** (research 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**