

# James C. Davis

Assistant Professor  
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## RESEARCH THEME

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My research enables safe and secure software engineering for cyber- and cyber-physical systems. My work is grounded in empirical measurements of the software engineering process, product, and usage context. I examine software engineering failures to inform future feats of software engineering.

## EDUCATION

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|---|-----------|
| <b>Ph.D, Computer Science and Applications</b><br><i>Virginia Tech, Blacksburg, VA</i>      | 2015–2020 |
| <b>B.Sc. Computer Science, B.Sc. Mathematics</b><br><i>Clarkson University, Potsdam, NY</i> | 2008–2012 |

## PROFESSIONAL EXPERIENCE

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| <b>Assistant Professor</b><br><i>Purdue University — Electrical and Computer Engineering</i>   | Fall 2020-present |
| <b>Intern, Microsoft Research (RiSE group: Cloud Security)</b><br><i>Microsoft Research, Redmond, WA — Mentored by Patrice Godefroid</i> | Summer 2019       |
| <b>Intern, IBM Research (Storage)</b><br><i>IBM Research, Almaden, CA — Mentored by Deepavali Bhagwat</i>                                | Summer 2018       |
| <b>Graduate Research Assistant</b><br><i>Virginia Tech — Advised by Dongyoon Lee</i>   | 2016–2020         |
| <b>Software Engineer, IBM (GPFS)</b><br><i>IBM, Poughkeepsie, NY</i>   | 2012–2017         |

## EXTERNAL GRANTS

**TOTAL: \$2,424,690. TOTAL AS PI: \$827,213. MY TOTAL SHARE: \$1,365,210.<sup>1</sup>**

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- [G-1] **Unrestricted Gift: Typosquat Detection in Open-Source Ecosystems**  
PI  
*Socket, Inc.*  
2025. \$20,000.
- [G-2] **NSF #2512797: Travel: NSF Student Travel Grant for 2025 International Conference on Software Engineering**  
PI  
*US National Science Foundation*  
2024-2025. \$24,000.

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<sup>1</sup>Calculation: Total is the sum of all awards to Purdue on which I have been PI or Co-PI. Total as PI is the sum of all awards to Purdue on which I have been the PI — not all of these funds are managed by me. My total share is the sum of funds I have managed across all awards.

- [G-3] **NSF #2343596: Collaborative Research: EAGER: CET: Exploring The Risks and Rewards of Large Language Models in Enabling Energy-Efficient Data Center Software Infrastructure**  
PI (Co-PI: Yung-Hsiang Lu)  
*US National Science Foundation*  
2024–2026. \$149,976.
- [G-4] **Rolls Royce: Facilitating Effective Dynamic Analysis of Embedded Software**  
Co-PI (PI: Aravind Machiry)  
*Contract with Rolls Royce*  
2024-2025. \$150,000.
- [G-5] **Unrestricted Gift: Improving OSS Supply Chain Security by Promoting Software Signing**  
Co-PI (PI: Santiago Torres-Arias)  
*Google, LLC*  
2023. \$200,000.
- [G-6] **Rolls Royce: Dynamic Security Analysis of Embedded Software Systems**  
Co-PI (PI: Aravind Machiry)  
*Contract with Rolls Royce*  
2023-2024. \$150,000.
- [G-7] **Efficient Computer Vision for Edge Devices**  
Co-PI (PI: Yung-Hsiang Lu)  
*Contract with Cisco*  
2023-2024. \$179,941
- [G-8] **Unrestricted Gift: Machine Learning Reproducibility**  
PI  
*Google, LLC*  
2022. \$80,000.
- [G-9] **NSF #2229703: POSE: Phase I: Scoping An Open-Source Ecosystem Around Proactive Software Supply Chain Monitoring**  
Co-PI (PI: Santiago Torres-Arias)  
*US National Science Foundation*  
2022–2023. \$300,000.
- [G-10] **Cisco: Trustworthy Re-use of Pre-Trained Neural Networks**  
PI (Co-PI: Yung-Hsiang Lu)  
*Contract with Cisco*  
2022–2023. \$179,237.
- [G-11] **Cisco: Monitor and manage security risks in software supply chains with Sigstore**  
Co-PI (PI: Santiago Torres-Arias)  
*Contract with Cisco*  
2022–2023. \$184,536.

- [G-12] **NSF #2135156: Collaborative Research: SaTC: CORE: Small: Improving Sanitization and Avoiding Denial of Service Through Correct and Safe Regexes**  
 PI (Co-PI: Dongyoon Lee)  
*US National Science Foundation*  
 2022–2025. Purdue’s share: \$274,000.
- [G-13] **Rolls Royce: Dynamic Analysis of Embedded Firmware**  
 Co-PI (PI: Aravind Machiry)  
*Contract with Rolls Royce*  
 2021–2022. \$175,000.
- [G-14] **NSF #2107230: Collaborative Research: OAC Core: Advancing Low-Power Computer Vision at the Edge**  
 Co-PI (PI: Yung-Hsiang Lu)  
*US National Science Foundation*  
 2021–2024. Purdue’s share: \$258,000.
- [G-15] **Unrestricted gift to support research on machine learning reproducibility**  
 PI (Co-PI: Yung-Hsiang Lu)  
*Google, LLC*  
 2020. \$80,000 + \$20,000.

## **INTERNAL GRANTS**

**TOTAL: \$234,431.**

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- [IG-1] **Exploring the Impact and the Use of Generative Models in Computer Engineering Education**  
 Co-PI (PI: Machiry, Other Co-PIs: Zoltowski, Hess, Lu)  
*Office of the Provost, through the program “AI in teaching and learning grants”*  
 2023–2024. \$79,431.
- [IG-2] **Revamping the CompE Curriculum for Secure Software Engineering**  
 PI (Co-PIs: Machiry, Torres-Arias, Bagchi)  
*ECE Agile Reform of Curriculum program, enabled by Elmore Family gift*  
 2021–2022. \$150,000.
- [IG-3] **Intercultural Engineering Education for Software Engineers**  
 PI (Co-PI: Kirsten Davis)  
*Purdue University VEIL Program*  
 2020. \$5,000.

- [C-1] P.C. Amusuo, K.A. Robinson, T. Singla, H. Peng, A. Machiry, S. Torres-Arias, L. Simon, **J.C. Davis**. *ZTD<sub>JAVA</sub>: Mitigating Software Supply Chain Vulnerabilities via Zero-Trust Dependencies*. Proceedings of the 47th International Conference on Software Engineering (ICSE'25). 24% acceptance rate (248/1031). 13 pages.
- [C-2] B.S.H. Chou, P. Jajal, N.J. Eliopoulos, T. Nadolsky, C.Y. Yang, N. Ravi, **J.C. Davis**, K.Y.J. Yun, and Y.H. Lu. *A Musician's Muse: Detecting Performance Errors with Transformers*. Proceedings of the 39th Annual AAAI Conference on Artificial Intelligence (AAAI'25). 23% acceptance rate (3,032/12,957). 11 pages.
- [C-3] K. Kalu, T. Singla, C. Okafor, S. Torres-Arias, and **J.C. Davis**. *An Industry Interview Study of Software Signing for Supply Chain Security*. Proceedings of the 34th USENIX Security Symposium (USENIX Security'25). 19% acceptance rate (228/1188). 18 pages.
- [C-4] M. Shen, A. Pillai, B.A. Yuan, **J.C. Davis**, and A. Machiry. *Finding 709 Defects in 258 Projects: An Experience Report on Applying CodeQL to Open-Source Embedded Software (Experience Paper)*. Proceedings of the 34th ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA'25). 21% acceptance rate (115/553). 22 pages.
- [C-5] N. Eliopoulos, P. Jajal, **J.C. Davis**, G. Liu, G.K. Thiruvathukal, and Y.H. Lu. *Pruning One More Token is Enough: Leveraging Latency-Workload Non-Linearities for Vision Transformers on the Edge*. Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV'25). 12 pages.
- [C-6] P. Jajal, N. Eliopoulos, B. Chou, G.K. Thiruvathukal, **J.C. Davis**, and Y.H. Lu. *Token Turing Machines are Efficient Vision Models*. Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV'25). 12 pages.
- [C-7] D. Anandayuvraj, M. Campbell, A. Tewari, and **J.C. Davis**. *FAIL: Analyzing Software Failures from the News Using LLMs*. Proceedings of the 38th IEEE/ACM International Conference on Automated Software Engineering (ASE'24). 26% acceptance rate (154/587). 13 pages.
- [C-8] P. Jajal, W. Jiang, A. Tewari, E. Kocinare, J. Woo, A. Sarraf, Y.H. Lu, G.K. Thiruvathukal, and **J.C. Davis**. *Interoperability in Deep Learning: A User Survey and Failure Analysis of ONNX Model Converters*. Proceedings of the 33rd ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA'24). 21% acceptance rate (143/694). 13 pages.
- [C-9] J. Jones, W. Jiang, N. Synovic, G.K. Thiruvathukal, and **J.C. Davis**. *What do we know about Hugging Face? A systematic literature review and quantitative validation of qualitative claims*. Proceedings of the 18th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM'24). 24% acceptance rate (34/139). 12 pages.
- [C-10] L. Franke, H. Liang, S. Farzanehpour, A. Brantly, **J.C. Davis**, and C. Brown. *An Exploratory Mixed-methods Study on General Data Protection Regulation (GDPR) Compliance in Open-Source Software*. Proceedings of the 18th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM'24). 24% acceptance rate (34/139). 12 pages.
- [C-11] J. Chen, D. Anandayuvraj, **J.C. Davis**, and S. Rahaman. *On the Contents and Utility of IoT Cybersecurity Guidelines*. Proceedings of the ACM on Software Engineering (PACMSE), Issue FSE 2024 (FSE'24). 26% acceptance rate (121/474). 24 pages.

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<sup>2</sup>Here and elsewhere, my research mentees are underlined. These are students whose work I supervised during the research project. My name is given in **bold**. In these publication venues, the final author ("anchor author") provides the primary intellectual supervision of the work.

- [C-12] T.R. Schorlemmer, K.G. Kalu, L. Chigges, K.M. Ko, E.A.M.A. Ishgair, S. Bagchi, S. Torres-Arias, and **J.C. Davis**. *Signing in Four Public Software Package Registries: Quantity, Quality, and Influencing Factors*. Proceedings of the 45th IEEE Symposium on Security and Privacy (IEEE S&P'24). 18% acceptance rate (261/1463). 16 pages.
- [C-13] W. Maxam and **J.C. Davis**. *An Interview Study on Third-Party Cyber Threat Hunting Processes in the U.S. Department of Homeland Security*. Proceedings of the 33rd USENIX Security Symposium (USENIX Security'24). 18% acceptance rate (382/2176). 18 pages.
- [C-14] W. Jiang, J. Yasmin, J. Jones, N. Synovic, J. Kuo, N. Bielanski, Y. Tian, G.K. Thiruvathukal, and **J.C. Davis**. *PeaTMOSS: A Dataset and Initial Analysis of Pre-Trained Models in Open-Source Software*. Proceedings of the 21st Annual Conference on Mining Software Repositories (MSR'24). 29% acceptance rate (42/146). 13 pages.
- [C-15] W. Jiang, N. Synovic, M. Hyatt, T.R. Schorlemmer, R. Sethi, Y.H. Lu, G.K. Thiruvathukal, and **J.C. Davis**. *An Empirical Study of Pre-Trained Model Reuse in the Hugging Face Deep Learning Model Registry*. Proceedings of the ACM/IEEE 45th International Conference on Software Engineering (ICSE'23). 26% acceptance rate (208/796). 13 pages.
- [C-16] P.C. Amusuo, R.A.C. Méndez, Z. Xu, A. Machiry, and **J.C. Davis**. *Systematically Detecting Packet Validation Vulnerabilities in Embedded Network Stacks*. Proceedings of the 38th IEEE/ACM International Conference on Automated Software Engineering (ASE'23). 21% acceptance rate (134/629). 13 pages.
- [C-17] S.A. Hassan, Z. Aamir, D. Lee, **J.C. Davis**, and F. Servant. *Improving Developers' Understanding of Regex Denial of Service Tools through Anti-Patterns and Fix Strategies*. Proceedings of the 44th IEEE Symposium on Security and Privacy (IEEE S&P'23). 18 pages.
- [C-18] A. Goel, C. Tung, N. Eliopoulos, X. Hu, G.K. Thiruvathukal, **J.C. Davis**, and Y.H. Lu. *Directed Acyclic Graph-based Neural Networks for Tunable Low-Power Computer Vision*. Proceedings of the ACM/IEEE International Symposium on Low Power Electronics and Design (ISLPED'22). 6 pages.
- [C-19] E. Barlas, X. Du, and **J.C. Davis**. *Exploiting Input Sanitization for Regex Denial of Service*. Proceedings of the ACM/IEEE 44th International Conference on Software Engineering (ICSE'22). 26% acceptance rate (197/751). 13 pages.
- [C-20] Q. Xu, **J.C. Davis**, Y.C. Hu, and A. Jindal. *An Empirical Study on the Impact of Parameters on Mobile App Energy Usage*. Proceedings of the 29th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER'22). 36% acceptance rate (72/199). 12 pages.
- [C-21] A. Goel, C. Tung, X. Hu, G.K. Thiruvathukal, **J.C. Davis**, and Y.H. Lu. *Efficient Computer Vision on Edge Devices with Pipeline-Parallel Hierarchical Neural Networks*. Proceedings of the 27th Asia and South Pacific Design Automation Conference (ASP-DAC'22). 37% acceptance rate (95/260). 6 pages.
- [C-22] A. Goel, C. Tung, X. Hu, H. Wang, **J.C. Davis**, Thiruvathukal, and Lu. *Low-Power Multi-Camera Object Re-Identification using Hierarchical Neural Networks*. Proceedings of the ACM/IEEE International Symposium on Low Power Electronics and Design (ISLPED'21). 6 pages.
- [C-23] **J.C. Davis**, F. Servant, and D. Lee. *Using Selective Memoization to Defeat Regular Expression Denial of Service (ReDoS)*. Proceedings of the 42nd IEEE Symposium on Security and Privacy (IEEE S&P'21). 12% acceptance rate (115/952). 17 pages.
- [C-24] A. Cha, E. Wittern, G. Baudart, **J.C. Davis**, L. Mandel, and J. Laredo. *A Principled Approach to GraphQL Query Cost Analysis*. Proceedings of the 28th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE'20). 28% acceptance rate (101/360). 12 pages. *ACM Distinguished Paper Award*.

- [C-25] L. Rupperecht, **J.C. Davis**, C. Arnold, Y. Gur, and D. Bhagwat. *Improving Reproducibility of Data Science Pipelines through Transparent Provenance Capture*. Proceedings of the 46th International Conference on Very Large Data Bases (VLDB’20 Industry track). 15 pages.
- [C-26] **J.C. Davis**, D. Moyer, A. Kazerouni, and D. Lee. *Testing Regex Generalizability And Its Implications: A Large-Scale Many-Language Measurement Study*. Proceedings of the 34th IEEE/ACM International Conference on Automated Software Engineering (ASE’19). 21% acceptance rate (91/435). 13 pages.
- [C-27] L. Michael, J. Donohue, **J.C. Davis**, D. Lee, and F. Servant. *Regexes are Hard: Decision-making, Difficulties, and Risks in Programming Regular Expressions*. Proceedings of the 34th IEEE/ACM International Conference on Automated Software Engineering (ASE’19). 21% acceptance rate (91/435). 12 pages. *ACM Distinguished Paper Award*.
- [C-28] **J.C. Davis**, L. Michael, C. Coghlan, F. Servant, and D. Lee. *Are Regular Expressions a Lingua Franca? An Empirical Study on the Re-use and Portability of Regular Expressions*. Proceedings of the 27th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE’19). 24% acceptance rate (97/371). 12 pages.
- [C-29] E. Wittern, A. Cha, **J.C. Davis**, G. Baudart, L. Mandel. *An Empirical Study of GraphQL Schemas*. Proceedings of the 17th International Conference on Service-Oriented Computing (ICSOC’19). 15% acceptance rate (28/183). 16 pages.
- [C-30] X. Fu, T. Ghaffar, **J.C. Davis**, and D. Lee. *EdgeWise: A Better Stream Processing Engine for the Edge*. 2019 USENIX Annual Technical Conference (USENIX ATC’19). 20% acceptance rate (71/356). 17 pages.
- [C-31] **J.C. Davis**, C. Coghlan, F. Servant, and D. Lee. *The Impact of Regular Expression Denial of Service (REDOS) in Practice: an Empirical Study at the Ecosystem Scale*. Proceedings of the 26th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE’18). 21% acceptance rate (61/289). 11 pages. *ACM Distinguished Paper Award*.
- [C-32] **J.C. Davis**, E.R. Williamson, and D. Lee. *A Sense of Time for JavaScript and Node.js: First-Class Timeouts as a Cure for Event Handler Poisoning*. Proceedings of the 27th USENIX Security Symposium (USENIX Security’18). 19% acceptance rate (100/520). 17 pages.
- [C-33] **J.C. Davis**, A. Thekumparampil, and D. Lee. *Node.fz: Fuzzing the Server-Side Event-Driven Architecture*. Proceedings of the Twelfth European Conference on Computer Systems (EuroSys’17). 21% acceptance rate (41/200). 16 pages.

### REFEREED JOURNAL ARTICLES<sup>3</sup>

- [J-1] G. Cramer, W. Maxam, and **J.C. Davis**. *Engineering Patterns for Trust and Safety on Social Media Platforms: A Case Study of Mastodon and Diaspora*. Journal of Systems and Software, 2025 (JSS’25). 22 pages.
- [J-2] D. Özkan, K. Davis, **J.C. Davis**, J. Deters, and H. Murzi. *Fostering Systems Thinking through Engineering Study Abroad Programs*. European Journal of Engineering Education, 2024 (EJEE’24). 26 pages.
- [J-3] W. Jiang, V. Banna, N. Vivek, A. Goel, N. Synovic, G.K. Thiruvathukal, and **J.C. Davis**. *Challenges and Practices of Deep Learning Model Reengineering: A Case Study on Computer Vision*. Empirical Software Engineering, 2024 (EMSE’24). 63 pages.
- [J-4] K. Davis, J. Deters, D. Özkan, **J.C. Davis**, and H. Murzi. *Applying Experiential Learning Theory to Understand Study Abroad Leaders’ Experiences Using Real-Time Perspectives*. Frontiers: The Interdisciplinary Journal of Study Abroad, Vol. 34, No. 2, 2022 (Frontiers’22). 31 pages.

<sup>3</sup>In the field of software engineering research, four journals are considered peers of the top conferences, as evidenced by their inclusion in “journal first” tracks at those conferences: ACM TOSEM, IEEE TSE, Springer EMSE, and Elsevier JSS.

- [J-5] S. Herbold, A. Trautsch, B. Ledel, A. Aghamohammadi, T.A. Ghaleb, K.K. Chahal, T. Bossenmaier, B. Nagaria, P. Makedonski, M.N. Ahmadabadi, K. Szabados, H. Spieker, M. Madeja, N. Hoy, V. Lenarduzzi, S. Wang, G. Rodriguez-Perez, R. Colomo-Palacios, R. Verdecchia, P. Singh, Y. Qin, D. Chakroborti, W. Davis, V. Walunj, H. Wu, D. Marcilio, O. Alam, A. Aldaej, I. Amit, B. Turhan, S. Eismann, A.K. Wickert, I. Malavolta, M. Sulir, F. Fard, A.Z. Henley, S. Kourtzanidis, E. Tüzün, C. Treude, S.M. Shamasbi, I. Pashchenko, M. Wyrich, **J.C. Davis**, A. Serebrenik, E. Albrecht, E.U. Aktas, D. Strüber, and J. Erbel. *A Fine-grained Data Set and Analysis of Tangling in Bug Fixing Commits*. Empirical Software Engineering, 2022 (EMSE’22). 55 pages.
- [J-6] A. Kazerouni, **J.C. Davis**, A. Basak, C. Shaffer, F. Servant, and S. Edwards. *Fast and Accurate Incremental Feedback for Students’ Software Tests Using Selective Mutation Analysis*. Journal of Systems and Software, 2021 (JSS’21). 22 pages.
- [J-7] D. Özkan, K. Davis, **J.C. Davis**, M. James, H. Murzi, and D. Knight. *Expectations and Experiences of Short-Term Study Abroad Leadership Teams*. Journal of International Engineering Education, 2020 (JIEE’20). 34 pages.

## REFEREED MAGAZINE ARTICLES

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- [M-1] T.R. Schorlemmer, E. Burmane, K. Kalu, S. Torres-Arias, and **J.C. Davis**. *Establishing Provenance Before Coding: Traditional and Next-Gen Software Signing*. IEEE Security & Privacy Magazine, special issue “Secure Software Before Codeing”, 2025 (IEEE S&P Magazine’25). 8 pages.
- [M-2] X. Hu, Z. Jiao, A. Kocher, Z. Wu, J. Liu, **J.C. Davis**, G.K. Thiruvathukal, and Y.H. Lu. *Evolution of Winning Solutions in the 2021 Low-Power Computer Vision Challenge*. IEEE Computer, 2023 (Computer’23). 6 pages.
- [M-3] A. Goel, C. Tung, N. Eliopoulos, A. Wang, **J.C. Davis**, G.K. Thiruvathukal, and Y.H. Lu. *Tree-based Unidirectional Neural Networks for Low-Power Computer Vision*. IEEE Design & Test, 2022 (IEEE D&T’22). 6 pages.

## OTHER REFEREED WORKS: VISIONS, TOOLS, PRELIMINARY WORKS, COMPETITIONS

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- [W-1] P.C. Amusuo, P.V. Patil, O. Cochell, T. Le Lievre, and **J.C. Davis**. *A Unit Proofing Framework for Code-level Verification: A Research Agenda*. Proceedings of the ACM/IEEE 47th International Conference on Software Engineering — New Ideas and Emerging Results track (2025). 26% acceptance rate (25/97). 5 pages.
- [W-2] P.V. Patil, W. Jiang, H. Peng, D. Lugo, K.G. Kalu, J. LeBlanc, L. Smith, H. Heo, N. Aou, and **J.C. Davis**. *Recommending Pre-Trained Models for IoT Devices*. Proceedings of the 7th International Workshop on Software Engineering Research & Practices for the Internet of Things (2025). 5 pages.
- [W-3] S. Joshi, P. Mukherjee, K.A. Davis, and **J.C. Davis**. *Introducing Systems Thinking as a Framework for Teaching and Assessing Threat Modeling Competency*. Proceedings of the 2024 Annual Conference and Exposition of the American Society for Engineering Education (ASEE’24). ~50% acceptance rate (12 papers presented). 31 pages. *Best Paper Award, Software Engineering Division (given to 1 out of 12 papers)*.
- [W-4] B.A. Tanay, L. Arinze, S. Joshi, K.A. Davis, and **J.C. Davis**. *An Exploratory Study on Upper-Level Computing Students’ Use of Large Language Models as Tools in a Semester-Long Project*. Proceedings of the 2024 Annual Conference and Exposition of the American Society for Engineering Education (ASEE’24). ~50% acceptance rate (12 papers presented). 27 pages.

- [W-5] **J.C. Davis**, P. Jajal, W. Jiang, T.R. Schorlemmer, N. Synovic, and G.K. Thiruvathukal. *Reusing Deep Learning Models: Challenges and Directions in Software Engineering*. Proceedings of the IEEE John Vincent Atanasoff Symposium on Modern Computing (JVA'23). 12 pages.
- [W-6] J. Srinivasan, S.R. Tanksalkar, P. Amusuo, **J.C. Davis**, and A. Machiry. *Towards Rehosting Embedded Applications as Linux Applications*. Proceedings of the 53rd Annual IEEE/IFIP International Conference on Dependable Systems and Networks — Disrupt track (DSN-Disrupt'23). 47% acceptance rate (17/36). 5 pages.
- [W-7] M. Shen, **J.C. Davis**, and A. Machiry. *Towards Automated Identification of Layering Violations in Embedded Applications (WIP)*. Proceedings of the 24th ACM SIGPLAN/SIGBED International Conference on Languages, Compilers, and Tools for Embedded Systems — Work-In-Progress Track (LCTES-WIP'23). 40% acceptance rate (14/35). 5 pages.
- [W-8] K.G. Kalu, T.R. Schorlemmer, S. Chen, K.A. Robinson, and **J.C. Davis**. *Reflecting on the use of the Policy-Process-Product Theory in Empirical Software Engineering*. Proceedings of the 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering — Ideas, Visions, and Reflections track (ESEC/FSE-IVR'23). 48% acceptance rate (13/27). 5 pages.
- [W-9] W. Jiang\*, N. Synovic\*, P. Jajal, T.R. Schorlemmer, A. Tewari, B. Pareek, G.K. Thiruvathukal, and **J.C. Davis**. *PTMTorrent: A Dataset for Mining Open-source Pre-trained Model Packages*. Proceedings of the 20th Annual Conference on Mining Software Repositories — Data and Tool Showcase Track (MSR-Data'23). 54% acceptance rate (23/42). 5 pages.
- [W-10] T. Singla, D. Anandayuvraj, K.G. Kalu, T.R. Schorlemmer, and **J.C. Davis**. *An Empirical Study on Using Large Language Models to Analyze Software Supply Chain Security Failures*. Proceedings of the 2nd ACM Workshop on Software Supply Chain Offensive Research and Ecosystem Defenses (SCORED'23). 67% acceptance rate (14/21). 11 pages.
- [W-11] D. Anandayuvraj, P. Thulluri, J. Figueroa, H. Shandilya, and **J.C. Davis**. *Incorporating Failure Knowledge into Design Decisions for IoT Systems: A Controlled Experiment on Novices*. Proceedings of the 5th International Workshop on Software Engineering Research & Practices for the Internet of Things (SERP4IoT'23). 5 pages.
- [W-12] W. Jiang, N. Synovic, R. Sethi, A. Indarapu, M. Hyatt, T.R. Schorlemmer, G.K. Thiruvathukal, and **J.C. Davis**. *An Empirical Study of Artifacts and Security Practices in the Pre-trained Model Supply Chain*. Proceedings of the 1st ACM Workshop on Software Supply Chain Offensive Research and Ecosystem Defenses (SCORED'22). 57% acceptance rate (12/21). 10 pages.
- [W-13] D. Anandayuvraj and **J.C. Davis**. *Reflecting on Recurring Failures in IoT Development*. Proceedings of the 37th IEEE/ACM International Conference on Automated Software Engineering — New Ideas and Emerging Results track (ASE-NIER'22). 36% acceptance rate (18/50). 5 pages.
- [W-14] D. Montes, P. Peerapatanapokin, J. Schultz, C. Guo, W. Jiang, and **J.C. Davis**. *Discrepancies among Pre-trained Deep Neural Networks: A New Threat to Model Zoo Reliability*. Proceedings of the 30th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering — Ideas, Visions, and Reflections track (ESEC/FSE-IVR'22). 25% acceptance rate (7/28). 5 pages.
- [W-15] P. Amusuo, A. Sharma, S.R. Rao, A. Vincent, and **J.C. Davis**. *Reflections on Software Failure Analysis*. Proceedings of the 30th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering — Ideas, Visions, and Reflections track (ESEC/FSE-IVR'22). 25% acceptance rate (7/28). 6 pages.



- [W-16] C. Okafor\*, T.R. Schorlemmer\*, S. Torres-Arias, and **J.C. Davis**. *SoK: Analysis of Software Supply Chain Security by Establishing Secure Design Properties*. Proceedings of the 1st ACM Workshop on Software Supply Chain Offensive Research and Ecosystem Defenses (SCORED’22). 57% acceptance rate (12/21). 10 pages.
- [W-17] N. Synovic, M. Hyatt, R. Sethi, S. Thota, Shilpika, A.J. Miller, W. Jiang, E.S. Amobi, A. Pinderski, K. Läufer, N.J. Hayward, N. Klingensmith, **J.C. Davis**, and G.K. Thiruvathukal. *Snapshot Metrics Are Not Enough: Analyzing Software Repositories with Longitudinal Metrics*. Proceedings of the 37th IEEE/ACM International Conference on Automated Software Engineering — Demonstrations track (ASE-Tool Demonstrations’22). 56% acceptance rate (23/41). 4 pages.
- [W-18] N. Gopalakrishna, D. Anandayuvraj, A. Detti, F. Bland, S. Rahaman, and **J.C. Davis**. *“If security is required”: Engineering and Security Practices for Machine Learning-based IoT Devices*. Proceedings of the 4th International Workshop on Software Engineering Research & Practices for the Internet of Things (SERP4IoT’22). 8 pages.
- [W-19] **J.C. Davis**, P. Amusuo, and J.R. Bushagour. *Experience Paper: A First Offering of Software Engineering*. Proceedings of the 1st International Workshop on Designing and Running Project-Based Courses in Software Engineering Education (ICSE-DREE’22). 5 pages.
- [W-20] N. Veselsky, J. West, I. Ahlgren, A. Goel, W. Jiang, K. Lee, Y. Kim, **J.C. Davis**, G.K. Thiruvathukal, and N. Klingensmith. *Establishing Trust in Vehicle-to-Vehicle Coordination: A Sensor Fusion Approach*. Proceedings of the 2nd Workshop on Data-Driven and Intelligent Cyber-Physical Systems for Smart Cities (DI-CPS) (DI-CPS’22). 6 pages.
- [W-21] J.M. Winkler, A. Agarwal, C. Tung, D.R. Ugalde, Y.J. Jung, and **J.C. Davis**. *A Replication of “Deep-Bugs: A Learning Approach to Name-based Bug Detection”*. Proceedings of the 29th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE’21 Artifact). 1 pages.
- [W-22] **J.C. Davis**. *On the Impact and Defeat of Regex DoS*. ACM Student Research Competition, 2019-2020 Grand Finals. **Second place, graduate student division**.
- [W-23] **J.C. Davis**. *Rethinking Regex Engines to Address ReDoS*. ACM Student Research Competition, 2019-2020 at ESEC/FSE’19. **First place, graduate student division**.
- [W-24] L. Rupperecht, **J.C. Davis**, C. Arnold, A. Lubbock, D. Tyson, and D. Bhagwat. *Ursprung: Provenance for Large-Scale Analytics Environments*. Proceedings of the 2019 International Conference on Management of Data (SIGMOD’19 Demo). 4 pages.
- [W-25] **J.C. Davis**, G. Kildow, and D. Lee. *The Case of the Poisoned Event Handler: Weaknesses in the Node.js Event-Driven Architecture*. Proceedings of the 10th European Workshop on Systems Security (EuroSec’17). 38% acceptance rate (9/24). 6 pages.

## PATENTS

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- [Pa-1] **J.C. Davis**, W. Davis. *Determining a validity of an event emitter based on a rule*. IBM, US Patent 11,875,185 B2. Granted Jan. 16, 2024.
- [Pa-2] W. Davis, **J.C. Davis**. *Verification of the Integrity of Data Files Stored in Copy-on-Write (CoW) Based File System Snapshots*. IBM, U.S. patent 11,176,090 B2. Granted Nov. 16, 2021.
- [Pa-3] **J.C. Davis**, W. Davis. *Injection of Simulated Hardware Failure(s) in a File System for Establishing File System Tolerance-to-Storage-Failure(s)*. IBM, U.S. patent 11,023,341 B2. Granted Jun. 1, 2021.

- [Pa-4] **J.C. Davis**, L. Rupprecht, D. Bhagwat, C. Arnold, W. Sawdon. *Performing Hierarchical Provenance Collection*. IBM, U.S. patent 10,891,174 B1. Granted Jan. 12, 2021.
- [Pa-5] **J.C. Davis**, W. Davis. *File Metadata Verification in a Distributed File System*. IBM, U.S. patent 10,678,755 B2. Granted Jun. 9, 2020.
- [Pa-6] W. Davis, **J.C. Davis**. *Testing of Lock Managers in Computing Environments*. IBM, U.S. patent 10,061,777 B1. Granted Aug. 28, 2018.
- [Pa-7] **J.C. Davis**, W. Davis, F. Knop. *Detection of File Corruption in a Distributed File System*. IBM, U.S. patent 10,025,788. Granted Jul. 17, 2018.

## BOOK CHAPTERS

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- [B-1] **J.C. Davis**. (2023). *Epilogue: The Computer Engineer as Tool-User*. In Y.H. Lu & G.K. Thiruvathukal, *Intermediate C Programming* (2nd edition, pp. 439–442). CRC Press.

## TECHNICAL REPORTS

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- [R-1] H. Peng, A. Gupte, N. Eliopoulos, C. Ho, R. Mantri, L. Deng, W. Jiang, Y.H. Lu, K. Läufer, G.K. Thiruvathukal, and **J.C. Davis**. *Large Language Models for Energy-Efficient Code: Emerging Results and Future Directions*. <https://arxiv.org/abs/2410.09241>. 2024.
- [R-2] H. Peng, A. Gupte, N. Eliopoulos, C. Ho, R. Mantri, L. Deng, W. Jiang, Y.H. Lu, K. Läufer, G.K. Thiruvathukal, and **J.C. Davis**. *Large Language Models for Energy-Efficient Code: Emerging Results and Future Directions*. <https://arxiv.org/abs/2410.09241>. 2024.
- [R-3] M.H.M. Bhuiyan, B. Cakar, E. Burmane, **J.C. Davis**, and C.A. Staicu. *SoK: A Literature and Engineering Review of Regular Expression Denial of Service*. <https://arxiv.org/abs/2406.11618>. 2024.
- [R-4] V. Purohit, W. Jiang, A.R. Ravikiran, and **J.C. Davis**. *A Partial Replication of MaskFormer in TensorFlow on TPUs for the TensorFlow Model Garden*. <https://arxiv.org/abs/2404.18801>. 2024.
- [R-5] W. Jiang, C. Cheung, G.K. Thiruvathukal, and **J.C. Davis**. *Exploring Naming Conventions (and Defects) of Pre-trained Deep Learning Models in Hugging Face and Other Model Hubs*. <https://arxiv.org/abs/2310.01642>. 2023.
- [R-6] V. Banna, A. Chinnakotla, Z. Yan, A. Vegesana, N. Vivek, K. Krishnappa, W. Jiang, Y.H. Lu, G.K. Thiruvathukal, and **J.C. Davis**. *An Experience Report on Machine Learning Reproducibility: Guidance for Practitioners and TensorFlow Model Garden Contributors*. <https://arxiv.org/abs/2107.00821>. 2021.

## POSTERS

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- [Ps-1] L. Franke, H. Liang, A. Brantly, **J.C. Davis**, and C. Brown. *A First Look at the General Data Protection Regulation (GDPR) in Open-Source Software*. Proceedings of the ACM/IEEE 46th International Conference on Software Engineering — Poster Track (**ICSE-Poster’24**).
- [Ps-2] S.R. Tanksalkar, J. Srinivasan, S. Danduri, P. Amusuo, **J.C. Davis**, and A. Machiry. *LeMix: Rehosting Embedded Systems at Linux Applications for Effective Vulnerability Detection*. 2024 Purdue CERIAs Symposium (**CERIAs’24**). *Award: Best Poster — 1st-place*.
- [Ps-3] K.G. Kalu, S. Torres-Arias, and **J.C. Davis**. *Navigating Software Supply Chain Risks: Practitioner Perspectives on Software Signing*. 2024 Purdue CERIAs Symposium (**CERIAs’24**).

- [Ps-4] T.R. Schorlemmer, W. Jiang, and **J.C. Davis**. *Machine Learning Supply Chain Security*. 2023 Purdue CERIAs Symposium (**CERIAs'23**). *Award: Best Poster — 2nd-place*.
- [Ps-5] W. Jiang, T.R. Schorlemmer, and **J.C. Davis**. *Trustworthy Re-use of Pre-trained Neural Networks*. 2023 Purdue CERIAs Symposium (**CERIAs'23**).
- [Ps-6] W. Maxam and **J.C. Davis**. *Plan for an evaluation of government cyber threat hunting processes*. 2022 Purdue CERIAs Symposium (**CERIAs'22**).
- [Ps-7] N. Hornbrook and **J.C. Davis**. *An Intercultural Engineering Module for Software Engineers*. 2021 Annual Colloquium for International Engineering Education (**ACIEE'21**).
- [Ps-8] N. Vivek, A. Chinnakotla, V. Banna, A. Vegesana, Z. Yan, **J.C. Davis**, Y.H. Lu, and G.K. Thiruvathukal. *Exemplars for Machine Learning: Towards Software Engineering & Reproducibility*. SIAM Conference on Computational Science and Engineering (**CSE'21**).

## COURSES DESIGNED\* OR RE-DESIGNED†

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|  |                      |
|--|----------------------|
| †ECE 461 – Software Engineering<br><i>Purdue University</i>          | Launched Fall 2021   |
| *ECE 595 – Advanced Software Engineering<br><i>Purdue University</i> | Launched Spring 2021 |
| †ECE 30862 – Software Engineering Tools<br><i>Purdue University</i>  | Revamped Fall 2021   |

## COURSES TAUGHT

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|  |  |
|--|--|
| ECE 461 – Software Engineering<br><i>Purdue University</i>   | Fall 2021, Spring 2023, Fall 2023, Fall 2024 |
| ECE 595 – Advanced Software Engineering<br><i>Purdue University</i>                                  | Spring 2021, Spring 2022, Spring 2024        |
| ECE 368 – Data Structures<br><i>Purdue University</i>  | Fall 2020                                    |
| Vertically Integrated Project: Open-Source TensorFlow Software<br><i>Purdue University</i>           | F20, S21, F21, S22, F22, S23, F23            |
| Vertically Integrated Project: Software Engineering w/Pre-Trained Models<br><i>Purdue University</i> | Spring 2024, Fall 2024                       |
| Vertically Integrated Project: SafeRegex<br><i>Purdue University</i>                                 | Fall 2020, Spring 2021                       |
| CS 3114 – Data Structures and Algorithms<br><i>Virginia Tech</i>                                     | Fall 2019                                    |
| CS 1064 – Introduction to Programming in Python<br><i>Virginia Tech</i>                              | Spring 2019                                  |
| Rising Sophomore Abroad Program (Track Leader)<br><i>Virginia Tech</i>                               | Spring 2018, Spring 2019                     |

## PHD AND MASTER'S STUDENTS

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### CURRENT

|  |     |  |
|--|-----|--|
| Wenxin Jiang                           | PhD | Spring 2021–present (will defend in Spring'25) |
| Paschal Amusuo                         | PhD | Fall 2021–present (will prelim in Spring'25)   |
| Dharun Anandayuvraj                    | PhD | Fall 2021–present                              |
| Purvish Jajal (with Y.H. Lu)           | PhD | Fall 2022–present                              |
| Kelechi Gabriel Kalu                   | PhD | Spring 2023–present                            |
| Berk Çakar                             | PhD | Fall 2024–present                              |
| Huiyun Peng                            | PhD | Fall 2024–present                              |
| Nicholas J. Eliopoulous (with Y.H. Lu) | PhD | Fall 2024–present                              |
| Daniel Lugo, US Space Force            | PhD | Fall 2024–present                              |
| Andrew Rozema                          | PhD | Fall 2024–present                              |
|  |     |  |
| Parth V. Patil                         | MSc | Spring 2024–present                            |
| Sofia Okorafor, US Navy                | MSc | Fall 2024–present                              |

### GRADUATED

|                               |     |             |
|-------------------------------|-----|-------------|
| Jason Jones                   | MSc | Spring 2024 |
| Taylor Schorlemmer, US Army   | MSc | Spring 2024 |
| William Maxam, US Coast Guard | MSc | Spring 2023 |
| Geoffrey Cramer               | MSc | Spring 2023 |

### INVITED TALKS

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|   |      |
|---|------|
| <b>Regular Expression Denial of Service: Past, Present, and Future</b>  | 2024 |
| <i>Dagstuhl seminar on “Regular Expressions: Matching and Indexing”</i>   |      |
| <b>Quick and Dirty or Slow and Steady? Two Techniques for Validating Embedded Software</b>                          | 2024 |
| <i>Rolls Royce Headquarters, Derby, UK</i>  |      |
| <b>Reusing Pre-Trained Neural Networks: A Software Engineering Perspective</b>                                      | 2024 |
| <i>The University of Arizona. Tucson, AZ</i>  |      |
| <b>Failure-Aware SW Development Lifecycles: Opportunities for Intra-/Inter-Org. Learning</b>                        | 2024 |
| <i>Purdue CERIAS External Advisory Board</i>  |      |
| <b>An Interview Study on Third-Party Cyber Threat Hunting Processes in the U.S. Department of Homeland Security</b> | 2024 |
| <i>Purdue CERIAS Annual Symposium</i>   |      |
| <b>Practices and Hazards in Reusing Pre-Trained Neural Networks: A SWEng Perspective</b>                            | 2024 |
| <i>Michigan Technical University. Houghton, MI</i>  |      |
| <b>Practices and Hazards in Reusing Pre-Trained Neural Networks: A SWEng Perspective</b>                            | 2023 |
| <i>Carnegie Mellon University. Pittsburgh, PA</i>   |      |
| <b>Software reuse practices and hazards in the pre-trained neural network supply chain</b>                          | 2023 |
| <i>The University of Notre Dame. South Bend, IN</i>   |      |
| <b>Missing Links in the Pre-Trained Neural Network Supply Chain</b>   | 2023 |

Argonne National Laboratories. Lemont, IL

|  |                   |
|--|-------------------|
| <b>Analysis of Failures and Risks in Deep Learning Model Converters<sup>4</sup></b><br><i>ONNX Community Meetup, NVIDIA Headquarters. Santa Clara, CA</i>  | 2023              |
| <b>Towards a Trustworthy Pre-Trained Neural Network Supply Chain</b><br><i>Loyola University Chicago. Chicago, IL</i>  | 2022              |
| <b>Challenges in Global Software Development</b><br><i>University of Wisconsin–Stout. Menomonie, WI</i>  | 2021              |
| <b>Regexes Awry: Characterizing and Defeating Regex-based Denial of Service</b><br><i>Clemson University. Clemson, SC</i>  | 2020              |
| <b>Regex-based Denial of Service</b><br><i>Clarkson University. Potsdam, NY</i>  | 2020              |
| <b>Improving Software Security Through Empiricism: A DoS Case Study in Regex</b><br><i>Colorado School of Mines. Golden, CO</i>  | 2020              |
| <b>Improving Software Security Through Empiricism: A DoS Case Study in Regex</b><br><i>Pennsylvania State University. State College, PA</i>  | 2020              |
| <b>Improving Software Security Through Empiricism: A DoS Case Study in Regex</b><br><i>University of Nebraska. Lincoln, NE</i>   | 2020              |
| <b>Improving Software Security Through Empiricism: A DoS Case Study in Regex</b><br><i>York University. Toronto, Canada</i>  | 2019              |
| <b>Regexes are Hard: Qualitative and Quantitative Perspectives</b><br><i>North Carolina State University. Raleigh, NC</i>  | 2019              |
| <b>The Dangers of Copy/Pasting Code</b><br><i>Episode of the Podcast “The Secure Developer”: <a href="https://tinyurl.com/DavisResearchPodcast">https://tinyurl.com/DavisResearchPodcast</a></i> | 2019              |
| <b>Regexes in the Wild</b><br><i>Virginia Tech. Blacksburg, VA</i>   | 2019              |
| <b>Academic Perspectives on Node.js</b><br><i>Node.js Collaborator Summit. Vancouver, Canada</i>   | 2018              |
| <b>International Engineering</b><br><i>Rising Sophomore Abroad Program, Virginia Tech. Blacksburg, VA</i>  | Annual, 2015–2019 |

## ACADEMIC SERVICE

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### REVIEWER: MAJOR CONFERENCE TECHNICAL TRACKS

|                            |            |
|----------------------------|------------|
| PC Member, ICSE            | 2025, 2026 |
| PC Member, USENIX Security | 2025       |
| PC Member, ESEC/FSE        | 2023, 2025 |
| PC Member, ASE             | 2021, 2024 |
| PC Member, ISSTA           | 2024, 2025 |

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<sup>4</sup>Joint presentation by me (virtual) and my student Purvish Jajal (physical).

## REVIEWER: JOURNALS

|  |              |
|--|--------------|
| Reviewer, Journal of Systems and Software (JSS)          | 2024–present |
| Reviewer, Journal of Online Trust & Safety (JOTS)        | 2023         |
| Reviewer, ACM Transactions on Software Engineering (TSE) | 2020–present |
| Reviewer, Springer Empirical Software Engineering (EMSE) | 2020–present |

## REVIEWER: OTHER SERVICE AS REFEREE (MINOR VENUES OR NON-TECHNICAL TRACKS)

|   |            |
|---|------------|
| PC Member, European Workshop on Systems Security (EuroSec)                              | 2024, 2025 |
| PC Member, IEEE SecDev  | 2024       |
| Reviewer, IEEE-CS SWEBOK Guide V4 (Guide to the Software Engineering Body of Knowledge) | 2024       |
| Reviewer, SANER–Early Research Achievement Track  | 2024       |
| PC Member, Twelfth Workshop on Education for High-Performance Computing (EduHPC)        | 2024       |
| PC Member, LCTES  | 2023       |
| Reviewer, SCAM–Engineering track  | 2023       |
| PC Member, ACM Workshop on Software Supply Chain Offens. Res. and Ecosystem Def.        | 2022, 2023 |
| Reviewer, ASE–Doctoral Symposium Track  | 2022       |
| Reviewer, ICSE–Demonstrations Track   | 2021       |
| Reviewer, ESEC/FSE–Artifact Track   | 2020, 2021 |
| Judge, CSAW’21 Best Paper Competition   | 2021, 2023 |
| Reviewer, CGO–Artifact Track  | 2019       |
| Sub-reviewer: Middleware’17, ASPLOS’18, EuroSys’18, MASCOTS’18, HPCA’19, CGO’19         | 2016–2019  |

## ORGANIZATIONAL SERVICE

|  |           |
|--|-----------|
| Co-Organizer, ICSE 2025 Student Mentoring Workshop (ICSE-SMeW) | 2024-2025 |
| Panelist and Mentor, ICSE student mentor program               | 2024      |
| Mentor, ICSE student mentor program                            | 2023      |

## NATIONAL SERVICE

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|  |      |
|--|------|
| US National Science Foundation, Panelist, CISE | 2025 |
| US National Science Foundation, Panelist, CISE | 2023 |

## DEPARTMENTAL SERVICE

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|  |           |
|--|-----------|
| ECE Representative on the College's Awards Selection Committee (graduate and postdoc awards) | 2025      |
| Lead for BSc.-Computer Engineering, Purdue ECE ABET Committee 5-year self-evaluation         | 2024–2025 |
| Organizer, Junior Faculty Peer Mentoring Teatime   | 2024      |
| Organizer, CAREER writing group  | 2024      |
| Organizer, Software Systems Reading Group  | 2024      |
| Member, Committee to Create MSc-Software Engineering   | 2024      |
| Breakout session discussion lead: LLMs in education — ECE ADVANCE                            | 2024      |
| Member, Purdue ECE Faculty Search Committee – Prof. of Practice in Software Engineering      | 2023–2024 |
| Member, Purdue ECE ABET Committee  | 2023      |
| Member, Purdue ECE Ad Hoc Faculty Search Committee   | 2023      |
| Member, Purdue ECE Faculty Search Committee — Software Engineering                           | 2022–2023 |
| Host, Computer Engineering Seminar Series — Dr. Joanna C. S. Santos (Notre Dame)             | 2022      |
| Host, Purdue Engineering Distinguished Lecture Series (PEDLS) — Dr. Nancy Leveson (MIT)      | 2022      |
| Member, Purdue ECE Undergraduate Curriculum Committee  | 2020–2022 |
| Panelist, CS@Virginia Tech Academic Jobs Panel   | 2021      |
| President, Virginia Tech CS Graduate Student Council   | 2018–2019 |
| Organizer, Virginia Tech Systems Reading Group   | 2017–2020 |

## SHORT COURSES AND WORKSHOPS ATTENDED

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|   |      |
|---|------|
| Dagstuhl seminar on “Regular Expressions: Matching and Indexing”  | 2024 |
| Generative AI Assistance in Grant Proposal Writing (Purdue University–Internal)                                       | 2024 |
| Inclusive Research as a Pathway to Broadening Participation and Instit. Excellence (NSF+ODIB)                         | 2024 |
| Leadership Skills for Engineering and Science Faculty (Leiserson and McVinney)  | 2024 |
| NSF Grand Challenges in Resilience Workshop, Purdue University  | 2023 |
| Tools to Foster Students' (Cross-)cultural Sensitivity in Engineering Ethical Decision-Making (ASEE'22, Clancy & Qiu) | 2022 |
| Effective College Teaching (Brent & Felder)   | 2020 |
| Intercultural Pedagogy Grant Training Program, Purdue CILMAR  | 2020 |

## PROFESSIONAL MEMBERSHIPS

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|   |                                   |
|---|-----------------------------------|
| Senior Member, Institute of Electrical and Electronics Engineers (IEEE) | <i>Elevated to Senior in 2022</i> |
| Member, Association for Computing Machinery (ACM)                       |                                   |
| Member, American Society for Engineering Education (ASEE)               |                                   |

## AWARDS AND RECOGNITION

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### FOR RESEARCH

|   |           |
|---|-----------|
| Best Paper Award, Software Engineering Division, ASEE 2024 (educational research) | 2024      |
| ACM Distinguished Paper Award, ESEC/FSE 2020                                      | 2020      |
| Second place, Grand Finals of the ACM Graduate Student Research Competition       | 2020      |
| First place, Graduate Student Research Competition, ESEC/FSE 2019                 | 2019      |
| ACM Distinguished Paper Award, ASE 2019   | 2019      |
| Pratt Fellowship, Virginia Tech College of Engineering                            | 2017–2019 |
| Davenport Fellowship, Virginia Tech College of Engineering                        | 2019      |
| Graduate Fellow, VT Academy for Global Engineering                                | 2019–2020 |
| Microsoft Security Researcher Acknowledgments (Regex DoS)                         | 2018      |
| IBM Significant Contributor Award (Node.js)                                       | 2018      |
| ACM Distinguished Paper Award, ESEC/FSE 2018                                      | 2018      |

### FOR TEACHING

|   |                    |
|---|--------------------|
| ECE's nominee for "COE Faculty Excellence Award in Exceptional Early Career Teaching"   | 2025               |
| Nominated for "HKN Outstanding Faculty Member" ( <i>did not win</i> )                   | 2023, 2024         |
| 2022 Ruth and Joel Spira Outstanding Teacher Award                                      | 2022               |
| One of the "Outstanding Engineering Teachers" (COE) ( <i>course evaluation scores</i> ) | F'21, S/F'22, S'24 |

### FOR SERVICE

|  |      |
|--|------|
| Recognized for "particularly helpful reviews" by the USENIX 2025 PC Chairs | 2024 |
| Nominated for "Purdue Favorite Faculty Award" ( <i>did not win</i> )       | 2024 |
| ASE 2021 Distinguished PC Member Award                                     | 2021 |
| Outstanding Graduate Student Service Award, CS@VT                          | 2020 |

### FOR MENTORING

|  |      |
|--|------|
| Outstanding Faculty Mentor — School of Electrical & Computer Engineering | 2024 |
| VIP Outstanding Team Mentor Award, Purdue TensorFlow Team                | 2021 |