Brian Krupp

Assistant Professor
Department of Computer and Data Science
Case Western Reserve University
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Education

Doctor of Engineering May 2015
Cleveland State University, Cleveland OH
Advisors: Dr. Wenbing Zhao and Dr. Nigamanth Sridhar
Dissertation: Enhancing Security and Privacy for Mobile Systems

Master of Science in Computer and Information Science May 2010
Cleveland State University, Cleveland OH
Advisor: Dr. Timothy Arndt
Thesis: Exploration of Dynamic Web Page Partitioning for Increased Web Page Delivery Performance

Bachelor of Science in Computer Information Systems May 2005
Baldwin-Wallace College, Berea OH

Academic Experience

Assistant Professor of Computer Science July 2024 to Present
Case Western Reserve University, Cleveland OH

Associate Professor of Computer Science August 2021 to July 2024
Baldwin Wallace University, Berea OH

Assistant Professor of Computer Science August 2015 to July 2021
Baldwin Wallace University, Berea OH

Graduate Assistant Spring 2014
Cleveland State University, Cleveland OH

Graduate Assistant / Research Assistant Spring 2013
Cleveland State University, Cleveland OH

Research Assistant Fall 2012
Cleveland State University, Cleveland OH

Lecturer Spring 2012
Baldwin-Wallace College, Berea OH

Teaching Assistant Fall 2011
Cleveland State University, Cleveland OH

Industry Experience

Hyland Software   May 2012 - Jul 2015
Software Developer and Software Architect
Developed iPhone, iPad, and Android applications that integrated with OnBase web services. Developed web services to be consumed by mobile applications using WCF. Architected various mobile solutions including offline access and multi-factor authentication. Partnered with human resources and development department to create community outreach programs including tech clubs, tech camps, innovation showdown, and more.

Key Bank   May 2005 - May 2012
Enterprise Solution Architect
Designed architecture for key projects within community bank portfolio including UCM and SIP. Ensured new software solutions followed current architecture and enterprise standards. Assisted in creation of multi-year roadmaps for applications and technology within community bank portfolio.

Information Security Consultant
Performed web application penetration testing, security code reviews, and trained development teams on secure coding practices. Provided consulting on security of web applications being developed or purchased.

Distributed Systems Engineer
Lead engineer for PCI compliance in areas of logging and file integrity monitoring for entire bank. Lead engineer for security information and event management (SIEM) platform. Supported engineering of HSM, PKI, and centralized password management system. Lead engineer for Ab Initio platform and designed enterprise architecture for ETL platform. Part of team of architects for Tivoli Access Manager platform which provided SSO and additional security to both external and internal web applications. Designed and developed several LAMP based applications that utilized a C API from IBM to view and manage environment, perform intrusion detection across WebSEAL servers, and troubleshoot Ab Initio environment. Provided formal Unix/Linux, Shell Scripting, and Introduction to Web Development Classes.

Global eXchange Services   Jan 2003 - May 2005
Technical Analyst
Responsible for ensuring 100% uptime of open systems and network environment. Administered RedHat, Solaris, AIX, and HP-UX servers. Troubleshoot and maintained network including Cisco routers, switches, and proprietary network equipment. Developed problem management, change management, and client tracking web applications.

Certifications

- Linux Foundation / OpenSSF Developing Secure Software (2024)
- Advanced Inclusive Mentoring (AIM) (2023)
- CompTIA Certified Document Imaging Architect (CDIA+) (2012)
- AIIM Electronic Content Management Practitioner (ECMp) (2012)

Professional Society Memberships

- Association of Computing Machinery (ACM) Professional Member (2015 - Present)
- Association of Computing Machinery (ACM) Special Interest Group in Computer Science Education (SIGCSE) Member (2015 - Present)

- Association of Computing Machinery (ACM) Special Interest Group on Mobility of Systems, Users, Data, and Computing (SIGMOBILE) Member (2015 - Present)
- Association of Computing Machinery (ACM) Special Interest Group on Computers & Society (SIGCAS) Member (2020 - Present)
- Association of Computing Machinery (ACM) Special Interest Group on Computer–Human Interaction (SIGCHI) Member (2024 - Present)

Honors and Awards

- ACM SpatialConnect 2025 Best Community Impact Paper Award (2025)
- Incarnate Word Academy Community Partner Volunteer of the Year (2024)
- Recipient of BW Gigax Faculty Scholarship Award (2023)
- Recipient of BW Excellence in Community Engagement Award (2019)
- Center for Innovation and Growth (CIG) Champion at Baldwin Wallace University (2018-2021)
- Recipient of Cleveland State University Doctoral Research Award (2013 - 2014)
- IEEE ETA KAPPA NU (HKN) Honor Society (Inducted Spring 2013)
- Beta Gamma Sigma AACSB Honor Society (Inducted Spring 2010)
- Multiple recipient of HONK award at Key Bank (2005-2009)
- Recipient of Award of Excellence and Night on Town Award at Global eXchange Services (2004)

Peer-Reviewed Publications

Student co-authors are italicized.
- Brian Krupp, Jonathon Fagert, *Chentao Fan*, *Isabelle Zhang*, and *Dorian Hawkins*. 2025. AQIoT: Partnering with Community Organizations to Provide Fine-Grained Air Quality Data. In Proceedings of the 1st ACM SIGSPATIAL International Workshop on Spatial Intelligence for Smart and Connected Communities (SpatialConnect '25). (Best Community Impact Paper Award, Nominated for Best Paper Award)
- Brian Krupp, Jonathon Fagert. "An IoT Sensing After-School Program - Impacts on Belonging and Confidence in Middle School Students". In Proceedings of the 56th ACM Technical Symposium on Computer Science Education (SIGCSE '25) (Poster)
- *Alexandria Macko-Dobrovic, Justin Verhosek, Joshua Buxton,* Brian Krupp. "Comparative Analysis of LoRa Antennae for Low-Cost IoT Deployments". 2024 International Symposium on Networks, Computers and Communications (ISNCC 24).
- *Julia Gersey*, Brian Krupp, Jonathon Fagert. "Pilot Study of Deploying IoT Micro Air Quality Sensors in an Urban Environment: Lessons Learned". 2023 ACM Midwest CCSC.
- Brian Krupp, J*ulia Gersey*, Jonathon Fagert, *Tony Mlady*. "Towards Fine-Grained Air Quality Sensing in Urban Environments". 2022 ACM Conference on Embedded Networked Sensor Systems (SenSys 2022). (Poster)
- Brian Krupp, *Julia Gersey*, Franklin Lebo. "Campus Plate: Connecting Students on College Campuses to Reduce Food Waste and Food Insecurity". 2022 International Conference on Research in Adaptive and Convergent Systems (ACM RACS 2022).
- Brian Krupp. "Fine-Grained Air Quality Monitoring with Low-Cost Sensors and IoT: Trends, Challenges, and Future Directions". 2022 7th International Conference on Smart and Sustainable Technologies (SpliTech 2022).
- Brian Krupp, Franklin Lebo. 2022. Note: Campus Plate: Reducing Food Waste and Food Insecurity on College Campuses using Smartphones. 2022. ACM Computing and Sustainable Societies (COMPASS 2022). (Poster)
- Brian Krupp. 2022. Rethinking the Limits of Mobile Operating System Permissions. In: Garcia-Alfaro J., Muñoz-Tapia J.L., Navarro-Arribas G., Soriano M. (eds) Data Privacy Management, Cryptocurrencies and

Blockchain Technology. DPM 2021, CBT 2021. Lecture Notes in Computer Science, vol 13140. Springer, Cham

- Brian Krupp, *Malik Matthews*, and *Josh Hadden*. 2021. An Analysis of Strengths and Weaknesses of TLS Utilization in iOS Applications. 2021 Fourteenth International Workshop on Selected Topics in Mobile and Wireless Computing (STWiMob 2021).
- Brian Krupp, *Josh Hadden*, and *Malik Matthews*. 2021. An Analysis of Web Tracking Domains in Mobile Applications. In 13th ACM Web Science Conference 2021 (WebSci '21),
- Brian Krupp, *Emily Timko, Kyle Cox, William Hicks, Malik Bursey* and *Christopher Banfield*. 2021. "EMPAware: Analyzing Changes in User Perceptions of Mobile Privacy on iOS with Enhanced Awareness". 7th ACM International Workshop on Security and Privacy Analytics.
- *Sydney Leither, Terrell McDowell,* and Brian Krupp. 2021. "Measuring Student Confidence from Tech Camp Participation." In Proceedings of the 52nd ACM Technical Symposium on Computer Science Education (SIGCSE '21) (Poster)
- Brian Krupp, *Sydney Leither, Zack Egler, Tyler Hardy, Paul Peters.* 2019. "CS+ Creating a Community Outreach Group in Computing from the Ground Up". Journal of Computer Science Colleges. (October 2019)
- Brian Krupp, Andrew Watkins. CS0: Introducing Computing with Raspberry Pis. Proceedings of the 50th ACM Technical Symposium on Computer Science Education (SIGCSE '19)
- Brian Krupp, *Paul Peters, Tyler Hardy, Sydney Leither,* and *Zach Egler*. 2019. Every Little Bit Counts: Experiences and Lessons Learned Building a Community Outreach Program from the Ground Up. Proceedings of the 50th ACM Technical Symposium on Computer Science Education (SIGCSE '19) (Poster)
- Brian Krupp, *Tyler Rupert, Georgina Hasrouni, Bryan Istenes*, and *Kurt Wolfe*. 2018. "Tready: a privacy centric open source home security system". J. Comput. Sci. Coll. 34, 1 (October 2018), 24-33.
- B. Krupp, *D. Jesensky* and *A. Szampias,* "SPEProxy: Enforcing fine grained security and privacy controls on unmodified mobile devices," 2017 IEEE 8th Annual Ubiquitous Computing, Electronics and Mobile Communication Conference (UEMCON), New York City, NY, USA, 2017, pp. 520-526.
- Brian Krupp, Nigamanth Sridhar, and Wenbing Zhao. "SPE: Security and Privacy Enhancement Framework for Mobile Devices", IEEE Transactions on Dependable and Secure Computing. vol. 14, no. 4, pp. 433-446, July-Aug. 1 2017.
- Brian Krupp, Nigamanth Sridhar, and Wenbing Zhao. "An Ontology for Enforcing Security and Privacy Policies on Mobile Devices." Proceedings of the 6th International Conference on Knowledge Engineering and Ontology Development (KEOD'14). October 21–24, 2014. Rome, Italy.
- Brian Krupp, Nigamanth Sridhar, and Wenbing Zhao "A Framework for Enhancing Security and Privacy on Unmodified Mobile Operating Systems", in Proceedings of MCSC Workshop on 33rd International Conference on Distributed Computing Systems (ICDCS) 2013
- Brian Krupp, Nigamanth Sridhar, and Wenbing Zhao "A Survey of Security and Privacy Protection in Mobile Devices", IGI Encyclopedia of Information Science and Technology 3rd Edition.
- Brian Krupp and Timothy Arndt "An Implementation of a Dynamic Partitioning Scheme for Web Pages", IJCSI Volume 9, Issue 3 May 2012
- Brian Krupp and Timothy Arndt "Dynamic Web Page Partitioning and Concurrent Retrieval for Improved Web Browser Response", in Proceedings of IADIS e-Society 2011, Avila, Spain, March 10-13, 2011

Other Publications

- "Privacy Focused Companies, How Focused Are They?". ACM SIGCAS Computers and Society. Volume 51, 3. Published December 2022.
- "A tap away -- tips on protecting your smartphone privacy: Brian Krupp". cleveland.com. Published February. 27, 2022 (https://www.cleveland.com/opinion/2022/02/a-tap-away-tips-on-protecting-your-smartphone-privacy-brian-krupp.html)

- "Data Ownership in Software Applications". ACM SIGCAS Computers and Society. Volume 50, 3. Published December 2021.
- "Security lapse another avoidable blemish for Facebook". The Columbus Dispatch. Published April 2019. https://www.dispatch.com/story/opinion/columns/2019/04/23/security-lapse-another-avoidable-blemish/5368334007/
- "Privacy Scandals Don't Harm Profit: The Case for Regulation". CMSWire. Published February, 2019. https://www.cmswire.com/digital-experience/privacy-scandals-dont-harm-profit-the-case-for-regulation/
- Brian Krupp. "Memory Leaks in iOS 7 - iOS Networking APIs are leaking memory. The good news: You can stop them." 2014. Dr. Dobb's. http://www.drdobbs.com/architecture-and-design/memory-leaks-in-ios-7/240168600

Research Grants

Funded External
- NSF & SCC-PG: Leveraging Community Partners and IoT Based Sensors to Improve Localized Air Quality Monitoring in Communities (2023) PI: Brian Krupp, CoPI: Jonathon Fagert. Amount: $146,676 (Funded)
- EPA People, Prosperity and the Planet (P3) - As Co-PI, grants funding research into the creation of a mobile platform to reduce food waste and hunger on college campuses. (2020-2021) PI: Brian Krupp. Co-PI: Frank Lebo. Amount: $24,180 (Funded)
- Friends of Slavic Village Grant - Grant funded a week-long robotics camp taught at Mound STEM Middle School (2019). PI: Brian Krupp. Amount: $500.00 (Funded)
- Google Cloud Platform Education Grant - Funded cloud computing costs for research in mobile security and privacy (2016) PI: Brian Krupp. Amount: GCP Credits (Funded)

Unfunded External
- EPA P3 - Phase Two Campus Plate. (2023). PI: Brian Krupp, Franklin Lebo. Amount: $99,552.00. (Unfunded)
- Development and Deployment of Low-Cost Dark Zone Illuminator (DZI)™ Air Quality Sensor for Underserved Communities. Dominion Energy Environmental Education and Stewardship Grant. (2021). PI: Brian Krupp, Franklin Lebo. Amount: $49,829. (Unfunded)
- NSF CRII: Providing Comprehensive Security and Privacy Controls for Unmodified Mobile Operating Systems. (2016). PI: Brian Krupp. Amount: $164,467. (Unfunded)
- NSF CRII: Providing Comprehensive Security and Privacy Controls for Unmodified Mobile Operating Systems. (2015). PI: Brian Krupp. Amount: $111,010. (Unfunded)

University Grants
- BW Summer Grant - Partnering with California State on Training in Inclusive Research Mentoring (2023). Amount: $1,000. PI: Brian Krupp. (Funded)
- BW Summer Grant - Creation of Artificial Intelligence and Ethics Course (2022). Amount: $2,000. Co-PIs: Brian Krupp, Kelly Coble, Jennifer Perry. (Funded)
- BW Domestic Travel Grant - Funded travel costs to conference for presenting accepted work. (2019). Amount: $762.30. PI: Brian Krupp. (Funded)
- BW Summer Grant - Supporting Undergraduate Research in Mobile Security and Privacy (2016) Amount: $4,000. PI: Brian Krupp. (Funded)
- BW Domestic Travel Grant - Funded travel costs to conference for presenting accepted work. (2018) Amount: $776.46. PI: Brian Krupp. (Funded)
- CSU Dissertation Research Award - Funded research in enhancing security and privacy for mobile computing systems (2013). Amount: $3,000. PI: Brian Krupp (Funded).

Invited Talks

- "AI: The Good, The Bad, and the Ethics: A Panel Discussion". Burrell Observatory Lecture Series. February 2024.
- "Digital Privacy - How secure is your on-line life?". Baldwin Wallace STEM Scholars. November 2023.
- "The Influence of Generative AI on Pedagogy and Assessment in Computing Education". ACM Midwest CCSC Conference. October 2023.
- "EPA P3 Funded Project to Build App to Address Food Waste and Insecurity on College Campuses". Association for the Advancement of Sustainability in Higher Education (AASHE). February 2022.
- "Campus Plate — Reducing Food Waste and Food Insecurity on College Campuses". ACM SIGCAS Computers and Society Work in Progress Webinar. February 2022.
- "Mobile Security and Privacy" Cleveland (ISC)[2] Meeting. March 2019.
- "Nifty Tools: Using Bear and Trello to Manage Academic Demands." ACM Midwest CCSC 2018. Muncie, IN. September 2018.
- "Augmenting Mobile Security and Privacy Controls." BSides Cleveland Security Conference, Cleveland OH. June 2015.

Teaching Experience

Case Western Reserve University
- CSDS 344/444 Computer Security (F24, S25, F25)
- CSDS 392 App Development for iOS (S25)
- CSDS 345 Programming Language Concepts (F24, F25)
- CSDS 448 Smartphone Security (S25)

Baldwin Wallace University
- CSC 135 Web Site Design (F15, S16, F16, S17)
- CSC 141 Advanced Applications for Information Analysis (F15)
- CSC 160 Intro to Computer Science (F17, F18. F19, F20)
- CSC 210 Computer Science 1 (F17, S17, F18, F22)
- CSC 240 Object Oriented Programming (F17, S18, F18, S19, F19, S20, F20, S21, S23, S24)
- CSC 263 Artificial Intelligence: Ethics and Societal Impacts (F22)
- CSC 263 Internet of Things (S23)
- CSC 275 Information Security Privacy and Ethics (S16)
- CSC 291 Computer Science Research Methods (F20, F21, F22, F23)
- CSC 320 Computer Architecture and Organization (S16, S17, S18, S24)
- CSC 325 Intermediate Programming (F16)
- CSC 330 Mobile and Web Programming (S17, S18, S19, S20, S21, S23, S24)
- CSC 400 Operating Systems (F15, F16, F17, F18, F19, F20, F21, F22, F23)
- CSC 411 Comparative Programming Languages (F21, F23)

Cleveland State University
- EEC 484/584 Computer Networks (S14, S13)
- EEC 492/592 iPhone Application Development (S11)

Professional Activities and Service

University Service

Case Western Reserve University
- Faculty Advisor to CASLab (2024-Current)
- Faculty Advisor to CyberCWRU (2024-Current)
- Serve on CDS Undergraduate Affairs Committee (2024-Current)
- Faculty Advisor for Choose Ohio First Program at CWRU (2024-Current)
- Created New Course CSDS 449 - Secure Software Development (2025)
- Serve as Judge for Inaugural Programming Competition at CWRU (2025)

Baldwin Wallace University
- Faculty Advisor to CS+ Computer Science Community Outreach Group (2015-2024)
- Faculty Advisor to MOPS Research Group (2015-2024)
- Serve on Research and Scholarly Activity Advisory Council (2022-2024)
- Serve as Faculty Fellow for Student Success at Baldwin Wallace University (2017-2024)
- Serving as Representative to Civic Learning Advisory Council (2020 - 2024)
- Founding Faculty Fellow of BusinessWorks Program at Baldwin Wallace (2018-2019)
- Served as Chair of Faculty Development Committee (2017-2018)
- Served as Member of Faculty Development Committee (2016-2017)
- Presented at New Faculty Information Session at Baldwin Wallace University (2018)
- Served as Service Learning Faculty Fellow (2017)
- Participated in "Assessment Palooza" for Writing Assessment (2017)
- Recorded Meeting Minutes for School of Natural Sciences, Mathematics, and Computing (2017-2018)
- Recorded Meeting Minutes for CS Department (2015-2018)
- Served as Faculty Advisor for Lambda Chi Alpha Fraternity (2017-2018)
- Participated in Center of Teaching Excellence Interest Group (2017)

Professional Service
- Chair SIGCAS Work In Progress Sessions (2023 - Present)
- Serve as Reviewer for ACM Journal on Computing and Sustainable Societies (2024)
- Served as Reviewer for ACM SIGCSE (2018, 2021, 2022, 2023)
- Served as Reviewer for AACU STEM 2021 Virtual Conference on Transforming STEM Higher Education (2021)
- Served as Session Chair for IEEE UEMCON (2017)
- Served as Reviewer for IEEE Potentials (2016)
- Served as Session Chair for ACM SIGCSE (2016)
- Served as Grace Hopper Conference (GHC) Scholarship Application Reviewer (2016)
- Reviewer for IEEE Transactions on Emerging Topics in Computing (2014)
- Reviewer for IGI Global Chapter "Encyclopedia of Information Science and Technology" (2012)

Community Service
- Serve on Incarnate Award Academy Advisory Board (2023-Present)
- Serve on Cuyahoga Valley Career Center Advisory Board (2014-Present)
- Provide Tech Camps on Various Community Topics Through CS+ (2015-Present)
- Partnered with Boys and Girls Club and Slavic Village to Host Robotics Camp at Mound STEM in CMSD with Grant Awarded from "Friends of Slavic Village" (2019)
- Partnered with Boys and Girls Club and Slavic Village to host Tech Club "The Hive" at Mound STEM in CMSD (2018-2019)
- Partnered with Cuyahoga Hills Juvenile Correction Center to Host Programming Camp (2019)
- Presented to Cuyahoga Hills Juvenile Correction Center on Time and Purpose (2018)
- Assisted in Hosting TechCorps Coding Camp (2016, 2017, 2018)

- Provided Robotics and Web Development Camp for YWCA Warren (2018)
- Provided Coding Workshop for Minds Matter Program (2017, 2018)
- Served on RITE Board and Assist with Strategy for High School Programs (2016-2020)
- Presented to National Computer Camp at Baldwin Wallace (2016)
- Participated in Panel for Tech Talk for OHTech Tech Week (2016)
- Partnered with Tech Corps to Create Curriculum for High School Programming Camp (2014-2015)