

BRIAN ROBERT CALLAHAN

Curriculum vitae

email: callab3rpi@gmail.com

<https://briancallahan.net/>

EDUCATION

- Ph.D.** Science & Technology Studies, Rensselaer Polytechnic Institute, Troy, NY
August 2018
Dissertation: *Complexities of Collaboration: An Open Source Story*
Dissertation Advisor: Mike Fortun
- MS** Science & Technology Studies, Rensselaer Polytechnic Institute, Troy, NY
December 2015
- MA** Anthropology, Monmouth University, West Long Branch, NJ
August 2014
Thesis: *From Basson to Fagott: Evolution vs. Revolution*
Thesis Advisor: William P. Mitchell
- BHA** Music Performance & Anthropology, Carnegie Mellon University, Pittsburgh, PA
May 2009
College Honors
University Honors

RESEARCH AND TEACHING INTERESTS

Business and social cases for Cybersecurity
Intersections of Cybersecurity and Generative AI, particularly the limitations of AI
Intersections of Cybersecurity and Quantum computing, privacy and cryptography
Cloud security
Toolchain (compiler, assembler, linker) based security mitigations
Interaction of Cybersecurity in everyday life
Improving Cybersecurity awareness for the non-expert
Secure coding techniques
Digital humanities, particularly technical stewardship of infrastructure
Amateur radio communications protocols

REFEREED PUBLICATIONS

Journal Articles

Callahan, Brian Robert, Charles Hathaway, and Mukkai Krishnamoorthy. 2016.
“Quantitative Metrics for Generative Justice: Graphing the Value of Diversity.”
Teknokultura 13(2): 567-586.

Book Chapters

Fortun, Mike, Lindsay Poirier, Alli Morgan, **Brian Callahan**, and Kim Fortun. 2021. “What’s so funny ‘bout PECE, TAF, and Data Sharing?” In *Collaborative Anthropology Today: A Collection of Exceptions*, edited by Dominic Boyer and George E. Marcus, Pp. 115-140. Cornell University Press.

Eglash, Ron, William Babbitt, Audrey Bennett, Kathryn Bennett, **Brian Callahan**, James Davis, John Drazen, et al. 2016. "Culturally Situated Design Tools: Generative Justice as a Foundation for STEM Diversity." In *Moving Students of Color from Consumers to Producers of Technology*, edited by Yolanda Rankin and Jakita Thomas, Pp. 132-151. Hershey, PA: IGI Global.

Conference Proceedings

Callahan, Brian Robert. 2016. "SocialBSD: A Review of Diversity and Inclusivity Initiatives in the *BSD Community and Imagining Future Pathways." *Proceedings of AsiaBSDCon 2016*: 167-176.

AMATEUR RADIO PUBLICATIONS

Callahan, Brian Robert and Zhemin Zhang. 2023. "An AI-powered transcription bot for FM transmissions." *QEX 336* (January/February 2023): 25-30.

Zhang, Zhemin and **Brian Robert Callahan**. 2022. "Preliminary analysis of an AI-powered transcription bot for FM transmissions." *Proceedings of the 41st Annual ARRL and TAPR Digital Communications Conference (DCC)*: 116-125.

Callahan, Brian Robert. 2022. "A first commentary on the CW Record Protocol." *QEX 334* (September/October 2022): 19-22.

Callahan, Brian Robert. 2022. "Experiments in gaming over SSTV." *QEX 333* (July/August 2022): 25-29.

Callahan, Brian Robert. 2022. "DataTV: A protocol for embedding data into SSTV transmissions." *QEX 331* (March/April 2022): 25-28.

Callahan, Brian Robert. 2021. "Protocol for Formatting and Transmitting Binary Data over Morse CW." *QEX 326* (May/June 2021): 31-33.

GRANTS/AWARDS WON

- | | |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2024 | Teaching and Learning Collaboratory Seed Grant: <i>The world's first cybersecurity VR CTF: A joint venture between RCC and RCOS</i>
Rensselaer Polytechnic Institute, Brian Callahan, PI
Wes Turner, Co-PI |
| 2022 | Earth Science Information Partners (ESIP) 2022 FUNding Friday Award:
<i>Next Generation Tools for Democratizing Data Exploration with NASA Data Pathfinder</i>
Earth Science Information Partners, Brian Callahan (RPI), PI
Elizabeth R. Joyner (NASA), Thilanka Munasinghe (RPI), Kathy Fontaine (RPI), Ross Bagwell (NASA), co-PIs |
| 2020 | Teaching and Learning Collaboratory Seed Grant: <i>The Rensselaer Cybersecurity Collaboratory</i>
Rensselaer Polytechnic Institute, Brian Callahan, PI |

RESEARCH EXPERIENCE

2022-present	Director, Rensselaer Cybersecurity Collaboratory (RCC) Rensselaer Polytechnic Institute, Brian Callahan, PI
2022-present	Co-Director, Rensselaer Blockchain Center of Excellence (BCCoE) Rensselaer Polytechnic Institute, Rick Plotka, PI
2020-present	CISO, Platform for Experimental and Collaborative Ethnography (PECE) University of California, Irvine, Kim Fortun, PI
2015-present	Lead Open Knowledge Developer, Platform for Experimental and Collaborative Ethnography (PECE) University of California, Irvine, Kim Fortun, PI
2015-present	Lead Systems Administrator, Platform for Experimental and Collaborative Ethnography (PECE) University of California, Irvine, Kim Fortun, PI
2020-2022	Director, Cybersystems Security Research Group Rensselaer Polytechnic Institute, Brian Callahan, PI
2014-2016	Fellow, GK-12/3Helix Rensselaer Polytechnic Institute, Ron Eglash, PI

SCHOLARLY OUTPUTS

2022-present Founder & Director, Rensselaer Cybersecurity Collaboratory (RCC)
The RCC is a research laboratory focusing on cybersecurity research for graduate and undergraduate students, and undergraduate cybersecurity pedagogy development. Its ultimate goals are to bolster RPI's cybersecurity research portfolio and to attain the National Centers for Academic Excellence in Cybersecurity (NCAE-C) designation in Cyber Defense (CAE-CD). RCC puts cybersecurity and educational leadership in the hands of students.

The RCC is the sponsor of RPI's premier CTF team. We have been [ranked the top university in the nation](#) in the [Cyber Skyline](#) + [National Cyber League](#) Cyber Power Rankings for the Fall 2023 season, with two fourth place rankings in the [Spring 2024](#) and [Spring 2023](#) seasons, alongside strong finishes in other CTFs.

Along with RPI DotCIO, the RCC is the host of the ISC2 Capital District NY Chapter.

RCC publications, conference presentations, and invited talks

2024 Callahan, Brian and Shoshana Sugerman. 2024. "Benefits and Limitations of Generative AI for Cybersecurity Awareness Training." ISC2 Security Congress 2024: Boldly Forward. Oct. 14-16, 2024.

2024 "Using Generative AI to enhance cybersecurity awareness training capabilities,

redux" (with Shoshana Sugerman), ISC2 Central New York Chapter, Utica, NY, Jul. 23, 2024.

- 2024** Callahan, Brian and Shoshana Sugerman. 2024. "Using Generative AI to enhance cybersecurity awareness training capabilities." 26th Annual New York State Cybersecurity Conference. Jun. 4-5, 2024.
- 2024** Colognato, Quinn and Brian Callahan. 2024. "From zero to the top in 18 months: How to get involved with CTFs, grow your skills, celebrate your successes, and enjoy every moment of it." BSides Buffalo 2024. Jun. 1, 2024.
- 2024** Schilp, Keenan, Hannah Rose, Emily Goldman, and Brian Callahan. "RSA in the Quantum Era: A Cryptographic Exploration." Regeneron Capital Region College Poster Showcase. Apr. 19, 2024.
- 2024** Mehta, Aanya, Shoshana Sugerman, Quinn Colognato, Kaitlin Kaii, Angela Imanuel, Sanya Joseph, and Brian Callahan. "LLM Quantum Leap: Revolutionizing Generative AI with Quantum Power." Regeneron Capital Region College Poster Showcase. Apr. 19, 2024.
- 2024** "Limitations of Generative AI in the development of a cybersecurity awareness training program for a university" (with Shoshana Sugerman, Sanya Joseph, and Sari Lewis), Leet Cyber Security CyBeer Meetup, Apr. 16, 2024.
- 2024** Schilp, Keenan, Hannah Rose, Emily Goldman, and Brian Callahan. "RSA in the Quantum Era: A Cryptographic Exploration." RPI Quantum Computing: Building the Stack. Apr. 3-5, 2024.
- 2024** Mehta, Aanya, Shoshana Sugerman, Quinn Colognato, Kaitlin Kaii, Angela Imanuel, Sanya Joseph, and Brian Callahan. "LLM Quantum Leap: Revolutionizing Generative AI with Quantum Power." RPI Quantum Computing: Building the Stack. Apr. 3-5, 2024.
- 2024** Bailey, Alecia and Emily Goldman. 2024. "Enhancing Cyber Risk Assessment Training in Healthcare: A Pathway to Improved Patient Safety." RCC Research Whitepaper Series.
- 2024** Hannert, Sydney. 2024. "Toxicity and Women in Competitive Video Games." RCC Research Whitepaper Series.
- 2023** "Limitations of AI for Cybersecurity Training" (with Ayah Tharwat), ISC2 Central New York Chapter, Utica, NY, Nov. 14, 2023.
- 2023** "Building a targeted, effective, university cybersecurity awareness training program--by your students!" (ISC)² Central New York Chapter, Utica, NY, Jun. 20, 2023.

RCC-sponsored research projects

2024 On the desirability of quantum processing for Generative AI

2024 Evaluating cryptography breaking quantum algorithms

2024 Ethical limitations and best practices for Generative AI in Cybersecurity
Awareness Training for a major university

2024 Development of cloud security usage policies for universities

2023-2024 A policy for secure systems administration best practices and secure coding
standards for RPI club websites

2023-2024 Review and extension of anti-ROP mitigations as found in OpenBSD for
other operating systems
Advisee: Ryan Zhou (graduate, ITWS)

2023-2024 Reverse engineering of off-the-shelf SOHO wifi router firmware

2023 Healthcare Information Systems Security Governance
Advisee: Alecia Bailey (graduate, ITWS)

2023 Use of AI for Cybersecurity Awareness Training development and implementation
Advisee: Ayah Tharwat (graduate, Lally School of Business)

2023 Privacy and safety for women and other gender minorities in online gaming
spaces

2023 Next-generation cybersecurity pedagogy

2023 Security enhancements to production C/C++ compilers to defeat ROPchains

2022 Novel AI/ML systems to improve IDS/IPS anomaly detection accuracy

RCC-sponsored educational activities

Ongoing Cybersecurity certification preparation

36 students earned ISC2 CC certification.

*9 students earned Microsoft Security, Compliance, and Identity Fundamentals
(SC-900) certification.*

4 students earned CompTIA Security+ certification.

3 students earned GIAC GFACT certification.

2 students earned ISC2 SSCP certification.

Ongoing Penetration testing of RPI club websites.

Ongoing Developed cybersecurity awareness training for RPI students, staff, and
faculty.

Ongoing Developed cybersecurity best practices digital signage, posted around campus.

Ongoing Coach and Faculty advisor for CTF teams.

Ongoing Weekly CTF learning meetings, 50+ students from all majors regularly attending.

2024 2 students invited to participate in the inaugural UAS Hack.
Assured Information Security (AIS), Rome, NY. <https://uashack.org/>

2024 1 student invited to apply for a position on the inaugural US Women's Cyber Team.
US Cyber Games. <https://www.uscybergames.com/>

2024 1 student invited to participate in the Season IV US Cyber Combine.
US Cyber Games. <https://www.uscybergames.com/>

2024 Enrolled 2 students into the US DoD Cyber Sentinel Skills Challenge.
*Individuals placed **32nd** and 177th.*

2024 Enrolled 42 students into the National Cyber League Spring 2024 season.
[Ranked **4th** in the nation in NCL Power Rankings.](#)
*Teams placed **3rd**, **16th**, 138th, 209th, 299th, 308th, and 401st out of 4199 teams.*
*Individuals placed **23rd**, **88th**, **117th**, **189th**, 209th, 286th, 301st, 315th, 348th, 367th, 422nd, 427th, and 434th out of 7404 entrants.*

2024 Enrolled 8 students into the UConn CyberSEED 2024 CTF competition.
*Teams placed **6th** (\$500 prize) and 28th.*

2023 Enrolled 27 students into the National Cyber League Fall 2023 season.
[Ranked **1st** in the nation in NCL Power Rankings.](#)
*Teams placed **4th**, **83rd**, 237th, and 320th out of 4680 teams.*
*Individuals placed **2nd**, **123rd**, **143rd**, **152nd**, 379th, and 391st out of 7926 entrants*

2023 Participated in Sunshine CTF 2023.
*Placed **23rd** out of 821 teams. (Top 3%)*

2023 Participated in CSAW Qualifiers 2023.
Placed 41st in US region.

2023 Enrolled 13 students into the National Cyber League Spring 2023 season.
[Ranked **4th** in the nation in NCL Power Rankings.](#)
*Team placed **4th** out of 3593 teams.*
*Individuals placed **3rd** and 226th out of 6278 entrants.*

2023 Enrolled 4 students into the UConn CyberSEED 2023 CTF competition.

17th place. (Top 9%)

2022 Enrolled 14 students into the National Cyber League Fall 2022 season.
*Teams placed **48th** and 239th out of 3926 teams.*
Individual placed 266th out of 6679 entrants.

2022-present Faculty Co-Director, Microsoft Azure Cloud Computing Initiative
This initiative, led by the Information Technology & Web Science program, provides free Microsoft Azure Cloud resources to all ITWS students for use in courses and personal/professional use.

Contributions: Faculty Co-Director

Worked with RPI DotCIO (IT services) to establish hardware and software cloud resource baselines, test cloud resource deployments, perform security evaluations, and oversee the execution of the initiative.

Contributions: Systems administrator

Maintain the integrity and security of deployed cloud resources.

Contributions: Cloud computing educator

Teach students DevOps and Cloud computing best practices.

Contributions: Cloud certification preparation

50 students earned at least one of AZ-900, AI-900, DP-900, or SC-900.

94 students earned Oracle Cloud Infrastructure 2023 Certified Foundations Associate.

Contributions: Pedagogy improvements

Use cloud resources as a core component in revamping existing ITWS courses.

2015-present CISO, PECE: the Platform for Experimental Collaborative Ethnography
<https://zenodo.org/record/7881638>

PECE has a global network of over 500 users working on a wide variety of projects from Asthma and pollution research, to Disaster Studies, to Cybersecurity, Japanese oral history, and more. Also used to support numerous graduate and undergraduate courses at UCI, RPI, and beyond.

Contributions: Lead Open Knowledge Developer

Technical knowledge: code (HTML/CSS/JS/PHP), documentation, best practices for technological stewardship

Contributions: Lead Systems Administrator

Systems administration lead for the entire global network of servers, cybersecurity/information security, installation lead, maintenance lead; install and maintain a fleet of Cloud (AWS) servers with PECE installed.

Contributions: CISO

Information security/cybersecurity lead for the entire global network of servers, incident response, security policy and implementation, security awareness/training, security communication

Current Instances maintained, selected list:

worldpece.org
theasthmafiles.org
disaster-sts-network.org
centerforethnography.org
forschungswerk-stadt.de
cva.unifr.ch

Historical Instances maintained, selected list:

Japanese oral history project (decom. 2020)

2021-2024 Co-Director, Rensselaer Blockchain Center of Excellence (BCCoE)

The BCCoE is a public-private partnership that develops best practices for blockchain applications, including security, sustainability, inclusivity, documentation, and system administration, and applies state-of-the-art techniques to business applications of blockchain technologies.

BCCoE-sponsored research projects

2022-2023 THORChain Arbitrage bot
Advisee: Philip Chang (graduate, ITWS)

2022 Blockchain security and sustainability for data provenance

2022 THORChain node operator documentation for AWS deployment
Advisee: Carlos Power (graduate, ITWS)

Other contributions: Systems administrator

Manage Cloud (AWS) deployments of THORChain software, recommend security best practices.

FELLOWSHIPS AWARDED

2014-2016 GK-12/3Helix Fellowship, NSF
Rensselaer Polytechnic Institute, Ron Eglash, PI

CONFERENCE PARTICIPATION

Workshops organized

2022 “Big Data Analytics for Humanitarian Crises” (with Thilanka Munasinghe, Jim Hendler, Rick Plotka, Kathy Fontaine, and Oshani Seneviratne), 2022 IEEE International Conference on Big Data, Osaka, Japan, Dec. 17-20, 2022.

Papers presented (Non-RCC)

2023 “How to build an AI-powered transcription bot for FM transmissions” (with Hisen Zhang), QSO Today Virtual Ham Expo, Mar. 24-26, 2023.

- 2022** "Hands-on workshop: writing an assembler for the Intel 8080 in D," DConf Online 2022, Dec. 17-18, 2022.
- 2022** "Programs that create other programs: A beginner's guide using D," DConf Online 2022, Dec. 17-18, 2022.
- 2022** "Potentially illegal Amateur Radio transmissions," 2022 Summer School Virtual Conference, Jul. 25 - Aug. 6, 2022.
- 2022** "Data Dexterity to Tackle Humanitarian Crises: Enabling students with data literacy (data dexterity) on how to effectively use Earth Observational data and other data sources to find reliable and effective solutions for humanitarian crises," July 2022 Earth Science Information Partners (ESIP) Meeting: Data for All People: From Generation to Use and Understanding, Pittsburgh, PA, Jul. 19-22, 2022. (Thilanka Munasinghe, **Brian Callahan**, Kathy Fontaine, Rick Plotka, William Allen, Eryn Buhat, Tiffany Filawo, James Liu, Zijin Liu, Brianna Lopez, Yasmin Lu, Stone McLaren, Ronna Min, Jialin Yu, Nay Zaw Aung Win, Abraham Sandars)
- 2022** "PolyglotBSD," BSDCan 2022, Jun. 3-4, 2022.
- 2021** "Life Outside the Big 4: The Adventure of D on OpenBSD," DConf 2021, Nov. 20-21, 2021.
- 2021** "Stories from reviving and extending a university's information security program," Seattle GNU/Linux Conference 2021, Nov. 5-6, 2021.
- 2021** "Design your own communication protocols," QSO Today Virtual Ham Expo, Aug. 14-15, 2021.
- 2021** "Talking PECE: Translating social science speak to technologists and vice-versa," 2021 Summer School Virtual Conference, Jul 26 - Aug. 6, 2021.
- 2021** "The education of hacking: A year of teaching all the things," BSidesROC 2021, Rochester, NY. Mar. 20, 2021.
- 2020** "Middleware, Light Structure, Experimental Systems: Designing the Platform for Experimental Collaborative Ethnography (PECE)," 4S/EASTS Conference. August 2020. (Mike Fortun, Kim Fortun, Tim Schutz, Angela Okune, James Adams, Prerna Srighyan, Lindsay Poirier, **Brian Callahan**, Brandon Costelloe-Kuehn, Ali Kenner, Aalok Khandekar, Renato Vasconcellos Gomes)
- 2020** "The education of hacking: A year of teaching all the things," BSidesROC 2020, Rochester, NY. Mar. 21, 2020. (Canceled/COVID-19)
- 2019** "Learning to (Open)BSD through its porting system," vBSDCon 2019, Reston, VA, Sep. 5-7, 2019.

- 2018** "Hosting the Platform for Experimental Collaborative Ethnography," Displacements: the Biennial Meeting of the Society for Cultural Anthropology, Apr. 19, 2018. (Kim Fortun, Mike Fortun, Lindsay Poirier, Alli Morgan, **Brian Callahan**, Brandon Costelloe-Kuehn, Alison Kennner, Brad Fidler, Aalok Khandekar)
- 2018** "Making it all work: The Infrastructures and Limits of (Digital) Collaboration," Institutions and Societies 2018, SUNY Albany, Albany, NY, Feb 23, 2018.
- 2017** "Coding Collaboration: Exploring a Definition Through a Transgender Hacker Collective," American Anthropological Association Annual Meeting 2017, Washington, D.C., Nov. 29-Dec. 3, 2017.
- 2017** "Leveraging Collaborative Mentorship to Strengthen Your Free Software Community" (with Lisa Marie Maginnis), Seattle GNU/Linux Conference, Seattle Central University, Seattle, WA, Oct. 6-7, 2017.
- 2017** "Rethinking Citizen Science by Doing Citizen Science" (with J. Dylan Rees), Society for the Social Studies of Science Conference 2017, Boston, MA, Aug. 30-Sep. 2, 2017.
- 2017** "Collaboration as a multi-scalar phenomenon," Northeast Science and Technology Studies Conference 2017, York University, Toronto, Ontario, Canada, Apr. 22-23, 2017.
- 2016** "Trans Tech: Ethnography of a Hacker Collective," American Anthropological Association Annual Meeting 2016, Minneapolis, MN, Nov. 16-20, 2016.
- 2016** "Towards a Transgender Technoscience," Trans*Studies Conference 2016, University of Arizona, Tucson, AZ, Sep. 7-10, 2016.
- 2016** "Diverse Be-longings: Trans Hacker Collectives as New Sites of Tech Diversity Understandings," Theorizing the Web 2016, New York, NY, Apr. 15-16, 2016.
- 2016** "Trans Code: Free Software as Model & Critique of Diversity by Transgender Hackers" (with Lillian Lemmer), LibrePlanet 2016, MIT, Cambridge, MA, Mar. 19-20, 2016.
- 2016** "SocialBSD: A Review of Diversity and Inclusivity Initiatives in the *BSD Community and Imagining Future Pathways," AsiaBSDCon 2016, Tokyo University of Science, Tokyo, Japan, Mar. 10-13, 2016.
- 2016** "The Trans Tech Network: Using Culture to Challenge Structure and Diversity," Institutions and Societies 2016, SUNY Albany, Albany, NY, Feb. 26, 2016.
- 2015** "Pathways to Social Justice in Social Science-Computer Science Collaboration," American Anthropological Association Annual Meeting 2015, Denver, CO, Nov. 18-22, 2015.

2015 “Devio.us, the Free OpenBSD Shell Provider and Online *BSD User Group: Technical and Social Lessons Learned from Half a Decade of Service” (with Bryce Chidester), vBSDcon 2015, Reston, VA, Sep. 11-13, 2015.

2015 “Building BUGs: A Broad View of the New York City *BSD User Group” (with George Rosamond), BSDCan 2015, University of Ottawa, Ottawa, Canada, Jun. 10-13, 2015.

Posters presented

2023 “Data Dexterity Results: Answering Renewable Energy Questions and More! Findings and Lessons Learned” (**Brian Callahan**, Kathy Fontaine, Thilanka Munasinghe, Elizabeth Joyner, Ross Bagwell), July 2023 Earth Science Information Partners (ESIP) Meeting: Opening Doors to Open Science, Burlington, VT, Jul. 18-21, 2023.

2023 “Solar vs. Wind: Viable Renewable Energy Source” (Christos Kreatsoulas, Jingrui Feng, Kazuki Neo, Ryan Carrido, Wendy Yang, **Brian Callahan**), July 2023 Earth Science Information Partners (ESIP) Meeting: Opening Doors to Open Science, Burlington, VT, Jul. 18-21, 2023.

2022 “Enabling Data Dexterity Among Students Using a NASA Data Pathfinder” (Kathy Fontaine, Thilanka Munasinghe, **Brian Callahan**, Rick Plotka, Ross Bagwell, Elizabeth Joyner), American Geophysical Union Fall Meeting 2022, Chicago, IL, Dec. 12-13, 2022.

Conferences organized

2014 New York City *BSD Conference 2014, New York, New York, Feb. 8, 2014.

INVITED TALKS

2024 “Polyglot *BSD, Redux,” Leet Cyber Security CyBeer Meetup, May 21, 2024.

2024 Youth Climate Career Summit, Faculty Panelist, RPI, Apr. 3, 2024.

2024 “OpenBSD: The backbone of your security since 1996,” Leet Cyber Security CyBeer Meetup, Mar. 13, 2024.

2023 “Hacking the machine for fun (and sometimes profit)” (with Ayah Tharwat), HackRPI X, RPI, Nov. 4, 2023.

2023 “Building a targeted, effective, university cybersecurity awareness training program--by your students!” (ISC)² Central New York Chapter, Utica, NY, Jun. 20, 2023.

2023 Coding&&Community Spring Hackathon keynote speaker, RPI, Apr. 16, 2023.

2021 CU Boulder Technology, Cybersecurity & Policy Seminar Series, CU Boulder, Oct. 25, 2021.

- 2021** "PolyglotBSD," New York City *BSD User Group, May 5, 2021.
- 2020** "Introducing the CW Record Protocol," Troy Amateur Radio Association, Nov. 17, 2020.
- 2019** "Hypatia Software Organization: A who, what, why, and how of advancing diversity in technology," Defcon 201, Sep. 20, 2019.
- 2018** "OpenBSD and You," Defcon 201, Dec. 21, 2018.

INTERVIEWS

- 2023** "Catalysts and Collaborations," NASA, Jul. 11, 2023:
<https://www.earthdata.nasa.gov/learn/articles/nasa-rpi-collaboration>.
- 2023** "Cyber Leaders of the World: Dr. Brian Callahan," Cyber Leaders series, Centraleyes, Mar. 22, 2023: <https://www.centraleyes.com/dr-brian-callahan-itwsrpi-pece/>
- 2022** "Eclectic Tech," Episode 60, American Radio Relay League, May 19, 2022.
- 2021** "Open Source Voices," Episode 26, Dec. 14, 2021.
- 2021** "QSO Today," Episode 371, Oct. 16, 2021.
- 2021** "BSD Now," Episode 422, Sep. 30, 2021.
- 2021** "Eclectic Tech," Episode 38, American Radio Relay League, Jul. 15, 2021.

MEDIA INQUIRIES

- 2024** "How to Reduce Your Risk When Using Personal-Finance Apps," The Wall Street Journal, Jun. 6, 2024:
<https://www.wsj.com/tech/personal-tech/reduce-risk-personal-finance-apps-1bd6472c>.
- 2024** "Reject all cookies but get them anyway? Websites abusing "legitimate interest"" Cybernews, May 23, 2024:
<https://cybernews.com/privacy/websites-abusing-legitimate-interest-placing-cookies/>.
- 2024** "Best Password Managers in the UK," U.S. News & World Report, Apr. 23, 2024:
<https://www.usnews.com/uk/360-reviews/privacy/password-managers>.
- 2023** "The #1 Elder Financial Scam And How To Protect Your Loved Ones–According to Top Cyber Security Experts," Parade, Oct. 29, 2023:
<https://parade.com/living/how-to-avoid-elder-financial-scams-according-to-cyber-security-experts>.
- 2023** "6 iPhone Tips To Keep Thieves From Wiping Out Your Bank Account," GOBankingRates,

Oct. 13, 2023:

<https://www.gobankingrates.com/money/finance/iphone-tips-to-keep-thieves-from-wiping-out-your-bank-account/>.

2023 “Map Apps Keep Revealing Your Location–Are They Worth It?” Lifewire, Jun. 16, 2023:
<https://www.lifewire.com/your-apps-could-leak-your-location-7547641>.

2022 “Your Password Manager Might Not Be as Secure as You Think–Here’s Why,” Lifewire,
Dec. 8, 2022:
<https://www.lifewire.com/your-password-manager-might-not-be-as-secure-as-you-think-heres-why-6836148>.

CAMPUS/DEPARTMENTAL TALKS

Rensselaer Polytechnic Institute, Troy, NY

Department of Computer Science

Introduction to Open Source: Lab, Open Source Documentation and Community
Interaction (Spring 2017, Fall 2016, Spring 2016, Fall 2015)

Spring 2015 Rensselaer Center for Open Source: Lecture, Welcome to OpenBSD!

Department of Interdisciplinary Humanities and Social Sciences

Fall 2016 Open Source Art, Music, and Culture: Lecture, Transgender Communities in Open
Source

Lally School of Business

Fall 2023 Cybersecurity for Business Majors (Computer and Information Systems)

TEACHING EXPERIENCE

Courses Taught

Rensselaer Polytechnic Institute, Troy, NY

IT & Web Science Program

Fall 2024 Modern Binary Exploitation
Web Systems Development

Spring 2024 Information Systems Security
Web Science Systems Development
CompTIA Security+ & ISC2 SSCP certification (as independent study)

Fall 2023 Cloud Security
Web Systems Development

Spring 2023 Information Systems Security
Web Science Systems Development

Winter 2022 (ISC)² SSCP & CC Infosec Certification Crash Course

Fall 2022 Modern Binary Exploitation

Web Systems Development
Deep Learning & Security (as independent study)

Spring 2022 Information Systems Security
Web Science Systems Development
Technology Studies (as independent study)

Winter 2021 CompTIA Security+ Certification Crash Course

Fall 2021 SSCP Infosec Certification
Web Systems Development

Spring 2021 Information Systems Security
Web Science Systems Development
OSCP Certification (as independent study)
SSCP Certification (as independent study)

Fall 2020 Modern Binary Exploitation
Web Systems Development
SSCP Certification (as independent study)
Modern Cryptography Applications (as independent study)

Spring 2020 Information Systems Security
Web Systems Science Development

Fall 2019 Modern Binary Exploitation (Instructor of Record; co-taught with Dr. Ana Milanova, Computer Science)
Web Systems Development
Web Science Systems Development (as large-group independent study)

Spring 2019 Information Systems Security
Web Science Systems Development
Modern Binary Exploitation (as large-group independent study)
Penetration Testing (independent study)

Spring 2017 IT & Society

Department of Science & Technology Studies

Spring 2018 Introduction to STS
Sustainability by Design
Sustainability Careers

Fall 2017 Gender in Culture
Gender in History
Introduction to STS

Spring 2017 Design in Culture

Race as a Global Challenge
Race in Culture
Sustainability by Design

Fall 2016 Gender in Culture
 Introduction to STS

Russell Sage College, Troy, NY

Department of Arts & Letters

Fall 2018 Public Speaking & Presentations

DEPARTMENTAL/UNIVERSITY SERVICE

2023-present	Development of Cybersecurity Awareness Training in partnership with DotCIO (RPI IT Services)
2023-present	ITWS Student Leadership faculty advisor, Information Technology & Web Science
2022-present	Graduate Program Director, Information Technology & Web Science
2022-present	Faculty advisor, Coach, & Sponsor, Rensselaer Cybersecurity Collaboratory, the premier CTF team at RPI
2021-present	Faculty advisor, W2SZ, the amateur radio club at RPI
2021-present	Graduate Admissions Committee, Information Technology & Web Science, Chair
2021-present	Graduate Curriculum Committee, Information Technology & Web Science, Chair
2020-present	RPI admissions ITWS representative
2019-present	Undergraduate Curriculum Committee, Information Technology & Web Science, Member
2019-present	Focus Track advisor, Information Dominance, Graduate, ITWS
2019-present	Focus Track advisor, Information Security, Graduate, ITWS
2019-present	Focus Track advisor, STS, Undergraduate, ITWS
2019-present	Focus Track advisor, Information Security, Undergraduate, ITWS
2019-present	Director and Faculty advisor, RPI-Sage chapter of Hillel International: The Foundation for Jewish Life at Colleges and Universities

2024	CTF tournament, 1st Annual NSBE-SHPE hackathon, RPI
2023	PicoCTF Cybersecurity Introduction, ACM-W
2023	Judge, HackRPI 2023
2022	Judge, HackRPI 2022
2021-2022	Graduate Administrator, Information Technology & Web Science
2021	Judge, HackRPI 2021
2019-2020	Faculty advisor, RPISEC, the Information Security Club and CTF Team at RPI
2019-2020	Graduate Admissions Committee, Information Technology & Web Science, Member
2019-2020	Graduate Curriculum Committee, Information Technology & Web Science, Member
2019-2020	Cybersecurity Analysis Team, Member Rensselaer Polytechnic Institute
2016-2019	Principal Bassoonist, University Orchestra Rensselaer Polytechnic Institute
2016-2017	Department of Science & Technology Studies Colloquium Committee Rensselaer Polytechnic Institute
2016-2017	Department of Science & Technology Studies Graduate Representative Rensselaer Polytechnic Institute
2012-2014	Information Technology University Steering Council, Graduate Representative Monmouth University
2012-2014	Principal Bassoonist, University Orchestra Monmouth University

GRADUATE THESES ADVISED

2022-2023	THORChain Arbitrage bot Advisee: Philip Chang, Information Technology & Web Science
2022	THORChain node operator documentation for AWS deployment Advisee: Carlos Power, Information Technology & Web Science (co-advised with Rick Plotka, Information Technology & Web Science)

- 2022** Graph relationship interfaces for unstructured data management
Advisee: Nick Meyer, Information Technology & Web Science
- 2021-2022** Advisee: Astra Ford, Computer Science
- 2021-2022** Malware investigations
Advisee: Stephen Trempel, Computer Science (co-advised with Dr. Bulent Yener, Computer Science)
- 2021** A security-focused open source clone of the Amazon SQS messaging service
Advisee: Honghao Li, Information Technology & Web Science
- 2021** A security policy combating counterfeiting for the average small business
Advisee: Isaac Llewellyn, Information Technology & Web Science

UNDERGRADUATE THESES ADVISED

- 2017** Pedestrian Dis/Order: Reimagining Our Urban Streets
Advisee: Morgan Johnson, Science & Technology Studies

PROFESSIONAL AFFILIATIONS

American Radio Relay League (ARRL)
Association for Computing Machinery (ACM)
Cloud Security Alliance (CSA)
Computing Technology Industry Association (CompTIA)
CompTIA Instructor Network
Earth Science Information Partners (ESIP)
HamSCI
ISACA
ISC2: International Information Systems Security Certification Consortium
Tucson Amateur Packet Radio (TAPR)

PROFESSIONAL CERTIFICATIONS

ISC2
[CISSP: Certified Information Systems Security Professional](#)
[CCSP: Certified Cloud Security Professional](#)
[SSCP: Systems Security Certified Practitioner](#)
[CC: Certified in Cybersecurity](#)

ISACA
[CISM: Certified Information Security Manager](#)

CompTIA
[A+ CE](#)
[CASP+ CE](#)
[Cloud Essentials+](#)
[Cloud+ CE](#)

[CySA+ CE](#)
[Data+ CE](#)
[DataSys+ CE](#)
[ITF+](#)
[Linux+ CE](#)
[Network+ CE](#)
[PenTest+ CE](#)
[Project+](#)
[Security+ CE](#)
[Server+](#)

[CCAP: CompTIA Cloud Admin Professional \(Network+/Cloud+\)](#)
[CIOS: CompTIA IT Operations Specialist \(A+/Network+\)](#)
[CLNP: CompTIA Linux Network Professional \(Network+/Linux+\)](#)
[CNIP: CompTIA Network Infrastructure Professional \(Network+/Server+\)](#)
[CNSP: CompTIA Network Security Professional \(Security+/PenTest+/CySA+\)](#)
[CNVP: CompTIA Network Vulnerability Assessment Professional \(Security+/PenTest+\)](#)
[CSAE: CompTIA Security Analytics Expert \(Security+/CySA+/CASP+\)](#)
[CSAP: CompTIA Security Analytics Professional \(Security+/CySA+\)](#)
[CSCP: CompTIA Secure Cloud Professional \(Security+/Cloud+\)](#)
[CSIE: CompTIA Secure Infrastructure Expert \(Security+/CySA+/PenTest+/CASP+\)](#)
[CSIS: CompTIA Secure Infrastructure Specialist \(A+/Network+/Security+\)](#)
[CSSS: CompTIA Systems Support Specialist \(A+/Linux+\)](#)

CSA

[CCSK: Certificate of Cloud Security Knowledge v4](#)
[CCZT: Certificate of Competence in Zero Trust](#)

Microsoft Certified

[AI-102: Azure AI Engineer Associate](#)
[AI-900: Azure AI Fundamentals](#)
[AZ-900: Azure Fundamentals](#)
[DP-900: Azure Data Fundamentals](#)
[PL-900: Power Platform Fundamentals](#)
[SC-900: Security, Compliance, and Identity Fundamentals](#)

Scrum.org

[PSFS: Professional Scrum Facilitation Skills](#)
[PSM I: Professional Scrum Master I](#)
[PSPO I: Professional Scrum Product Owner I](#)

Cato Networks

[SASE Expert Level 1](#)
[SASE Expert Level 2](#)
[SSE Expert](#)

Fortinet

[Fortinet Certified Associate Cybersecurity](#)
[Fortinet Certified Fundamentals Cybersecurity](#)

Google
[Google Cybersecurity Certificate](#)
[Google IT Support Certificate](#)

IBM
[Enterprise Design Thinking Practitioner](#)

IBM SkillsBuild
[Cybersecurity Fundamentals](#)

Oracle
[Oracle Cloud Infrastructure 2023 AI Foundations Associate](#)
[Oracle Cloud Infrastructure 2023 Certified Foundations Associate](#)

NON-PROFIT/PROFESSIONAL EXPERIENCE/VOLUNTEERING

2013-present	Developer, The OpenBSD Project Calgary, Alberta, Canada
2021-present	Developer & OpenBSD maintainer, D Programming Language Kenmore, WA
2024-present	President, ISC2 Capital District NY Chapter Troy, NY
2024-present	Subject Matter Expert, Unified Body of Knowledge (UBK) Project, ISC2 Alexandria, VA
2020-2024	Owner & Developer, FreeBee.fun Troy, NY
2023	Member, Women Cyber Leaders committee, Center for Cyber Safety and Education, ISC2 Clearwater, FL
2022	Judge, Joseph Henry Science Fair (elementary and junior high school science fair) College of Saint Rose
2016-2021	Clerk, Hypatia Software Organization, Inc. Boston, MA
2016-2021	Director, Hypatia Software Organization, Inc. Boston, MA

2015-2016	Developer, LiteBSD
2014-2016	Developer, RetroBSD