

JASON PERRY

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Department of Engineering, Computer and Mathematical Sciences
Lewis University, Romeoville, IL 60446

RESEARCH INTERESTS

Cryptography, including Searchable Encryption and Secure Computation Protocols; Knowledge Representation and Automated Reasoning; Programming Language Design and Implementation.

EDUCATION

Ph.D. in Computer Science, Rutgers University May 2015
Dissertation Title: *Putting Secure Computation to Work*
Supervisor: Rebecca N. Wright

M.A. in Computer Science, Princeton University August 2004

B.S. in Computer Science, University of Kentucky May 1999

PROFESSIONAL APPOINTMENTS

Associate Professor of Computer Science 2021–present
Department of Engineering, Computer and Mathematical Sciences (ECaMS),
Lewis University, Romeoville, IL

Additional Titled Roles:

Director, Lewis U. Cybersecurity and IT degree programs, 2020–present.

Networking and Security Specialist, Lewis U. ECAMS department, 2015–present.

Assistant Professor of Computer Science 2015–2021
Department of Engineering, Computer and Mathematical Sciences (ECaMS),
Lewis University, Romeoville, IL

COURSES DEVELOPED AND TAUGHT

CPSC 52500: Encryption and Authentication Spring 2015–Spring 2022
Primary Instructor *Lewis University*

- Graduate course on cryptography and its applications, including symmetric and public-key encryption, authentication, and secure internet protocols.

CPSC 42500: Encryption Spring 2016–Spring 2022
Primary Instructor *Lewis University*

- Undergraduate course in encryption algorithms and applications.

CPSC 62700: Programming for Penetration Testing Spring 2017–Spring 2021
Developer, Primary Instructor *Lewis University*

- Project-based course teaches Bash, Python, Ruby, and PowerShell programming as a way to create tools used by the penetration tester.
- Newly developed course for on-ground and online delivery.

- CPSC 42700: Programming for Penetration Testing** Spring 2016–Spring 2022
Developer, Primary Instructor Lewis University
- Undergraduate version of CPSC 62700.
- CPSC 62800: Programming for Digital Forensics** Spring 2017–Fall 2021
Developer, Primary Instructor Lewis University
- Project-based course teaches software design and development in Python, by creating applicaitons used in digital forensics investigations.
 - Newly developed course for on-ground and online delivery.
- CPSC 42800: Programming for Digital Forensics** Fall 2016–Fall 2021
Developer, Primary Instructor Lewis University
- Undergraduate version of CPSC 62800.
- CPSC 55200: Semantic Web** Fall 2017–Fall 2020
Developer, Primary Instructor Lewis University
- Teaches fundamentals and applications of the Semantic Web and linked data through programming projects.
 - Newly developed course for on-ground and online delivery.
- CPSC 59100: Information Security Capstone** Fall 2015–Spring 2020
Primary Instructor Lewis University
- Concluding course in the Lewis Master of Science in Information Security program, in which students select and reserach a topic in information security and produce a scholarly paper.
- CPSC 42200: Wireless Security** Spring 2022
Developer, Primary Instructor Lewis University
- Covers security issues relevant to Wi-Fi networks and smartphone platforms.
- CPSC 42100: Computer Security II** Spring 2019–Spring 2022
Developer, Primary Instructor Lewis University
- Second security course, lab-based and focused on software security, including defenses against buffer overflow, cross-site scripting, and SQL injection.
- CPSC 42000: Computer Security I** Fall 2015–Fall 2021
Primary Instructor Lewis University
- Course on various aspects of computer and network security, including the CIA model, authentication, access control, malware defenses, firewalls, and secure protocols.
 - Also developed 8-week online version.
- MATH 31000: Discrete Mathematics** Fall 2016
Primary Instructor Lewis University
- Course introducing topics in discrete math for computer science majors: combinatorics, set theory, logic, graph theory.
- CPSC 22000: Introduction to Unix** Fall 2015, Fall 2016, Summer 2017
Primary Instructor Lewis University

- Course introducing students to use and administration of Unix-based operating systems, focusing on Linux.
- Also developed 8-week online version.

CPSC 50600: Cyber Security Essentials

Spring 2018

Developer

Lewis University

- Course covering fundamentals of computer and network security for students in Master's of CS and Information Security programs.
- Developed 8-week online/blended course with all materials.

CPSC 50700: Advanced Cyber Security

Spring 2018

Developer

Lewis University

- Laboratory course to teach advanced topics in cyber security, focusing on software attacks and defenses.
- Developed 8-week online/blended course with all materials.

CS 515: Graduate Programming Languages and Compilers

Fall 2011

Teaching Assistant

Rutgers University

CS 314: Programming Languages and Compilers

Fall 2010 & Spring 2011

Teaching Assistant

Rutgers University

CS 170: Computer Applications for Business

Fall 2011

Teaching Assistant

Rutgers University

SERVICE ACTIVITIES—MENTORSHIP AND COMMUNITY

Lewis Cyber Defense Club

2015-present

Faculty Mentor

- Student-led organization focused on training in defending computers and networks, and participating in cyber defense competitions (CDCs).
- Supervised meetings, helped with technical topics, and accompanied teams to competitions.
- Champions of 2018 DOE National Cyber Defense Competition.

Lewis U. Celebration of Scholarship

Spring 2021

Faculty mentor

- Presentation title: *Glyph: A Binary Analysis Tool for Function Fingerprinting Using NLP*
- Mentored Master's student Corey Hartman in presenting original research in malware analysis.

Lewis Summer Undergraduate Research Experience (SURE)

Summer 2020

Faculty mentor

- Project title: *Cracking Passwords with Machine Learning*
- Mentored an undergraduate computer science student in research in using machine learning to generate human-like passwords.

Lewis Summer Undergraduate Research Experience (SURE) Summer 2019
Faculty mentor

- Project title: *Cracking Encryption with Graph Matching Algorithms*
- Mentored an undergraduate computer science student in research in searchable encryption, with resulting presentation.
- Gave presentation on Academic Writing.

Lewis Summer Undergraduate Research Experience (SURE) Summer 2018
Faculty mentor

- Project title: *Using Big Data to Crack Searchable Encryption*
- Mentored an undergraduate computer science student to carry out research in searchable encryption and develop a presentation.
- Gave presentation on Academic Writing.

Lewis Data Science and Artificial Intelligence Laboratory (DataSAIL) 2015-present
Faculty Member

- Gave tutorials and helped with student research projects.
- Managed club membership and computing accounts.
- Helped Dr. Piotr Szczurek design and administer the Spring 2019 Datathon.

NSA GenCyber Camp Summer 2018
Instructor

- Developed and taught camp sessions on Cyber Security to 12-16-year-old girls from underserved communities.

Victor J. Andrews High School Career Day, November 2017, 2018, and 2019. Invited speaker for Cyber Security careers.

Women in Cyber Security (WiCyS) Conference, March 2016. Mentored undergraduate Thao (Krystal) Le in research for a poster presentation.

Project SUPER: Women in STEM Spring 2014
Undergraduate Research Mentor Rutgers University

- Mentored an undergraduate computer science major through a one-semester project in secure computation, resulting in research presentation.

SERVICE ACTIVITIES—FACULTY GOVERNANCE

Lewis University Computer and Mathematical Sciences Department Fall 2015–Present
Networking and Security Specialist

- Responsible for maintaining firewall and primary web, DNS, database, and Unix account servers for the department, including account creation, troubleshooting and security issues.
- Install and renew HTTPS certificates for CaMS department websites.
- Deployed and managed applications: WebWork, Jira, Confluence, BitBucket.
- Installed and configured the CaMS department’s 24-node GPU cluster and 36-core HPC server.

Graduate Affairs Committee, Lewis U. College of Aviation, Science and Technology, April 2021–present.

Lewis U. Celebration of Scholarship Planning Committee, Co-chair of concurrent sessions, 2018-2022.

- Managed moderator volunteers and scheduled concurrent sessions in classrooms.

SURE Application Review Committee, 2018-2022. Chair: Dr. Daniel Kissel.

- Reviewed faculty applications for the Lewis Summer Undergraduate Research Experience grant program.

Search Committee Chair, Assistant Professor of Practice in Computer Science, Lewis CaMS Department, 2019-2020.

Center of Excellence Point of Contact, DHS Cybersecurity Education CAE program, 2019-present.

- Responsible for managing Lewis’s designation as a Center of Academic Excellence in Cyber Defense Education (CAE-CDE). Duties include annual reports and upcoming application for renewal.

Subcommittee to Review Advanced Writing Syllabi, Lewis University. 2018-2019. Chair: Dr. Sheila Kennedy.

- Reviewed applications for major courses to meet the General Education Advanced Writing Requirement.

General Education Website Redesign Subcommittee, 2018-2019. Chair: Dr. Christopher Wielgos.

- Developed a design for a new website for Lewis’s General Education program and presented it to the General Education committee.

Search Committee, Assistant Professor of Data Science, Lewis CaMS Department, 2019-2020. Chair: Dr. Piotr Szczurek.

Search Committee, Assistant Professor of Mathematics, Lewis CaMS Department, 2017-2018. Chair: Dr. Amanda Harsy.

Search Committee, Assistant Professor of Mathematics, Lewis CaMS Department, 2016-2017. Chair: Dr. Amanda Harsy.

Lewis U. Library Advisory Committee Spring 2015–Present

- Advocated for obtaining the O’Reilly Learning E-books subscription.
- Oversaw review of deselection process for the Math/CS/Engineering collection.

SERVICE ACTIVITIES—PROFESSIONAL

Advisory Panel, Joliet Junior College Networking and Cybersecurity Programs, 2018–present.

Reviewer/Panelist for CRDF Global Ukraine-USA Cybersecurity Grant Competition, 2021.

Referee for *IEEE Access*, 2021.

Referee for *IEEE Transactions on Parallel and Distributed Systems*, 2020.

Referee for *14th EAI International Conference on Security and Privacy in Communication Networks (SECURECOMM)*, 2017.

Referee for *IEEE/ACM Transactions on Networking*, 2017.

Referee for *Computer Standards and Interfaces*, 2011-2014.

ACCA Fall Computer Science Seminar Series

Fall 2016

Organizer, Presenter

- Invited speakers from industry and academia and hosted six talks on the topic of Cyber Security.

Seminar on Secure Multiparty Computation

Fall 2013

Organizer, Contributor

Rutgers University

- Organized meeting times, arranged presentation schedule, maintained website
- Surveyed multi-party computation literature to select papers for presentation
- Gave two research paper presentations

2nd NSF/DIMACS SaTC Aspiring PI Workshop, Organizational Assistant. San Diego, CA, August 2014.

CCICADA Cybersecurity Education Report

Fall 2013–Spring 2014

Researcher, Contributor

CCICADA Institute, Rutgers

- Collaborated with DIMACS-based research team to develop a report on Cyber-Security Education for DHS.

REFEREED PUBLICATIONS

Detection of Malicious HTTP Requests using Header and URL Features. Ashley Laughter, Safwan Omari, Piotr Szczurek, and Jason Perry. In *Proceedings of the Future Technologies Conference (FTC 2020)*, November 2020.

Leakage-Abuse Attacks Against Searchable Encryption. David Cash, Paul Grubbs, Jason Perry and Thomas Ristenpart. In *Proceedings of the 22nd ACM Conference on Computer and Communications Security (CCS 2015)*, October 2015.

- Top-cited research work by Lewis University faculty on researchgate.net
- 281 citations on Google Scholar as of May 2020.

Systematizing Secure Computation for Research and Decision Support. Jason Perry, Debayan Gupta, Joan Feigenbaum and Rebecca N. Wright. In *Proceedings of the 9th Conference on Security and Cryptography for Networks (SCN 2014)*, September 2014.

Practical and Privacy-Preserving Policy Compliance on Outsourced Data. Giovanni Di Crescenzo, Joan Feigenbaum, Debayan Gupta, Thimios Panagos, Jason Perry and Rebecca N. Wright. *2nd Workshop on Applied Homomorphic Cryptography and Encrypted Computing (WAHC '14)*, March 2014.

Modular Natural Language Interfaces to Logic-Based Policy Frameworks. Jason Perry, Konstantine Arkoudas, Jason Chiang, Ritu Chadha, Daniel Apgar, Keith Whittaker. *Computer Standards and Interfaces* 35(5), 417-427, 2013.

Generating quantifiers and negation to explain homework testing. Jason Perry and Chungchieh Shan. In *Proceedings of the 5th workshop on innovative use of NLP for building educational applications*, June 2010.

OTHER PUBLICATIONS

The Secure Computation Annotated Bibliography. Jason Perry. Last updated December 10, 2014. Available online at <http://paul.rutgers.edu/~jasperry/ssc-annbib.pdf>.

Supporting Cognitive Models of Sensemaking in Analytics Systems. Jason Perry, Christopher D. Janneck, Chinua Umoja and William M. Pottenger. *DIMACS Technical Report 2009-12*, November 2009.

SELECTED TALKS AND POSTERS

DIMACS Workshop in Honor of Rebecca Wright, “The Landscape of Secure Multiparty Computation”, invited talk, Piscataway, NJ, November 28, 2018. <https://www.youtube.com/watch?v=02I2b-InWx0>.

ACCA Computer Science Seminar, “Hiding in the Cloud: The Perils and Promise of Searchable Encryption.” Romeoville, IL, September 28, 2016.

ForenSecure 2016, “Security of Searchable Encrypted Cloud Storage.” Wheaton, IL, April 16, 2016.

Lewis University Cyber Security Seminar, “The “WeakDH” Result and its Significance for Security and Privacy”, Romeoville, IL, December 1, 2015.

9th Conference on Security and Cryptography for Networks, “Systematizing Secure Computation for Research and Decision Support”, Amalfi, Italy, September 3, 2014.

Department of Management Science and Information Systems Seminar, “Putting Secure Computation to Work”, Rutgers University, Piscataway, NJ, March 3, 2014.

PROgramming Computation on EncryptEd Data (PROCEED) Program PI Meeting, “Systematizing Secure Computation”, DARPA Headquarters, Arlington, VA, November 19, 2013.

FUNDED GRANTS

NSA GenCyber K-12 Summer Camp <i>Co-writer, Instructor</i>	PI: Dr. Faisal Abdullah <i>Summer 2018</i>
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DoD Information Assurance Scholarship Program <i>Scholarship Administrator</i>	PI: Dr. Ray Klump <i>2017-2018</i>
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PATENTS

Gentile, C.A., Perry, J., Langish, S.W., Silber, K., Davis, W.M. and Mastrovito, D., *System and Method for Resolving Gamma-ray Spectra*. US Patent 7,877,340, issued January 25, 2011.

Gentile, C.A., Perry, J., Langish, S.W., Silber, K., Davis, W.M. and Mastrovito, D., *System and Method for Resolving Gamma-ray Spectra*. US Patent 7,711,661, issued May 4, 2010.

TECHNICAL PROFICIENCIES

Programming Languages	Python, Java, F#, C#, OCaml, Bash, Ruby, C++, C
Formats & Markup	HTML, XML, Org, Markdown, LaTeX
Educational Software	Blackboard, WebWork, OBS
Development Tools	Git, BitBucket, Make, Emacs, Visual Studio, IntelliJ
Development Specialties	Functional programming, Natural Language Processing, HTTP microservices

AWARDS AND HONORS

National Science Foundation, Graduate Resrach Fellowship, 1999.

University of Kentucky, Computer Science Outstanding Senior Award, 1999.

University of Kentucky, Otis A. Singletary Scholar, 1995.

PRIOR WORK EXPERIENCE

Applied Communication Sciences (now Peraton Labs) Summer 2011–Spring 2013
Cybersecurity Research Intern – Supervisor: Dr. Giovanni di Crescenzo Basking Ridge, NJ

- Developed cryptographic protocols and security proofs for enforcing policy-based access control in private databases
- Implemented protocols in C++
- Collaborated with a team of cryptographers, database researchers, and implementers to produce prototype large-scale private database for the DARPA SPAR initiative
- Delivered technical presentations on the work

Applied Communication Sciences (now Peraton Labs) Summer 2010
Knowledge-based Systems Research Intern – Supervisor: Dr. Ritu Chadha Basking Ridge, NJ

- Developed software in Standard ML that translates English policy statements into a logical representation for use in policy development frameworks, using modern techniques in Computational Semantics for high accuracy
- Developed parsers in OCaml for XML-based data formats
- Researched ontology-based natural language question answering

Intuidex Inc. 2007–2008
Software Engineer Bethlehem, PA

- Designed and developed multiple data analytics and communications products using UML, C++ and Java
- Gained expertise in project management techniques, including requirements specifications, design documents, and Gantt charts
- Released the company’s first product, a named entity extraction library

Princeton Plasma Physics Laboratory 2005–2007
Software Engineer Plainsboro, NJ

- Developed a Support Vector Machine library in C++ for nuclear detectors, to identify gamma-ray signatures of radioactive isotopes for security applications
- Trained the library on real radioisotope samples and synthesized spectrum data
- Developed user interface, end-user and developer documentation, and oversaw multiple software releases
- Gave product demonstrations for investors
- Work resulted in two US patents and test deployments at major transit centers

Honors Review Inc.

2004–2008

Teacher, Tutor

Plainsboro, NJ

- Developed curricula and taught supplemental and college prep courses in Geometry and SAT Mathematics
- Provided individual tutoring in Calculus, Precalculus, Geometry, Algebra, and English

Lawrence Livermore National Laboratory

Summer 1999

Undergraduate Research Intern – Supervisor: Dr. Edmond Chow

Livermore, CA

- Developed multiprocessor, multi-threaded C code to optimize linear algebra operations on massively parallel computers

Geophysical Fluid Dynamics Laboratory

Summer 1998

Undergraduate Research Intern – Supervisor: Dr. Jeffrey L. Anderson

Princeton, NJ

- Wrote Fortran code for projecting and filtering data for high-dimensional global climate models