

Efrén López-Morales

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EDUCATION

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| Texas A&M University - Corpus Christi | Ph.D. Computer Science, expected August 2025 <i>Currently A.B.D.; passed comprehensive exam in August 2024</i> Dissertation: “Securing Cyber-Physical Systems via Advanced Cyber Threat Intelligence Methods” |
| Arizona State University | 2020 M.S. , Computer Science Thesis: “HoneyPLC: A Next-generation Honeypot for Industrial Control Systems” |
| Autonomous University of Guadalajara (Mexico) | 2012 B.S. , Computer Networks |

RESEARCH EXPERIENCE

My research areas are cyber-physical systems security, satellite security, and cyber deception.

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| Texas A&M University - Corpus Christi Computer Science Department (Corpus Christi, TX, USA) | 08/2021 – current | Graduate Research Assistant Supervisor: Dr. Carlos Rubio-Medrano |
| CISPA Helmholtz Center for Information Security Holz Research Group (Saarbrücken, Germany) | 02/2023 – 05/2023 | Research Intern Supervisors: Dr. Ali Abbasi and Dr. Thorsten Holz |
| University of California, Santa Cruz Department of Computer Science and Engineering (Santa Cruz, CA, USA) | 06/2022 – 07/2022 | Visiting Scholar Supervisor: Dr. Alvaro A. Cardenas |
| Arizona State University Computer Science Department (Tempe, AZ, USA) | 05/2019 – 05/2020 | Graduate Research Assistant Supervisors: Dr. Adam Doupé, Dr. Carlos Rubio-Medrano, Dr. Tiffany Bao, and Dr. Gail-Joon Ahn |

TEACHING EXPERIENCE

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| Texas A&M University - Corpus Christi Computer Science Department (Corpus Christi, TX, USA) | 07/2023 – 12/2023 | Instructor of Record Firewalls and Intrusion Detection Systems |
| Arizona State University Computer Science Department (Tempe, AZ, USA) | 08/2018 – 05/2019 | Graduate Teaching Assistant Principles of Programming with Java Supervisor: Faye Navabi |

INDUSTRY EXPERIENCE

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| Cisco Systems, Inc. (Chicago, IL, USA) | 05/2020 – 06/2021 | Network Engineer Supervisor: Carlos Morales |
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CONFERENCE PAPERS (REFEREED)

Papers with future venues are accepted to appear in them.

- SoK: Security of Programmable Logic Controllers. **Efrén López-Morales**, Ulysse Planta, Carlos Rubio-Medrano, Ali Abbasi, and Alvaro A. Cardenas. In *Proceedings of the 33rd USENIX Security Symposium (USENIX)*, Philadelphia, PA, USA, 2024.
- The Imitation Game: Exploring Brand Impersonation Attacks on Social Media Platforms. Bhupendra Acharya, Dario Lazzaro, **Efrén López-Morales**, Adam Oest, Muhammad Saad, Antonio Emanuele Cinà, Lea Schönherr, and Thorsten Holz. In *Proceedings of the 33rd USENIX Security Symposium (USENIX)*, Philadelphia, PA, USA, 2024.
- HoneyPLC: A Next-Generation Honeypot for Industrial Control Systems. **Efrén López-Morales**, Carlos Rubio-Medrano, Adam Doupé, Ruoyu Wang, Yan Shoshitaishvili, Tiffany Bao, and Gail-Joon Ahn. In *Proceedings of the 2020 ACM SIGSAC Conference on Computer and Communications Security (CCS)*, Virtual Event, USA, 2020.

WORKSHOP PAPERS (REFEREED)

- By the Numbers: Towards Standard Evaluation Metrics for Programmable Logic Controllers' Defenses. **Efrén López-Morales**, Jacob Hopkins, Alvaro A. Cardenas, Ali Abbasi, and Carlos Rubio-Medrano. In *Proceedings of the 2nd International Workshop on Re-design Industrial Control Systems with Security at the ACM Conference on Computer and Communications Security (RICSS)*, Salt Lake City, UT, USA, 2024.
- ICSNet: A Hybrid-Interaction Honeynet for Industrial Control Systems. Luis Salazar, **Efrén López-Morales**, Juan Lozano, Carlos Rubio-Medrano, and Alvaro A. Cardenas. In *Proceedings of the 6th Workshop on CPS & IoT Security and Privacy at the ACM Conference on Computer and Communications Security (CPSIoTSec)*, Salt Lake City, UT, USA, 2024.

BOOK CHAPTERS

- HoneyPLC: A Next-Generation Honeypot for Industrial Control Systems. **Efrén López-Morales**, Carlos Rubio-Medrano, Adam Doupé, Ruoyu Wang, Yan Shoshitaishvili, Tiffany Bao, and Gail-Joon Ahn. In *Bao, T., Tambe, M., Wang, C. (eds) Cyber Deception. Advances in Information Security, vol 89. Springer, Cham (Book Chapter)*, 2022.

CONFERENCE POSTERS AND ABSTRACTS

- Securing Cyber-Physical Systems via Advanced Cyber Threat Intelligence Methods. **Efrén López-Morales**. In *Proceedings of the 1st Doctoral Symposium at the ACM Conference on Computer and Communications Security (Extended Abstract)*, Salt Lake City, UT, USA, 2024.
- Exploiting and Securing Programmable Logic Controllers. **Efrén López-Morales**, and Carlos Rubio-Medrano. In *Proceedings of the 2022 Spring Student Research Symposium (Poster)*, Corpus Christi, TX, USA, 2022.

AWARDS AND FELLOWSHIPS

- Scholar Achievement in Graduate Education (SAGE) Fellowship, Texas A&M University-Corpus Christi, 2021-2023.
- Graduate Fellowship Program, Mexican National Council for Science and Technology (CONACYT), 2021-2025.
- 1st Place Winner in 3-Minute Thesis Competition (3MT), Texas A&M University-Corpus Christi, 2022.
- 2nd Place Winner in 3-Minute Thesis Competition (3MT), Texas A&M University-Corpus Christi, 2024.
- Student Travel Grant, ACM CCS'24 Doctoral Symposium (CCS), 2024.
- SHPE Ph.D. Scholarship, Society of Hispanic Professional Engineers, 2024.
- ISC2 Graduate Scholarship, Center for Cyber Safety and Education, 2024.
- UNCF Lam Research Scholarship, United Negro College Fund, 2023.
- Student Travel Grant, Annual Computer Security Applications Conference (ACSAC), 2023.
- Google Conference Scholarship, Google, 2023.
- Student Travel Grant, IEEE Secure Development Conference (SecDev), 2023.
- Student Travel Grant, Great Minds in STEM Conference, 2023.
- Student Travel Grant, 43rd IEEE Symposium on Security and Privacy (Oakland), 2022.
- iMentor Workshop Mentee, ACM Conference on Computer and Communications Security (CCS), 2021.
- Outstanding Mentor Award, Arizona State University, 2020.

PRESENTATIONS AND INVITED TALKS

- SoK: Security of Programmable Logic Controllers.
Technical Sessions, Hardware Security V: Embedded, 33rd USENIX Security Symposium, Philadelphia, PA, USA, 2024.
- Design and Implementation of a Satellite Honeypot.
1st Internet of Space Things (IoST) Workshop, University of Chile, Online, 2024.
- It's a Trap! Securing Satellites using Cyber Deception.
3MT Thesis Competition, Texas A&M University-Corpus Christi, 2024.
- Design of a Satellite Honeypot.
Poster Presentation, CySat - Cybersecurity for Space Conference, Paris, France, 2023.
- Exploiting and Securing Programmable Logic Controllers.
Computing Poster Competition, Great Minds in STEM Conference, Pasadena, CA, USA, 2022.
- Exploiting and Securing Programmable Logic Controllers.
Student Research Symposium Poster Presentation, Texas A&M University-Corpus Christi, 2022.
- Exploiting and Securing Programmable Logic Controllers.
3MT Thesis Competition, Texas A&M University-Corpus Christi, 2022.
- Cybersecurity: Skills and Opportunities.
Invited Talk, Universidad de la Sierra Juárez, Oaxaca, Mexico, 2022.
- Exploiting and Securing Programmable Logic Controllers.
Lightning Talks Competition, 17th Texas A&M University System Pathways Student Research Symposium, College Station, TX, USA, 2022.
- HoneyPLC: A Next-generation Honeypot for Industrial Control Systems.
Graduate Computing Poster Competition, Great Minds in STEM Conference, (Online) 2021.
- HoneyPLC: A Next-generation Honeypot for Industrial Control Systems.
Technical Sessions, 1E: Cyber-Physical Systems, ACM SIGSAC Conference on Computer and Communications Security, CCS, (Online), 2020.

SERVICE

- Science Fair Judge, Coastal Bend Regional Science Fair, Corpus Christi, TX, 2024.
- Journal Reviewer, IEEE Transactions on Dependable and Secure Computing, 2023.
- Senior Capstone Project Advisor, Texas A&M University-Corpus Christi, 2023.
- Mentor, MentorSHPE Program, Society of Hispanic Professional Engineers (SHPE), 2022-2024
- Graduate Student Representative to the College of Engineering, 2021–2024.

STUDENT MENTORING

- Samuel Zhang, Summer Internship at Texas A&M University-Corpus Christi, 2024.
Current Position: Undergraduate Student at Carnegie Mellon University.
- McKayla Gutierrez, MentorSHPE Program mentee at Society of Hispanic Professional Engineers (SHPE), 2024.
- Dianne Hernandez, MentorSHPE Program mentee at Society of Hispanic Professional Engineers (SHPE), 2023.
- Roy Amador, MentorSHPE Program mentee at Society of Hispanic Professional Engineers (SHPE), 2023.
Current Position: Graduate Student at San Jose State University.
- Cecilia Villegas, MentorSHPE Program mentee at Society of Hispanic Professional Engineers (SHPE), 2022.
Current Position: Graduate Student at New York University.

DATASETS AND TOOLS

- CubeSat Space Protocol (CSP) Wireshark Dissector, 2024.
<https://github.com/efrenlopezm/csp-dissector>
- Systematic PLC Security Literature Review Dataset, Available on GitHub, 2024.
<https://github.com/efrenlopezm/plc-sok-dataset>
- ICS² Matrix, ICS Threat Taxonomy, Available on Github, 2024.
<https://github.com/efrenlopezm/ics2matrix>
- HoneyPLC, Available on GitHub, 2020.
<https://github.com/sefcom/honeyplc>

MISCELLANY

- Languages: English (Fluent), Spanish (Native), Portuguese (Fluent), German (Beginner).
- Professional memberships: IEEE, SHPE.