

Phornsawan Roemsri (MinMin)

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SUMMARY

Computer Science Ph.D. candidate (defense Oct. 2026) with eight first-author peer-reviewed publications across cybersecurity and data visualization. Research on passive traffic fingerprinting for IoT device identification, provenance-based authentication, and behavioral detection of crypto ransomware, alongside visual analytics for network attack behavior, HPC operational and incident forensics, and astronomical time-series data.

Current work centers on matching detection mechanisms to the cost structure of the problem rather than defaulting to model complexity, and on making detection results interpretable to the analyst who must act on them.

Work authorization: F-1 student visa — eligible for 12-month OPT on graduation plus the 24-month STEM OPT extension; no employer sponsorship required for the first three years of employment.

EDUCATION

Texas Tech University, Lubbock, TX — Expected Dec. 2026

Doctor of Philosophy, Computer Science

Dissertation: *Data-Driven Cybersecurity for Connected Devices: Traffic, Provenance, and Behavioral Threat Detection*

Advisor: Susan A. Mengel, Ph.D.

GPA: 3.95

Mahidol University, Bangkok, Thailand — 2019

Bachelor of Engineering, Computer Engineering

GPA: 3.90

TECHNICAL SKILLS

Python | JavaScript | TypeScript | R | SQL | HTML/CSS | D3.js | React | Next.js | MySQL | Linux | Git | Slurm/HPC
| Machine learning | Data visualization | Network traffic analysis | Microsoft Office

RESEARCH EXPERIENCE

Graduate Research / Teaching Assistant, Department of Computer Science (Susan A. Mengel, Ph.D.), Texas Tech University, Lubbock, TX — 2026 – Present

- Dissertation research on data-driven cybersecurity for connected devices: traffic, provenance, and behavioral threat detection.

Graduate Research / Teaching Assistant, Interactive Data Visualization Lab (iDVL), Texas Tech University, Lubbock, TX — 2023 – 2026

- Built a monitoring and visual analytics pipeline for the REPACSS HPC cluster, integrating Slurm job state, node telemetry, and power data for operational analysis and job-outcome prediction.
- Developed a JWST NIRCам photometry and frame-quality pipeline for the eclipsing binary ZTF J153932.16+502738.8 (PID 1666), producing eclipse-timing measurements for a Physics & Astronomy collaboration.
- Built the technical support platform for TxDOT Research Project 0-7147 (Phase III), Task 9 — a project-level performance database for rigid pavements in Texas, with interactive dashboards, geospatial visualization, and performance analytics.
- Designed visualization systems (D3.js, React) for IoT network attack behavior and multi-stage incident data.

Graduate Research / Teaching Assistant, CapE Lab (Rattikorn Hewett, Ph.D.), Texas Tech University, Lubbock, TX — 2020 – 2023

- Developed passive traffic-fingerprinting methods for IoT device identification.
- Built and evaluated detection methods for crypto ransomware behavior.
- Designed a provenance location-based authentication scheme for cloud computing.

PUBLICATIONS

Eight peer-reviewed conference papers — first author on all entries. Entries 7-8 are short papers.

1. **Roemsri, P.**, McCarver, A., Maccarone, T., Shaw, A. W., Gandhi, P., Kaplan, D., & Dang, T. (2026). A web-based interactive visualization tool for astronomical time series. In *AIP Conference Proceedings* (Vol. 3378, No. 1, Article 040001). AIP Publishing.
2. **Roemsri, P.**, Ribeiro, A. H., & Dang, T. (2025). PowerMap and time-indexed PCA trajectories: Interactive visual forensics for HPC incidents. *International Conference in Cybersecurity, IoT, Data Science, and Digital Forensics (CIDDF)*. Advances in Computer Science Applications and Research, Vol. 5. Springer, Cham.
https://doi.org/10.1007/978-3-032-19488-6_12
3. **Roemsri, P.**, & Dang, T. (2023). Visualization of attack behavior data in IoT network traffic. *Proceedings of the 2023 5th International Conference on Big-Data Service and Intelligent Computation (BDSIC)*, 1-8.

4. **Roemsri, P.,** Puangpontip, S., & Hewett, R. (2023). On detecting crypto ransomware attacks: Can simple strategies be effective? *2023 6th International Conference on Information and Computer Technologies (ICICT)*, 138-143. <https://doi.org/10.1109/ICICT58900.2023.00030>
5. **Roemsri, P.,** & Hewett, R. (2021). Device identification for IoT security. *2021 IEEE 6th International Conference on Signal and Image Processing (ICSIP)*, 866-870.
6. **Roemsri, P.,** & Hewett, R. (2020). Provenance location-based authentication in cloud computing. *Proceedings of the 11th International Conference on Advances in Information Technology (IAIT)*, Article 24, 1-8. <https://doi.org/10.1145/3406601.3406629>
7. **Roemsri, P.,** & Dang, T. (2023). An interactive multi-degree analysis approach. *2023 IEEE VAST Challenge*, 9-10.
8. **Roemsri, P.,** & Dang, T. (2023). Effective dynamic network layout for transaction analysis. *2023 IEEE VAST Challenge*, 7-8.

ENGINEERING AND PROJECT EXPERIENCE

National Medicinal Product Catalogue Database, Bangkok, Thailand — 2019

- Member of the development team: built UI pages and part of the database, and tested the delivered program against the user requirements.

ExxonMobil Thailand (internship), Bangkok, Thailand — 2018 – 2019

- Collected requirements and assigned coding tasks to teammates; delivered two to three small web applications.
- Designed and built the first prototype of a smart locker the company planned to adopt company-wide.

Material Management Information System (PMIS) for Hospitals, Bangkok, Thailand — 2018 – 2019

- Designed the database, corrected other teams' database designs, and developed the backend.
- Built the data management pipeline: CSV ingestion, validation, and conflict resolution over SQL Server and FastAPI.
- Ran team meetings, prioritized and assigned work, and reported progress to the project manager.
- Held responsibility for the quality of the applications delivered against customer orders.

Automatic Weapon Detection for Knives and Guns (deep learning), Bangkok, Thailand — 2017 – 2018

- Part of the development team: collected the data and trained the detection model.

Logistics Infrastructure and Integrated Information System, Healthcare Big Data for Thailand's Digital Economy, Bangkok, Thailand — 2016 – 2018

- Designed the database and the UI, and developed the assigned components.
- Directed team meetings, planned code direction, assigned tasks, and collected requirements directly from the customer.

PRESENTATIONS AND AWARDS

- **A Web-based Interactive Visualization Tool for Astronomical Time Series.** 2025 4th Asia-Pacific Computer Technologies Conference (APCT 2025), Bangkok, Thailand — January 2025. Presenter.
- **Best Presentation, Session 3** — 2025 4th Asia-Pacific Computer Technologies Conference (APCT 2025), Bangkok, Thailand, January 2025. For *A Web-based Interactive Visualization Tool for Astronomical Time Series*.
- **The Engineering Student Talent Award, first runner-up** — June 2017. Selected to one of the teams representing Thailand at the ASEAN programme in India.

LANGUAGES

Thai (native) | English (professional working proficiency)