Pithayuth (Will) Charnsethikul

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Summary

My PhD research at USC focuses on Security & Privacy at the intersection of Human-Computer Interaction (HCI), Data Science, and AI where my core expertise lies in quantitative methods, statistical analysis, and predictive modeling, including machine learning, deep learning, NLP, and LLM/GenAI models. Through applied research internships at Amazon, PayPal, and AT&T, I strengthened this expertise by applying these techniques to real-world, large-scale problems in industry settings, delivering data-driven AI solutions in production-oriented environments.

Experience

Applied Scientist Intern June 2025 – Aug 2025
Amazon *Business Data Analytics and Insights (ABDAI)* *Seattle, Washington*

- Design and apply prompt engineering strategies for LLMs to generate entity resolution datasets at scale
- Develop and evaluate deep learning models that predict whether two businesses belong to the same entity
- Apply locality-sensitive hashing (LSH) to improve efficiency in pruning candidate pairs for entity resolution

Cybersecurity Research Scientist Intern June 2024 – Aug 2024
PayPal *Fraud Science & Intelligence, Global Investigations* *Scottsdale, Arizona*

- Develop a fuzzy hashing-based approach to cluster and detect automatically generated scam websites
- Monitor and analyze how automated scam websites develop over time
- Perform cost analysis associated to automated scam websites

Applied Scientist Intern May 2023 – Aug 2023
Amazon *SCOT-IPC: Specialized Selection* *Bellevue, Washington*

- Analyze customer search and shopping cart data to estimate cart abandonment probability
- Identify key drivers of cart abandonment, including, cart size, pricing, and free-shipping thresholds
- Develop and evaluate deep learning models that predict the shopping cart abandonment probability

Technical Intern II June 2022 – Aug 2022
AT&T *Labs Research* *Middletown, New Jersey*

- Develop a data collection pipeline for DNS-over-TLS (DoT) and DNS-over-HTTPS (DoH) traffic
- Implement DNS server code to extract session ID and user-agent from DoT/DoH queries
- Identify key features predictive of malicious DoT/DoH traffic and use them to develop machine learning models

Research Assistant August 2021 – May 2026
USC *Information Sciences Institute (ISI)* *Marina Del Rey, California*

- Build an LLM-based chatbot that interacts with scammers using advanced prompt engineering strategies [1]
- Fine-tune BERT-based language models to classify Venmo transaction texts into multiple sensitive classes [2]
- Design and conduct user studies to evaluate the usability of privacy settings on social media and LLM platforms [3]
- Replicate and extend a user study on password habits and password manager experiences at a large educational institution
- Design user interface for researchers on the national research testbed, SPHERE to facilitate running user studies
- Implement server code for DDoS anomaly detection and DNS latency measurement over TCP [4, 5, 6]

Education

University of Southern California Los Angeles, California
Ph.D. in Computer Science, Advisor: Jelena Mirkovic *Aug 2021 – May 2026*

University of Southern California Los Angeles, California
M.S. in Computer Science, Specialization: Computer Networks *Aug 2019 – May 2021*

Kasetsart University Bangkok, Thailand
B.Eng. in Computer Engineering *Aug 2014 – May 2018*

Publications

[1] *Pithayuth Charnsethikul*, Jelena Mirkovic, Rishit Saiya, Jeffrey Liu, Benjamin Crotty, and Genevieve Bartlett. "**Puppeteer: An Automated Scambaiting System Leveraging LLMs**". In: *Proceedings of the Hawaii International Conference on System Sciences (HICSS) 2025*. LINK .

[2] Rajat Tandon, *Pithayuth Charnsethikul*, Ishank Arora, Dhiraj Murthy, and Jelena Mirkovic. "**I know what you did on Venmo: Discovering privacy leaks in mobile social payments**". In: *Proceedings on Privacy Enhancing Technologies (PoPETs) 2022*. **Acceptance Rate : 21.02% (33/157)**. LINK .

[3] *Pithayuth Charnsethikul*, Almajd Zunquti, Gale Lucas, and Jelena Mirkovic. "**Navigating Social Media Privacy: Awareness, Preferences, and Discoverability**". In: *Proceedings on Privacy Enhancing Technologies (PoPETs) 2025*. **Acceptance Rate : 20.00% (45/225)**. **Artifact Award (Runner-up)**. LINK .

[4] Giovane C. M. Moura, John Heidemann, Wes Hardaker, *Pithayuth Charnsethikul*, Jeroen Bulten, João M. Ceron, and Cristian Hesselman. "**Old but Gold: Prospecting TCP to Engineer and Live Monitor DNS Anycast**". In: *Passive and Active Measurement (PAM) 2022*. **Best Paper Award**. LINK .

[5] Rajat Tandon, *Pithayuth Charnsethikul*, Michalis Kallitsis, and Jelena Mirkovic. "**AMON-SENSS: Scalable and Accurate Detection of Volumetric DDoS Attacks at ISPs**". In: *Proceedings of the IEEE Global Communications Conference (GLOBECOM) 2022*. LINK .

[6] Rajat Tandon, Jelena Mirkovic, and *Pithayuth Charnsethikul*. "**Quantifying Cloud Misbehavior**". In: *Proceedings of the IEEE 9th International Conference on Cloud Networking (CloudNet) 2020*. LINK .

Technical Skills

- **Languages:** Python, C, C++, Bash, HTML, CSS, PHP, JavaScript, Typescript, SQL, JAVA, Perl, LaTeX
- **Frameworks:** scikit-learn, PyTorch, Torch, TensorFlow, Keras, Huggingface, Angular, Node.js, Spark
- **Packages and Tools:** NumPy, Pandas, Jupyter Notebook, SciPy, Git, Docker, MySQL, BigQuery
- **Platforms:** Linux, macOS, Windows, Arduino, Raspberry, GCP, Azure, AWS
- **User Studies:** Qualtrics, Google Forms, Prolific, MTurk
- **Statistical Analysis:** SPSS, Regressions, Correlations, ANOVA, T-Tests, Chi-Square
- **Networking:** tcpdump, Wireshark, Nmap, Knot DNS, dnsdist, urlscan

Graduate Coursework

Advanced Analysis of Algorithms, Applied Cryptography, Foundations of Artificial Intelligence, Machine Learning, Advanced Natural Language Processing, Robustness and Generalization in Natural Language Processing, Advanced Operating Systems, Advanced Computer Networking, Security Systems, Research Methods and Analysis for User Studies

Services

Program Committee *ACSAC Workshop on Cyber Security Experimentation and Test (CSET'25)*

Teaching Experience

Teaching Assistant *CSCI 567: Machine learning (Spring 2023)*
Teaching Assistant *CSCI 430: Introduction to Computer and Network Security (Fall 2023 – Spring 2025)*

Certifications

- Deep Learning Specialization by DeepLearning.AI, Coursera