

# PITHAYUTH (WILL) CHARNSETHIKUL

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## RESEARCH INTERESTS

My research focuses on understanding human behaviors and perceptions around cybersecurity through variety of data such as client (i.e., user study), system, and social media. The goal is to apply my findings by integrating my expertise in machine learning, specifically in NLP, and the field of security to enhance users' online security and privacy experiences.

## EDUCATION

### University of Southern California, Ph.D., Computer Science

*Advisors: Jelena Mirkovic*

Los Angeles, California

2021-present

### University of Southern California, M.S., Computer Science

*Specialization: Computer Networks*

Los Angeles, California

2019-2021

### Kasetsart University, B.Eng., Computer Engineering

Bangkok, Thailand

2014-2018

## ACADEMIC EXPERIENCES

### Graduate Research Assistant

*USC Information Sciences Institute (ISI), STEEL: Security Research Lab*

August 2021–Present

*Marina Del Rey, California*

- **Privacy Setting:** conduct a user study (i.e., survey) that investigates how aware social media users are of their privacy settings and the extent to which they make use of them.
- **Anti-Scam:** develop a dialogue system, Puppeteer, that scambaits scammers using a combination of a large language model and state machines; and conduct a user study (i.e., role-play dialogue data collection between human scammers and Puppeteer, followed by a survey) to evaluate the system in different scam scenarios.

### Student Worker, Research

*USC Information Sciences Institute (ISI), STEEL: Security Research Lab*

August 2019–May 2021

*Marina Del Rey, California*

- **Venmo:** build a neural classifier that categorizes Venmo public transactions into multiple sensitive classes.
- **Cloud Misbehavior:** identify which /24 network prefixes are “cloud”, then quantify the amount of bad traffic originated from these networks.
- **DDoS Detection:** implement various anomaly detection approaches and evaluate them with the captured traffic.
- **DNS latency:** modify DNS servers to solicit TCP from selected clients, allowing us to determine RTTs.

### Teaching Assistant

*USC Viterbi Department of Computer Science*

January 2023–Present

*Los Angeles, California*

- **CSCI 430: Introduction to Computer and Network Security**, Fall 2023/Spring 2024/Fall 2024, Instructors: Jelena Mirkovic and Genevieve Bartlett
- **CSCI 567: Machine learning**, Spring 2023, Instructor: Yan Liu

## CORPORATE EXPERIENCES

### Cybersecurity Research Intern

*PayPal, Fraud Science & Intelligence, Global Investigations, Mentor: Blake Butler*

June 2024–August 2024

*Scottsdale, Arizona*

- Examine automated deployment of scam websites.
- Develop a clustering approach to group scam websites with similar structures into signatures and leverage these signatures to proactively detect automatically generated scam websites.
- Monitor and analyze how these scam websites develop over time.
- Perform cost analysis associated to these automated scams.

### Applied Scientist Intern

*Amazon, SCOT-IPC: Specialized Selection*

May 2023–August 2023

*Bellevue, Washington*

- Analyze customer's search data and calculate basket (i.e., online shopping cart) abandonment probability.
- Comprehensively investigate what drive basket abandonment, e.g., basket size, free shipping threshold, etc.

- Develop a neural network model that predicts the basket abandonment probability given an input of customer basket.

## Technical Intern II

June 2022-August 2022

*AT&T Labs Research, Mentor: Anestis Karasaridis*

*Remote*

- DNS data collection and analysis, specifically for DNS-over-TLS (DoT) and DNS-over-HTTPS (DoH).
- Add DNS source code (PowerDNS dnsmdist) to extract session ID and user-agent from DoT/DoH queries and create a data pipeline to transfer and enrich data between Azure environment and Snowflake.
- Analyze collected data on Azure Databricks.

## PUBLICATIONS

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- HICSS25, Puppeteer: Crafting a Large Language Model for Scambaiting, **Pithayuth Charnsethikul**; Jelena Mirkovic; Rishit Saiya; Jeffrey Liu; Benjamin Crotty; Genevieve Bartlett
- GLOBECOMM22, AMON-SENS: Scalable and Accurate Detection of Volumetric DDoS Attacks at ISPs, Rajat Tandon; **Pithayuth Charnsethikul**; Michalis Kallitsis; Jelena Mirkovic
- PETS22, I know what you did on Venmo: Discovering privacy leaks in mobile social payments, Rajat Tandon; **Pithayuth Charnsethikul**; Ishank Arora; Dhiraj Murthy; Jelena Mirkovic  
Acceptance Rate : 21.02% (33/157)
- PAM22, Old but Gold: Prospecting TCP to Engineer and Live Monitor DNS Anycast, Giovane C. M. Moura; John Heidemann; Wes Hardaker; **Pithayuth Charnsethikul**; Jeroen Bulten; João M. Ceron; Cristian Hesselman  
**Best Paper Award**
- CloudNet20, Quantifying Cloud Misbehavior, Rajat Tandon; Jelena Mirkovic; **Pithayuth Charnsethikul**

## TECHNICAL SKILLS

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**Languages:** Python, C, C++, Bash, HTML, CSS, PHP, JavaScript, Typescript, SQL, JAVA, Perl,  $\text{\LaTeX}$   
**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  
**Networking:** tcpdump, Wireshark, Nmap, Knot DNS, dnsmdist, urlscan

## GRADUATE COURSEWORK

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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

## CERTIFICATIONS

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- Deep Learning Specialization by DeepLearning.AI, Coursera

## REFERENCES

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- Jelena Mirkovic, Research Associate Professor, USC ISI, [mirkovic@isi.edu](mailto:mirkovic@isi.edu)
- Genevieve Bartlett, Senior Computer Scientist, USC ISI, [bartlett@isi.edu](mailto:bartlett@isi.edu)