YINUO DU

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# RESEARCH INTEREST

Human factor, Cyber Security, Human-AI Teaming, Cognitive Modeling, Dynamic Decision Making, Multi-Agent Systems

# EDUCATION

**Carnegie Mellon University** Pittsburgh, PA

Ph.D. in Societal Computing Sep 2021 – May 2026(expected)

Master of Science in Information Technology, GPA: 3.81/4.0 Sep 2019 – May 2021

**Xi’an Jiaotong University** Xi’an, China

Bachelor of Engineering in Software Engineering, GPA: 3.76/4.0 Sep 2015 – Jun 2019

**National University of Singapore** Singapore

Summer Course “Biometric in Depth” Jul. 2017-Aug. 2017

# RESEARCH EXPERIENCE

**Dynamic Decision Making Lab | CMU** Pittsburgh, PA

Research Intern May 2020 – May 2021

Conducted research to enhance effectiveness of honeypots and improve cyber defense

Designed and launched human experiments

* Build cognitive models of human behavior using instance-based learning theory (IBLT)

**Mobile, Embedded, & Wireless Security Lab | CMU** Pittsburgh, PA

Practicum Student Sep 2020 – Dec 2020

Identify vulnerabilities in Zigbee protocols and commercial products

Create monitoring, analysis, detection, and visualization tools that can view the IoT system holistically in real time

**Key Lab for Intelligent Networks and Network Security | XJTU** Xi’an, China

Software Engineering Research Intern June 2018 – Sep 2018

Developed an intelligent deployment platform in Python, which is used for software installation recording, orchestration and playback

# INDUSTRY EXPERIENCE

**BlockApps Inc.** New York, NY

Software Engineering Intern May 2020 – Aug 2020

Developed STRATO launchpad in Python, a user-friendly multi-platform command line interface tool to extend the configuration and deployment of STRATO from Linux-only to macOS, windows and \*nix-based system

**Sichuan Hwadee Information Technology Co., Ltd Chengdu,** China

Software Engineering Intern Feb 2018 – Mar 2018

Designed and implemented a platform with function of storing and processing mass data

# PUBLICATIONS

1. **Yinuo Du**, Baptiste Prébot, Xiaoli Xi, Cleotilde Gonzalez, “Towards Autonomous Cyber Defense: Predictions from a cognitive model”, HFES, Atlanta, Georgia, October 10-14, 2022
2. **Yinuo Du**, Palvi Aggarwal, Kuldeep Singh, Cleotilde Gonzalez, “A Cognitive Model of Multi-Defender Collaboration in a Cyber-Security Scenario”, MathPsych/ICCM, Toronto, Canada, July 23-27, 2022
3. **Yinuo Du**, Zimeng Song, Stephanie Milani, Cleotilde Gonzalez, Fei Fang, “Learning to Play an Adaptive Cyber Deception Game”, OptLearnMAS, Auckland, New Zealand, May 9--13, 2022
4. Palvi Aggarwal, **Yinuo Du**, Kuldeep Singh, Cleotilde Gonzalez, “Decoys in Cybersecurity: An Exploratory Study to Test the Effectiveness of 2-sided Deception”, IJCAI-ACD , Montreal, Canada, August 21--23, 2021

# WORKING PAPERS

1. Palvi Aggarwal, **Yinuo Du**, Kuldeep Singh, Shashank Uttrani, Varun Dutt, Cleotilde Gonzalez, “Effectiveness of Deploying Honeypots in Different Network Topologies”, submitted to Journal of Information Security and Applications.
2. Baptiste Prébot, **Yinuo Du**, Xiaoli Xi, Cleotilde Gonzalez, “Cognitive Models of Dynamic Decisions in Autonomous Intelligent Cyber Defense”, submitted to AICA 2022.­­
3. **Yinuo Du**, Baptiste Prébot, Xiaoli Xi, Cleotilde Gonzalez, “A Cyber-War Between Bots: Human-Like Attackers are More Challenging for Defenders than Deterministic Attackers” , submitted to HICSS 2023.
4. Palvi Aggarwal, **Yinuo Du**, Kuldeep Singh, Cleotilde Gonzalez, “Modeling Attackers' Decisions in Cyber-Deception Scenarios”, submitted to HICSS 2023.

# WORK IN PROGRESS

* Multi Defender Game of Cyber Threat Intelligence Sharing. Work with Cleotilde Gonzalez, Palvi Aggarwal and Kuldeep Singh.
* Autonomous Cyber Defense. Work with Cleotilde Gonzalez, Baptiste Prébot and Xiaoli Xi.
* Cyber Deception Evaluation. Work with Cleotilde Gonzalez, Fei Fang, Vyas Sekar, Lujo Bauer, and Brian Singer

# PRESENTATIONS

**Talks**

* “A Cognitive Model of Multi-Defender Collaboration in a Cyber-Security Scenario”, ICCM, July 2022
* “Multi-Defender Collaboration in a Cyber-Security Scenario”, CRA seminar, June 2022

**Poster Presentations**

* “Towards Autonomous Cyber Defense: Predictions from a cognitive model”, HFES, October 2022

# HONORS AND AWARDS

* Foho Technical Innovation Grants from Jiangsu Foho High-Tech Industrial Development Zone 2018
* National Encouragement Scholarship (top 5%) 2017-2018
* National Encouragement Scholarship (top 5%) 2016-2017
* National Encouragement Scholarship (top 5%) 2015-2016

# SKILLS

**Programming language:** R,Java, Python, JavaScript, C/C++

**Platforms:** Django/Flask, OpenStack, Ansible

**Experiments**: mTurk, Prolific, NodeGame, CyberVAN

**Data Visualization**: ggplot2, Matplotlib, Pandas