

Lynnette Hui Xian Ng

PhD Candidate, Knight Fellow, Young NUS Fellow
Carnegie Mellon University, Societal Computing

✉ lynnetteng@cmu.edu
🌐 quarbbby.github.io

RESEARCH INTERESTS

My research focuses on the **detection, analysis and modeling of information dissemination techniques** of automated bots in social media spheres. I am interested in the **social impact (network, narrative and engagement) of automated bot agents on social media**, particularly modeling and understanding their effects in **information operations in the political sphere** I work in the intersection of machine learning, network analysis, information systems and multimodal (image and text) analysis.

Thesis Proposal: "Bot-Human Nexus on Social Media", 28 September 2023, Advisor: Prof. Kathleen Carley.
(<https://quarbbby.github.io/blog/thesisproposal.html>)

EDUCATION

Carnegie Mellon University, 2021-Present
PhD in Societal Computing, School of Computer Science

National University of Singapore, 2013-2016
Bachelors in Computing (Computer Science). Second Upper Class with Honors (2:1)
NUSS Medal for Outstanding Achievement

PROFESSIONAL EXPERIENCE

Senior Engineer, Singapore Science and Technology Agency. 2017-2021.
Development Lead, Information Research Laboratory. Led the design and implementation for an open-source multi-modal data intelligence system, analyzing ~700k records per hour. The system has been successfully fielded for simultaneous operations during national events such as the 2018 ASEAN summit.

SELECTED PUBLICATIONS

Moral and emotional influences on attitude stability towards COVID-19 vaccines on social media. 2024. Social Computing, Behavioral-Cultural Modeling & Prediction and Behavior Representation in Modeling and Simulation
Samantha C. Phillips, *Lynnette Hui Xian Ng*, Wenqi Zhou, Kathleen M. Carley
Best Paper Award (Runner-Up)

Tiny-BotBuster: Identifying Automated Political Coordination in Digital Campaigns. 2024. Social Computing, Behavioral-Cultural Modeling & Prediction and Behavior Representation in Modeling and Simulation
Lynnette Hui Xian Ng, Mihovil Bartulovic, Kathleen M. Carley
Presented to Singapor Ministry of Defence Communication Organization

Deflating the Chinese Balloon: types of Twitter bots in US-China balloon incident. 2023. EPJ Data Science
Lynnette Hui Xian Ng, Kathleen M. Carley
Featured in New Scientist and Reddit

A Combined Synchronization Index for Evaluating Collective Action on Social Media. 2023. Applied Network Science
Lynnette Hui Xian Ng, Kathleen M. Carley
Algorithm integrated in ORA Network Analysis Software

BotBuster: Multi-platform bot detection using a mixture of experts 2023. International AAI Conference on Web and Social Media
Lynnette Hui Xian Ng, Kathleen M. Carley

Is my stance the same as your stance? A cross validation study of stance detection datasets. 2022. Information Processing & Management
Lynnette Hui Xian Ng, Kathleen M. Carley
Best PhD Student Paper

Cross-platform information spread during the January 6th capitol riots 2022. Social Network Analysis and Mining
Lynnette Hui Xian Ng, Iain J. Cruickshank, Kathleen M. Carley

Pro or anti? a social influence model of online stance flipping 2022. IEEE Transactions on Network Science and Engineering.
Lynnette Hui Xian Ng, Kathleen M. Carley

Online coordination: methods and comparative case studies of coordinated groups across four events in the united states 2022. ACM Web Science Conference
Lynnette Hui Xian Ng, Kathleen M. Carley

Stabilizing a supervised bot detection algorithm: How much data is needed for consistent predictions? 2022. Online Social Networks and Media
Lynnette Hui Xian Ng, Dawn C. Robertson, Kathleen M. Carley
Best Paper Award 2024, Online Social Networks and Media

Will you dance to the challenge? Predicting user participation of TikTok Challenges. 2021. IEEE International Conference on Advances in Social Network Analysis and Mining.
Lynnette Hui Xian Ng, John Yeh Han Tan, Darryl Jing Heng Tan, Roy Ka Wei Lee
Featured in Input Magazine

How does Fake News Spread? Understanding pathways of disinformation spread through APIs. 2021. Policy & Internet
Lynnette Hui Xian Ng, Araz Taeihagh
Presented to Singapore Ministry of Communications and Information
Most Cited Paper Award 2021, Policy & Internet

Bot Activity in the 2020 Singaporean Elections: A Social Cybersecurity Analysis. 2020. International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction and Behavior Representation in Modeling and Simulation.
Joshua Uyheng, Lynnette Hui Xian Ng, Kathleen M. Carley
SBP-Brims Challenge Runner-Up. Presented to Singapore Ministry of Defense

AWARDS AND FELLOWSHIPS

Best Paper, Online Social Networks and Media for "Stabilizing a supervised bot detection algorithm: How much data is needed for consistent predictions?" , 2024
Best Paper (Runner Up), SBP-Brims Conference for "Moral and emotional influences on attitude stability towards COVID-19 vaccines on social media", 2024
Best Poster, Grefenstette Center Tech Ethics Symposium for "Online Community: Are You Chatting with Bots", 2024
Best PhD Student Paper, Information Processing & Management, for "Is my stance the same as your stance? A cross validation study of stance detection datasets", 2022
Most Cited Paper, Policy & Internet, for "How does Fake News Spread? Understanding pathways of disinformation spread through APIs", 2021
Challenge Runner-Up, SBP-Brims conference, for "Bot Activity in 2020 Singaporean Elections: A Social Cybersecurity Analysis" 2020

Young NUS Fellow, National University of Singapore, 2024
NUS Development Grant, National University of Singapore, 2024
Research Feature, IDEaS Center, Carnegie Mellon University, 2024
GuSH Grant, Carnegie Mellon University, 2024
ICWSM Travel Scholarship, 2024
Knight Fellow, 2022-2024
DSTA PostGraduate Fellowship, 2021-2025
DSTA Innovation Award, 2018
NUSS Medal for Outstanding Achievement, 2016
Best Final Year Project, 2016
Singapore Computer Society IT Youth Leader Award, 2015
Google Anita Borg Scholarship, 2014
DSTA Undergraduate Scholarship, 2013-2016
Fifth Position, RoboSub Autonomous Underwater Vehicle Competition, 2014
First Prize, Singapore Autonomous Underwater Vehicle Challenge, 2014

INVITED TALKS

ICWSM Ambassador Lightning Talk, "Automated Information Dissemination on Social Media", 2024
NYU Center for Data Science Combatting Digital Misinformation Series. Geopolitical Narratives of Social Media Bots, 2024
ASTAR Center for Advanced Technology in Online Safety. Information Manipulation by Social Media Bots through a Network Analysis View, 2024
Online Trust and Safety Mitigation and Empowerment Workshop. "Positive Online Experience", 2024
CMU Summer Institute. "Finding Bots" and "Finding Trolls". 2023-2024
MCI Invited Talk. "Understanding Misinformation". 2024

PRESS FEATURES

d*classified Understanding Social Media Manipulation and Complex Networks: Insights from the Centre for Online Trust & Safety's July 2024 Seminar ft. Lynnette Ng and Dr. Feng Ling. 2024

New Scientist Armies of Bots Battled on Twitter over Chinese Spy Balloon Incident. 2024

DSTA PhD Scholar and Knight Scholar feature Meet Lynnette Ng — our Societal Computing PhD scholar at Carnegie Mellon University. 2024

Reddit r/science trending Armies of Bots Battled on Twitter Over Chinese. 2024

IDEaS Newsletter Research Spotlight. 2024

CMU School of Computer Science Standardized Data Set Annotations Could Aid in Detecting Social Media Sentiments. 2023

Input Magazine Have researchers cracked the code to TikTok virality?

TEACHING AND MENTORSHIP EXPERIENCE

CMU IDEaS Lab Summer Institute. 2021-2024. Annual two week intensive courses to teach data science, network science and social media concepts to students, industry and government attendees. Co-chair of the 2024 run, program committee and instructor of 2021-2023 runs.

High School mentorship, CMU. Anna Wu. 2024. Published “What News Is Shared Where and How: A Multi-Platform Analysis of News Shared During the 2022 US Midterm Elections” in *Social Media + Society*.

Undergraduate mentorship, CMU. Erica Chiang. 2023. Now: PhD in CS at Cornell University

Masters mentorship, CMU. Adya Danaditya. 2022. Published “From curious hashtags to polarized effect: profiling coordinated actions in indonesian twitter discourse” in *Social Network Analysis and Mining*. 2022.

Undergraduate mentorship, SimPPL. 2024 - ongoing. Published “Can Social Media Platforms Transcend Political Labels? An Analysis of Neutral Conversations on Truth Social” in ICWSM DARE Workshop 2024.

SERVICE

Organizing Committee

2021-2024. CMU IDEaS Summer Institute

Program Committee

2023-2024. ICWSM CySoc Workshop

Reviewer

AAAI ICWSM, Scientific Reports, PLOS One, EPJ Data Science, Social Network Analysis and Mining, Social Media + Society, Information Processing & Management, Information & Management

Community Service

2022-2024. CMU School of Computer Science Graduate Ambassador. Featured on 2023 Christmas Card.

2024. Research Mentor for SimPPL organization.