Kenneth H. Chan

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Education

Ph.D. in *Computer Science*, Michigan State University, East Lansing, Michigan, Present (4^{th} year)

Dissertation Title: Assessing Robustness of AI-based Systems in the face of Human-based Exploitative Uncertainty

Advisor: Dr. Betty H.C. Cheng

M.S. in *Computer Science*, Michigan State University, East Lansing, Michigan, 2021

B.S. in *Computer Science*, Michigan State University (Honors College), East Lansing, Michigan, 2019

Professional Experience

Graduate Teaching Assistant (05/19 to Present), Department of Computer Science and Engineering, Michigan State University, East Lansing, Michigan

- Courses taught:
  - CSE435 Software Engineering (Lead TA): 9 semesters
  - CSE812 Distributed Systems (Graduate level)
  - CSE498 Secure and Efficient C++ Software Development (Capstone course)
  - CSE476 Mobile Application Development
  - CSE477 Web Development: 2 semesters
  - CSE260 Discrete Structures (Lead TA): 2 semesters
  - CSE335 Object-oriented Design
- Teaching Assistant Activities:
  - Managed Git administrative duties and code reviews for the team projects
  - Creating student homework, projects, and exams designed to encourage students to apply course concepts into concrete examples

- Presenting guest lectures on machine learning, deep neural networks, computer security, and software design principles
- Explaining core course concepts to students during project implementations

Undergraduate Learning Assistant (01/19 to 05/19), Department of Computer Science and Engineering, Michigan State University, East Lansing, Michigan

Capstone Software Engineer (09/18 to 12/18), Volkswagen, Auburn Hills, Michigan

Software Engineering Intern (05/15 to 08/15), GeoNexus Technologies, Ann Arbor, Michigan

Manuscripts and Publications

Sol Zilberman, **Kenneth H Chan**, and B.H.C. Cheng. EvoDriver: Novelty-search driven evolution of behavioral test suites for autonomous vehicles. 2025. (Submitted to 21st International Symposium on Software Engineering for Adaptive and Self-Managing Systems)

Kenneth H Chan, Sol Zilberman, and B.H.C. Cheng. SavviDriver: Model-based framework for game-based testing of autonomous vehicles in diverse multi-agent traffic scenarios. 2024. *Software and Systems Modeling*, 2025. (Under review, preliminary work appeared in Proceedings of the 19th International Symposium on Software Engineering for Adaptive and Self-Managing Systems).

Kenneth H Chan and B.H.C. Cheng. Expound: a diversity-driven black-box approach for categories of model and domain-agnostic adversarial examples, 2025. (Submitted for publication)

Kenneth H Chan and B.H.C. Cheng. EvoAttack: Suppressive adversarial attacks against object detection models using evolutionary search. *Automated Software Engineering*, vol. 32, no. 1, p. 3, 2025.

Kenneth H Chan, Sol Zilberman, Nick Polanco, Joshua E Siegel, and B.H.C. Cheng. SafeDriveRL: Combining non-cooperative game theory with reinforcement learning to explore and mitigate human-based uncertainty for autonomous vehicles. In *Proceedings of the 19th International Symposium on Software Engineering for Adaptive and Self-Managing Systems*, pages 214–220, 2024

Kenneth H Chan and B.H.C. Cheng. Expound: A black-box approach for generating diversity-driven adversarial examples. In *International Symposium on Search Based Software Engineering*, pages 19–34. Springer, 2023

Michael Austin Langford, **Kenneth H Chan**, Jonathon Emil Fleck, Philip K McKinley, and B.H.C. Cheng. MoDALAS: addressing assurance for learning-enabled autonomous systems in the face of uncertainty. *Software and Systems Modeling*, pages 1–21, 2023

Kenneth H Chan and B.H.C. Cheng. EvoAttack: An evolutionary search-based adversarial attack for object detection models. In *Proceedings of the 14th IEEE Symposium on Search-Based Software Engineering*, Singapore, 2022

Michael Austin Langford, **Kenneth H Chan**, Jonathon Emil Fleck, Philip K McKinley, and B.H.C. Cheng. MoDALAS: Model-driven assurance for learning-enabled autonomous systems. In *Proceedings of MODELS 2021: ACM/IEEE 24th International Conference on Model Driven Engineering Languages and Systems (MODELS)*, pages 207–216, Fukuoka, JP, 2021. Model Driven Engineering Languages and Systems. (Extended paper invited for special issue journal submission to Software and Systems Modeling (SoSyM))

Kenneth H Chan, Matthew Pasco, and B.H.C. Cheng. Towards a blockchain framework for autonomous vehicle system integrity. *SAE International Journal of Transportation Cybersecurity and Privacy Special Issue on System Safety and Cybersecurity*, 4(11-04-01-0002), 2021

Presentations / Invited Talks

"Towards a goal model-based approach for systematic reward shaping", Seminar, Michigan State University 2025

"Game-based Testing of Autonomous Vehicles for Uncertainty Discovery", Seminar, Michigan State University 2025

"Challenges of Mmchine learning techniques Fall 2025", Guest Lecture, Michigan State University 2025

"Machine learning techniques for automotive industry applications Fall 2025", Guest Lecture, Michigan State University 2025

"Advanced C++ techniques and applications in software engineering", Guest Lecture Series, Michigan State University 2024

"Introduction to Deep Learning Fall 2024", Guest Lecture, Michigan State University 2024

"Introduction to Deep Learning Fall 2023", Guest Lecture, Michigan State University 2023

"EvoAttack: an evolutionary search-based adversarial attack for object detection models", Graduate Seminar, Michigan State University 2022

"Computer Security for Software Engineering", Guest Lecture, Michigan State University 2021

"Introduction to Programming", MSU Leaders In IT Club, Michigan State University 2018

Synergistic Activities

SME Education Foundation Scholarship Reviewer (2023-2025)

Vice President (01/17 to 12/18), MSU Leaders In IT Club, Michigan State University, East Lansing, Michigan

Treasurer (09/16 to 05/17), MSU Mason-Abbot Hall Student Government, Michigan State University, East Lansing, Michigan

Awards

Recipient of the Summer Research Fellowship from College of Engineering, Michigan State University 2023

- $7,600 research fellowship selected based on merit nomination from the college

Recipient of the Dr. Delia Koo Global Student Scholarship and Chinese Student Endowment

- $5,000 scholarship for academic excellence and promoting Asian culture diversity at Michigan State University

Recipient of the GOF Summer Research Fellowship from College of Engineering, Michigan State University 2020

- $7,000 research fellowship selected based on merit nomination from the college

Recipient of the Ford Blue Oval STEM Scholarship, Michigan Competitive Scholarship

- 4 years of annual $2,500 scholarship for strong leadership in FIRST robotics program

Recipient of the "Best Overall Design Day Award: Auto-Owners Exposition Award"

Dean's list: 2016, 2017, 2018, 2019