Kenneth (Kira) H. Chan

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Education:

Ph.D. - Computer Science and Engineering   Expected May 2025 - GPA: 4.0/4.0
  Michigan State University, East Lansing, Michigan
M.S. - Computer Science and Engineering   May 2021 - GPA: 4.0/4.0
  Michigan State University, East Lansing, Michigan
B.S. - Computer Science and Engineering   May 2019 - GPA: 3.76/4.0
  Michigan State University Honors College, East Lansing, Michigan

Work Experience:

Graduate Researcher, 2021 - Current   **Michigan State University - East Lansing, MI**
- Developed techniques to address / improve the assurance and robustness of DNNs to ensure their correctness in the face of adverse perturbations or uncertainties (human-induced, environmental, etc.).
- Applied technologies from a number of disciplines (e.g., reinforcement learning, evolutionary computing, game theory, etc.) to assess and improve the robustness of DNNs.

Graduate Assistant, 2019 - Current (15 semesters)   **Michigan State University - East Lansing, MI**
Courses: CSE435 - Software Engineering, CSE477 - Web Development, CSE476 - Mobile App Development, CSE 335 - Object Oriented Software Development, CSE260 - Discrete Mathematics.
- Created 30+ assignments, projects, and exams designed to transform concepts into practical application.
- Presented 5 guest lectures for machine learning, deep neural networks, and computer security.
- Organized and led 30+ teaching assistants and undergraduate assistants to train them for teaching total.
- Assisted, managed, and taught classes with up to 200 students per semester (2,000+ students overall).

Software Engineer (Capstone project), 2018   **Volkswagen - Auburn Hills, MI**
- Designed and developed a demo application which introduces potential customers to VW's connected interactive phone car services and familiarized existing customers with new system features.
- Worked in a team of 4 teammates, corresponding with our customer via weekly meetings.
- Technologies utilized: Android development (Kotlin), Firebase, Eventbus, and OAuth.

Software Engineer (Intern), Summer 2015   **GeoNexus Technologies - Ann Arbor, MI**
- Designed and developed a prototype application to extend GeoNexus' geographic information system to visualize work order services on a map for handheld devices for customers with 2 other interns.
- Technologies used: Android Studio (Java, XML), pair programming, unit testing, threads, Git, and SQL.

Selected Project Experience:

SafeDriveRL - *K. Chan*, S. Zilberman, N. Polanco, and B.H.C. Cheng (In press 2023)   -
- Synthesized reinforcement learning and non-cooperative game theory to discover human-induced misbehaviors for autonomous vehicles trained with machine learning, discovering up to 25% failures.

Expound - *K. Chan* and B.H.C. Cheng (Sym. on Search-based Software Eng. 2023)   **San Francisco, U.S.**
- Proposed a technique to discover diverse adversarial examples that lead to multiple types of failures for image classification DNNs using novelty search with the exploration and exploitation paradigm.

EvoAttack - *K. Chan* and B.H.C. Cheng (Sym. on Search-based Software Eng. 2022)   **Singapore**
- Demonstrated that black-box evolutionary search-based adversarial examples transfer to state-of-the-art object detection algorithms, preventing the correct detection of *any* objects for existing models.

Honors and Awards:

Dr. Delia Koo Global Student Scholarship / Chinese Student Endowment - 2023 $5,000
Auto-Owners Exposition Award - 2018
Blue Oval STEM Scholarship (Ford Motor Company) - 2015-2019 $2,500 - Renewable for 4 Years

Skills:

Languages: Python, Java, C/C++, HTML/CSS, Shell / Bash, PHP, Pandas   **Systems:** Linux / Unix, Windows
Tools: Pytorch, Tensorflow, Latex, DNN models (RetinaNet, YoloV5, Faster-RCNN, ResNet20, MobileNet, etc.)