Mansur M. Arief | Postdoc, Stanford Intelligent Systems Lab

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Research Areas: safety evaluation, trustworthy AI, decision-making under uncertainty, rare-event simulation

EDUCATION

Carnegie Mellon University, Pittsburgh PA, USA   2018 – 2023

Ph.D. in Mechanical Engineering (Thesis: Certifiable Evaluation for Safe Intelligent Autonomy)

University of Michigan, Ann Arbor MI, USA   2016 – 2018

M.S.E. in Industrial & Operations Engineering

Sepuluh Nopember Institute of Technology (ITS), Surabaya, Indonesia   2010 – 2014

B.E. in Industrial and Systems Engineering

EXPERIENCE

***Postdoctoral Scholar**, advised by Mykel Kochenderfer*, SISL, Stanford   2023

- Synthesize safe planning and efficient safety evaluation algorithms
- Implement safety evaluation algorithms to realistic large-scale planning problems with industry partners

***Ph.D. Researcher**, advised by Ding Zhao*, Safe AI, CMU   2018-2023

- Developed a certifiably efficient framework for autonomous vehicle safety evaluation
- Evaluated the safety case of autonomous vehicle perception under various noise conditions
- Proposed an efficient simulation-based probabilistic validation pipeline of rare violations of safety cases

***Machine Learning/Computer Vision Researcher**, supervised by Ji Eun Kim,* Bosch   2021

- Developed disentangled-latent-space-based data augmentation tool for rare traffic signs
- Collaborated with Bosch AI researchers to improve the robustness of ML models

***Research Assistant**,* Transportation Research Institute, University of Michigan, Ann Arbor   2018

- Developed a safety-aware deployment planner for autonomous vehicles prototypes
- Benchmarked the safety metrics of numerous autonomous vehicles deployment plans in UM campus

SELECTED PUBLICATIONS

- **Arief, Mansur**. "Certifiable Evaluation for Safe Intelligent Autonomy." Carnegie Mellon University, 2023.
- Ding, Wenhao, Chejian Xu, **Mansur Arief**, Haohong Lin, Bo Li, Ding Zhao. "A Survey on Safety-Critical Driving Scenario Generation—A Methodological Perspective." *T-ITS 2023.*
- **Arief, Mansur**, Z. Cen, Z. Huang, H. Lam, D. Zhao. "Certifiable Evaluation for Autonomous Vehicle Perception Systems using Deep Importance Sampling." *ITSC 2022.*
- **Arief, Mansur**, Z. Huang, G. Kumar, Y. Bai, S. He, W. Ding, H. Lam, D. Zhao. "Deep-PrAE: A Robust Certifiable Simulation Methodology for Safety-Critical Black-Box Autonomy." *AISTATS 2021.*
- **Arief, Mansur,** Peter Glynn, and Ding Zhao. "An Accelerated Approach to Safely and Efficiently Test Pre-production Autonomous Vehicles on Public Streets." *ITSC 2018.*

TECHNICAL SKILLS

Languages: Python, Julia   **Libraries:** PyTorch, POMDPs.jl   **Technologies:** AWS, GCP, Github