

Mansur Maturidi Arief

Postdoctoral Scholar, Stanford Intelligent Systems Laboratory (SISL)

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EDUCATION

Carnegie Mellon University, Pittsburgh PA, USA	2018–2023
<i>Ph.D. in Mechanical Engineering (Thesis: Certifiable Evaluation for Safe Intelligent Autonomy)</i>	
University of Michigan, Ann Arbor MI, USA	2016–2018
<i>M.S.E. in Industrial and Operations Engineering</i>	
Sepuluh Nopember Institute of Technology (ITS), Surabaya, Indonesia	2010–2014
<i>B.E. in Industrial and Systems Engineering</i>	

EMPLOYMENT

Stanford Intelligent Systems Lab (SISL), Department of Aeronautics & Astronautics, Stanford University	2023–present
<i>Postdoctoral Researcher, supervised by Dr. Mykel Kochenderfer</i>	
Robert Bosch LLC (Bosch)	May–August 2021
<i>Machine Learning/Computer Vision Research Intern, supervised by Dr. Ji Eun Kim</i>	
University of Michigan Transportation Research Institute (UMTRI)	2017–2018
<i>Research Assistant, supervised by Dr. Ding Zhao</i>	
Office of International Affairs, ITS	2015–2016
<i>Business Assistant, supervised by Dr. Maria Anityasari</i>	
Innovation and Business Venture Agency (BIBV), ITS	2015–2016
<i>Associate Consultant, supervised by Dr. I Ketut Gunarta</i>	
Logistics and Supply Chain Management Laboratory (LSCM), ITS	2012–2016
<i>Research Assistant, supervised by Prof. I Nyoman Pujawan</i>	
Center for Transportation Research, ITS	2012–2014
<i>Research Assistant, supervised by Prof. Iwan Vanany</i>	

TEACHING ASSISTANTSHIP

■ Trustworthy AI Autonomy (24784), CMU	2021
■ Intro to Scientific Computing (24781), CMU	2020
■ Supply Chain Management, IndonesiaX	2016
■ Distribution Management, ITS	2014
■ Industrial Systems Design, ITS	2013

AWARDS & CREDENTIALS

■ Deep Learning Specialization, <i>DeepLearning.ai</i>	2021
■ Best Poster, <i>Michigan Student Symposium on Interdisciplinary Statistical Sciences (MSSISS)</i>	2018
■ Best Paper, Power and Energy Symposium, <i>International Conference on Science and Technology (ICST)</i>	2018
■ MicroMasters in Supply Chain Management, <i>MITx on edX</i>	2018
■ LPDP Scholarship Awardee, <i>Indonesian Endowment Fund for Education</i>	2016
■ 1 st Place, <i>National Industrial Engineering Challenge, University of Andalas</i>	2014

PUBLICATIONS

- Ding, Wenhao, Chejian Xu, **Mansur Arief**, Haohong Lin, Bo Li, Ding Zhao. "A Survey on Safety-Critical Driving Scenario Generation – A Methodological Perspective." *IEEE Transactions on Intelligent Transportation System*. IEEE, 2023
- **Arief, Mansur**, Yuanlu Bai, Shengyi He, Wenhao Ding, Zhiyuan Huang, Henry Lam, Bo Li, Ding Zhao. "Certifiable Deep Importance Sampling for Rare-Event Simulation of Black-Box Systems." Under second-round review for potential publication in the Operations Research journal.
- Abdussyukur, Hafizh, Mahmud Dwi Sulistiyo, Ema Rachmawati, **Mansur Arief**. "Semantic Segmentation for Identifying Road Surface Damages Using Lightweight Encoder-Decoder Network." *Proceedings of the 2022 International Conference on Advanced Creative Networks and Intelligent Systems (ICACNIS)*. IEEE, 2022
- **Arief, Mansur**, Zhepeng Cen, Zhenyuan Liu, Zhiyuan Huang, Henry Lam, Bo Li, Ding Zhao. "Certifiable Evaluation for Autonomous Vehicle Perception Systems using Deep Importance Sampling (Deep IS)." *Proceedings of the 25th International Conference on Intelligent Transportation System (ITSC)*. IEEE, 2022.
- Nissa Amilia, Zulkifli Palinrungi, **Mansur Arief**, and Iwan Vanany. "Designing an Optimized Electric Vehicle Charging Station Infrastructure for Urban Area: A Case Study from Indonesia." *Proceedings of the 25th International Conference on Intelligent Transportation System (ITSC)*. IEEE, 2022.
- Ziyad, Muhammad, Kenrick Tjandra, Zulvah, Mushonnifun Faiz Sugihartanto, and **Mansur Arief**. "An Optimized and Safety-aware Maintenance Framework: A Case Study on Aircraft Engines." *Proceedings of the 25th International Conference on Intelligent Transportation System (ITSC)*. IEEE, 2022.
- **Arief, Mansur**, Zhiyuan Huang, Guru KS Kumar, Yuanlu Bai, Shengyi He, Wenhao Ding, Henry Lam, and Ding Zhao. "Deep Probabilistic Accelerated Evaluation: A Robust Certifiable Rare-Event Simulation Methodology for Safety-Critical Black-Box Autonomy." *Proceedings of the 24th International Conference on Artificial Intelligence and Statistics (AISTATS)*. PMLR: Volume 130, 2021.
- Arief, Hasan A., **Mansur Arief**, Guilin Zhang, Ulf Indahl, Håvard Tveite, and Ding Zhao. "SAnE: Smart annotation and evaluation tools for point cloud data". In *IEEE Access*. IEEE, 2020.
- Chen, Rui, **Mansur Arief**, Weiyang Zhang, and Ding Zhao. "How to Evaluate Self-Driving Testing Ground? A Quantitative Approach." *IEEE Transactions on Intelligent Transportation System*, DOI: 10.1109/TITS.2020.2991757. IEEE, 2020.
- Huang, Zhiyuan, **Mansur Arief**, Henry Lam, and Ding Zhao. "Assessing Modeling Variability in Autonomous Vehicle Accelerated Evaluation." *Proceedings of the 22nd International Conference on Intelligent Transportation System (ITSC)*. IEEE, 2019.
- Guo, Yaohui, Vinay Varma Kalidindi, **Mansur Arief**, Wenshuo Wang, Jiacheng Zhu, Huei Peng, and Ding Zhao. "Modeling Multi-Vehicle Interaction Scenarios Using Gaussian Random Field." *Proceedings of the 22nd International Conference on Intelligent Transportation System (ITSC)*. IEEE, 2019.
- Liu, Zuxin, **Mansur Arief**, and Ding Zhao. "Where Should We Place LiDARs on the Autonomous Vehicle? An Optimal Design Approach." *Proceedings of the 2019 International Conference on Robotics and Automation (ICRA)*, pp. 2793-2799. IEEE, 2019.
- Arief, Hasan A., **Mansur Arief**, Manoj Bhat, Ulf Indahl, Håvard Tveite, and Ding Zhao. "Density-Adaptive Sampling for Heterogeneous Point Cloud Object Segmentation in Autonomous Vehicle Applications." *Proceedings of the 2019 IEEE Conference on Computer Vision and Pattern Recognition Workshops*, pp. 26-33. 2019.
- Huang, Zhiyuan, Yaohui Guo, **Mansur Arief**, Henry Lam, and Ding Zhao. "A versatile approach to evaluating and testing automated vehicles based on kernel methods." *Proceedings of the 2018 Annual American Control Conference (ACC)*, pp. 4796-4802. IEEE, 2018.
- Oktavian, Muhammad Rizki, Diana Febrita, and **Mansur Arief**. "Cogeneration Power-Desalination in Small Modular Reactors (SMRs) for Load Following in Indonesia." *Proceedings of the 4th International Conference on Science and Technology (ICST)*, pp. 1-6. IEEE, 2018.

- Huang, Zhiyuan, **Mansur Arief**, Henry Lam, and Ding Zhao. "Synthesis of Different Autonomous Vehicles Test Approaches." *Proceedings of the 21st International Conference on Intelligent Transportation Systems (ITSC)*, pp. 2000-2005. IEEE, 2018.
- **Arief, Mansur**, Peter Glynn, and Ding Zhao. "An Accelerated Approach to Safely and Efficiently Test Pre-Production Autonomous Vehicles on Public Streets." *Proceedings of the 21st International Conference on Intelligent Transportation Systems (ITSC)*, pp. 2006-2011. IEEE, 2018.

PRESENTATIONS & TALKS

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| ■ SIAM Conference on Uncertainty Quantification (UQ) 2024, Trieste, Italy | 2024* |
| ■ American Geophysical Union (AGU) 2023, San Francisco, USA | 2023* |
| ■ Invited Speaker, Teach Talk 41, Indonesian Lecturer Association - Indonesian Diaspora Network United, Virtual | 2023 |
| ■ Invited Speaker, International Webinar of Business and Industrial Application Division, BRAIN IPB, Virtual | 2023 |
| ■ 25 th International Conference on Intelligent Transportation Systems (ITSC), Macau, China | 2022 |
| ■ Stanford Intelligent Systems Laboratory (SISL) Meeting, Virtual | 2022 |
| ■ 24 th International Conference on Artificial Intelligence and Statistics (AISTATS), Virtual | 2021 |
| ■ SIAM Conference on Computational Science and Engineering (CSE21), Virtual | 2021 |
| ■ INFORMS Annual Meeting, Virtual | 2020 |
| ■ 2nd Annual Workshop of Safe AI Lab, Carnegie Mellon University, Pittsburgh, USA | 2020 |
| ■ 22 nd International Conference on Intelligent Transportation Systems (ITSC), Auckland, NZ | 2019 |
| ■ Workshop on Rare Events and Driving Scenario Modeling with Uber ATG, Pittsburgh, USA | 2019 |
| ■ 21 st International Conference on Intelligent Transportation Systems (ITSC), Hawaii, USA | 2018 |
| ■ Workshop on Safe AI, Carnegie Mellon University, Pittsburgh, USA | 2018 |
| | *upcoming |

ACADEMIC SERVICES

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| ■ Reviewer, <i>Transportation Research Board Annual Meeting (TRBAM)</i> | 2023 |
| ■ Reviewer, <i>Annals of Operations Research (ANOR)</i> | 2023 |
| ■ Reviewer, <i>IEEE Transactions on Intelligent Vehicles (T-IV)</i> | 2023 |
| ■ Reviewer, <i>Journal of Aerospace Information Systems (JAIS)</i> | 2023 |
| ■ Reviewer, <i>Journal of Artificial Intelligence Research (JAIR)</i> | 2023 |
| ■ Reviewer, <i>Operations and Supply Chain Management: An International Journal (OSCM)</i> | 2023 |
| ■ Program Committee, <i>Workshop on Formal Verification of Machine Learning (WFMVLM)</i> | 2023 |
| ■ Program Committee, <i>Secure and Safe Autonomous Driving (SSAD) Workshop and Challenge</i> | 2023 |
| ■ Reviewer, <i>International Design Engineering Technical Conferences (IDETC) Conference</i> | 2023 |
| ■ Review Coordinator, <i>Design Theory and Methodology (DTM) Conference</i> | 2023 |
| ■ Program Committee, <i>Trustworthy and Socially Responsible Machine Learning (TSRML) Workshop</i> | 2022 |
| ■ Reviewer, <i>IEEE Transactions on Intelligent Transportation Systems (T-ITS)</i> | 2022 |
| ■ Reviewer, <i>International Conference on Advanced Engineering Computing and Applications in Sciences</i> | 2022 |
| ■ Reviewer, <i>IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)</i> | 2022 |
| ■ Organizer, <i>Security and Safety in Machine Learning Systems, ICLR Workshop</i> | 2021 |
| ■ Reviewer, <i>International Conference on Artificial Intelligence and Statistics (AISTATS)</i> | 2021 |
| ■ Reviewer, <i>IEEE/RSJ International Conference on Robotics and Automation (ICRA)</i> | 2019–2023 |

- Reviewer, *International Conference on Intelligent Transportation Systems (ITSC)* 2018–2023
- Technical Committee, *Operations and Supply Chain Management: An International Journal (OSCM)* 2014–2023

PATENT

- Methods and Systems of Generating Images Utilizing Machine Learning and Existing Images with Disentangled Content and Style Encoding (*U.S. Serial No. 17/949,517 filed September 21, 2022*) 2022

OTHER SERVICES

- International Taskforce, *National Postdoctoral Association (NPA)* 2023
- Organizer, *Indonesian Scholars Thriving in Excellence in Education, Learning, and Research (IndoSTEELERS)* 2023
- Volunteer, *AFS USA* 2022–2023
- President, *Indonesian Students at CMU (PERMIAS CMU)* 2021
- Vice President, *Indonesian Students at CMU (PERMIAS CMU)* 2020
- Executive Board, *Indonesian Supply Chain and Logistics Institute, National Student Chapter* 2017
- Executive Board, *INFORMS Student Chapter at University of Michigan* 2017
- Volunteer, *AFS Bina Antar Budaya, Indonesia* 2008–2014