

Mansur Maturidi Arief

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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–current
<i>Postdoctoral Researcher, advised 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, advised 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 EXPERIENCE

■ Analytics Projects, <i>SIMT ITS</i>	2024
■ Intelligent Systems for Energy Transition, NetZero Heroes, GAWIREA/AMATI	2024
■ Trustworthy AI Autonomy (24784), <i>CMU</i>	2021
■ Intro to Scientific Computing (24781), <i>CMU</i>	2020
■ Supply Chain Management, <i>IndonesiaX</i>	2016
■ Network Design and Distribution Management, <i>ITS</i>	2014
■ Industrial Systems Design, <i>ITS</i>	2013

AWARDS & CREDENTIALS

■ Outstanding Indonesian Diaspora 2024, <i>Consulate General of the Republic of Indonesia in San Francisco</i>	2024
■ Cyber-Physical System (CPS) Rising Stars, <i>LinkLab, University of Virginia</i>	2024
■ Early Career Mini Research Grant, <i>Indonesian Association of International Scientists (I-4)</i>	2024
■ 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

- **Arief, Mansur**, CJ Oshiro, Yasmine Alonso, William Xu, David Zhen Yin, Jef Caers, Anthony Corso, Mykel Kochenderfer. "Optimizing Lithium Supply Chain under Uncertainty for Long-Term Self-Sufficient Energy Transitions." *Under review*.
- **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 review*.
- Delecki, Harrison, Marc Schlichting, **Mansur Arief**, Anthony Corso, Marcell Vazquez-Chanlatte, Mykel Kochenderfer. "Diffusion-Based Failure Sampling for Cyber-Physical Systems." *Under review*.
- Kruse, Liam, Alexandros Tzikas, Harrison Delecki, **Mansur Arief**, Mykel Kochenderfer. "Enhanced Importance Sampling through Latent Space Exploration in Normalizing Flows." *Under review*.
- Timmerman, Mike, **Mansur Arief**, Jiachen Li, David Isele, Mykel Kochenderfer. "Optimized Guided Meta Training for Intelligent Agents under Highly Interactive Driving Scenarios." *Under review*.
- Ward, Isaac, Dylan M. Asmar, **Mansur Arief**, Mykel Kochenderfer, Jana Krystofova Mike. "Optimal Control of Mechanical Ventilators with Learned Respiratory Dynamics." To appear in the *Proceedings of the International Symposium on Computer-based Medical Systems (CBMS)*. CBMS 2024.
- Khatim, Nur Ahmad, Azmul Asmar Irfan, Amaliya Mata'ul Hayah, **Mansur Arief**. "Toward an Integrated Decision-Making Framework for Optimized Stroke Diagnosis with DSA and Treatment under Uncertainty." *Proceedings of the 2024 6th International Conference on Intelligent Medicine and Image Processing (IMIP)*. IEEE, 2024.
- **Arief, Mansur**, Yan Akhra, Iwan Vanany. "A Robust Optimization Modeling of Electric Vehicle Charging Station Placement under Electricity Disruptions". *arXiv preprint*, 2023.
- Gupta, Abhibha, Rully Agus Hendrawan, **Mansur Arief**. "Enhancing Visual Perception in Novel Environments via Incremental Data Augmentation Based on Style Transfer." *arXiv preprint*, 2023.
- **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." *IEEE Transactions on Intelligent Transportation System*. IEEE, 2023
- 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.
- Pujawan, Nyoman, **Mansur Arief**, Benny Tjahjono, and Duangpun Kritchanchai. "An integrated shipment planning and storage capacity decision under uncertainty: A simulation study." *International Journal of Physical Distribution & Logistics Management* 45(9), 2015.

PATENT

- **Arief, Mansur**, Ji Eun Kim, Shashank Shekhar, Mohammad Sadegh Norouzzadeh, and Ding Zhao. "Methods and systems of generating images utilizing machine learning and existing images with disentangled content and style encoding." U.S. Patent Application 17/949,517, filed April 4, 2024.

PRESENTATIONS & TALKS

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| ■ Academic Speaker, <i>Indonesia Sustainability Forum (ISF), Jakarta</i> | 2024 |
| ■ Invited Speaker, <i>Stanford Center for Earth Resources and Forecasting (SCERF), Stanford, USA</i> | 2024 |
| ■ Invited Speaker, <i>Stanford Mineral-X, Stanford, USA</i> | 2024 |
| ■ Invited Guest Lecture, <i>Net-Zero Heroes, Gawire</i> | 2024 |
| ■ Keynote Speaker, <i>8th Int'l Conf. on Management of Technology, Innovation, and Project (MOTIP 08)</i> | 2024 |

■ Invited Public Guest Lecture, <i>Interdisciplinary School of Management Technology, ITS Surabaya, Virtual</i>	2023
■ <i>American Geophysical Union (AGU) 2023, San Francisco, USA</i>	2023
■ Invited Guest Lecture, <i>Industrial and Systems Engineering, ITS Surabaya</i>	2023
■ Invited Speaker, <i>Biweekly Meetings, IndoSTEELERS</i>	2023
■ Invited Speaker, <i>Teach Talk 41, Indonesian Lecturer Association - Indonesian Diaspora Network United</i>	2023
■ Invited Speaker, <i>International Webinar of Business and Industrial Application Division, BRAIN IPB</i>	2023
■ <i>25th International Conference on Intelligent Transportation Systems (ITSC), Macau, China</i>	2022
■ <i>Stanford Intelligent Systems Laboratory (SISL) Meeting</i>	2022
■ <i>24th International Conference on Artificial Intelligence and Statistics (AISTATS)</i>	2021
■ <i>SIAM Conference on Computational Science and Engineering (CSE21)</i>	2021
■ <i>INFORMS Annual Meeting</i>	2020
■ <i>2nd Annual Workshop of Safe AI Lab, Carnegie Mellon University, Pittsburgh, USA</i>	2020
■ <i>22nd International Conference on Intelligent Transportation Systems (ITSC), Auckland, NZ</i>	2019
■ <i>Workshop on Rare Events and Driving Scenario Modeling with Uber ATG, Pittsburgh, USA</i>	2019
■ <i>21st International Conference on Intelligent Transportation Systems (ITSC), Hawaii, USA</i>	2018
■ <i>Workshop on Safe AI, Carnegie Mellon University, Pittsburgh, USA</i>	2018

ACADEMIC SERVICES

■ Guest Editor, Autonomous Systems in OSCM, <i>Operations and Supply Chain Management: An International Journal</i>	2024
■ Primary Convener, American Geophysical Union (AGU) Annual Meeting Session on Toward Sustainable Energy Transition Resources: Integrating Critical Mineral Exploration, Intelligent Systems, and Responsible Policymaking	2024
■ Program Committee, <i>IEEE Int'l Conference on Automated Vehicle Validation Conference (IAVVC)</i>	2024
■ Program Committee, <i>Simulation and Modeling Methodologies, Technologies and Applications (SIMULTECH)</i>	2024
■ Program Committee, <i>International Conference on Intelligent Medicine and Image Processing (IMIP)</i>	2024
■ Reviewer, <i>Robotics and Automation Letter (RAL)</i>	2023
■ 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
■ Reviewer, <i>Heliyon</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, <i>International Conference on Intelligent Transportation Systems (ITSC)</i>	2018–2025
■ Technical Committee, <i>Operations and Supply Chain Management: An International Journal (OSCM)</i>	2014–2024

OTHER SERVICES

■ Co-Initiator, <i>MindSTEM.id</i>	2024
■ International Taskforce, <i>National Postdoctoral Association (NPA)</i>	2023
■ Founder, <i>Indonesian Scholars Thriving in Excellence in Education, Learning, and Research (IndoSTEELERS)</i>	2023
■ Volunteer, <i>AFS USA</i>	2022–2024
■ President, <i>Indonesian Students at CMU (PERMIAS CMU)</i>	2021
■ Vice President, <i>Indonesian Students at CMU (PERMIAS CMU)</i>	2020
■ Executive Board, <i>Indonesian Supply Chain and Logistics Institute, National Student Chapter</i>	2017
■ Executive Board, <i>INFORMS Student Chapter at University of Michigan</i>	2017
■ Volunteer, <i>AFS Bina Antar Budaya, Indonesia</i>	2008–2014