Mansur Maturidi Arief

Ph.D. Student, CMU Safe AI Lab

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RESEARCH AREAS

Machine learning, rare-event simulation, intelligent transportation systems, safety validation, autonomous vehicles

EDUCATION

Carnegie Mellon University, Pittsburgh PA, USA   2018-present
Ph.D. in Mechanical Engineering

University of Michigan, Ann Arbor MI, USA   2016-2018
M.S.E. in Industrial and Operations Engineering

Sepuluh Nopember Institute of Technology (ITS), Surabaya, Indonesia   2010-2014
B.E. in Industrial and Systems Engineering

EMPLOYMENT

Transportation Research Institute, University of Michigan   2017–2018
Research Assistant, supervised by Prof. Ding Zhao

Logistics and Supply Chain Management Laboratory, ITS   2012–2016
Project Assistant, supervised by Prof. Nyoman Pujawan

Center for Transportation Research, ITS   2012–2014
Project Assistant, supervised by Prof. Iwan Vanany

AWARDS & CREDENTIALS

- *Best poster*, Michigan Student Symposium on Interdisciplinary Statistical Sciences (MSSISS), Univ. of Michigan   2018
- *MicroMasters in Supply Chain Management,* MITx on edX   2018
- *LPDP Awardee*, PK-67, Indonesian Endowment Fund for Education   2016
- *1st place,* National Industrial Engineering Challenge, Univ. of Andalas   2014
- *2nd place*, National Industrial Engineering on Small and Medium Enterprises Challenge, Univ. of Brawijaya   2014
- *5th place*, National Industrial Engineering Challenge, Univ. of Indonesia   2013
- *AFS-USA Kennedy-Lugar Youth Exchange Studies (YES) Awardee*, U.S. Department of State   2008

TEACHING EXPERIENCE

- *Teaching assistant,* Trustworthy AI Autonomy (24784), Carnegie Mellon University   2021
- *Teaching assistant,* Intro to Scientific Computing (24781), Carnegie Mellon University   2020
- *Teaching assistant,* Supply Chain Management, IndonesiaX   2016
- *Teaching assistant,* Distribution Management, ITS   2014
- *Teaching assistant,* Industrial Systems Design, ITS   2013

PUBLICATIONS

- **Arief, Mansur M.**, Zhiyuan Huang, Guru KS Kumar, Yuanlu Bai, Shengyi He, Wenhao Ding, Henry Lam, Ding Zhao. "Deep Probabilistic Accelerated Evaluation: A Robust Certifiable Rare-Event Simulation Methodology for Safety-Critical Black-Box Autonomy." To appear in the *Proceedings of the 24th International Conference on Artificial Intelligence and Statistics (AISTATS).* PMLR: Volume 130, 2021.

- Arief, Hasan A., **Mansur M. 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 M. Arief**, Weiyang Zhang, and Ding Zhao. "How to Evaluate Self-Driving Testing Ground? A Quantitative Approach." in *IEEE Transactions on Intelligent Transportation System*, DOI: 10.1109/TITS.2020.2991757. IEEE, 2020.

- Huang, Zhiyuan, **Mansur M. Arief**, Henry Lam, and Ding Zhao. "Assessing Modeling Variability in Autonomous Vehicle Accelerated Evaluation." In *2019 International Conference on Intelligent Transportation System (ITSC).* IEEE, 2019.

- Guo, Yaohui, Vinay Varma Kalidindi, **Mansur M. Arief**, Wenshuo Wang, Jiacheng Zhu, Huei Peng, and Ding Zhao. "Modeling Multi-Vehicle Interaction Scenarios Using Gaussian Random Field." In *2019 Int'l Conference on Intelligent Transportation System (ITSC).* IEEE, 2019.

- Liu, Zuxin, **Mansur M. Arief**, and Ding Zhao. "Where Should We Place LiDARs on the Autonomous Vehicle? An Optimal Design Approach." *In 2019 International Conference on Robotics and Automation (ICRA)*, pp. 2793-2799. IEEE, 2019.

- Arief, Hasan A., **Mansur M. Arief**, Manoj Bhat, Ulf Indahl, Håvard Tveite, and Ding Zhao. "Density-Adaptive Sampling for Heterogeneous Point Cloud Object Segmentation in Autonomous Vehicle Applications." In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops*, pp. 26-33. 2019.

- Huang, Zhiyuan, **Mansur M. Arief**, Henry Lam, and Ding Zhao. "Synthesis of Different Autonomous Vehicles Test Approaches." In *2018 21st International Conference on Intelligent Transportation Systems (ITSC)*, pp. 2000-2005. IEEE, 2018.

- Huang, Zhiyuan, Yaohui Guo, **Mansur M. Arief**, Henry Lam, and Ding Zhao. "A versatile approach to evaluating and testing automated vehicles based on kernel methods." In *2018 Annual American Control Conference (ACC)*, pp. 4796-4802. IEEE, 2018.

- **Arief, Mansur M.**, Peter Glynn, and Ding Zhao. "An Accelerated Approach to Safely and Efficiently Test Pre-Production Autonomous Vehicles on Public Streets." In *2018 21st International Conference on Intelligent Transportation Systems (ITSC)*, pp. 2006-2011. IEEE, 2018.

- Pujawan, Nyoman, **Mansur M. 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, no. 9/10 (2015): 913-937.

SERVICES

- *Organizer,* Security and Safety in Machine Learning Systems, ICLR Workshop   2021
- *President,* Indonesian Students at CMU (ISCMU/Permias CMU)   2021
- *Vice President,* Indonesian Students at CMU (ISCMU/Permias CMU)   2020
- *Executive board,* Indonesian Supply Chain and Logistics Institute, National Student Chapter   2018
- *Executive board*, INFORMS Student Chapter at Univ. of Michigan   2017
- *Executive board*, Indonesian Student Association at Univ. of Michigan (PERMIAS Michigan)   2017
- *Research assistant coordinator,* Logistics and Supply Chain Management (LSCM) Lab, ITS Surabaya   2013
- *President*, Community of Santri Scholars of Ministry of Religious Affairs (CSS MoRA) at ITS   2012
- *Volunteer,* AFS Bina Antar Budaya, Chapter Makassar   2009

INVITED TALKS

- SIAM Conference on Computational Science and Engineering (CSE21), Virtual   March 2021
- INFORMS Annual Meeting, Virtual   November 2020
- 2nd Annual Workshop of Safe AI Lab, Pittsburgh, PA   August 2020
- Technical Workshop on Rare Events and Driving Scenario Modeling with Uber ATG, Pittsburgh, PA   September 2019
- Workshop on Safe AI, Pittsburgh, PA   August 2018