Md Shadab Alam

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Employment History

2023 – Ongoing	🔖	**Researcher** Eindhoven University of Technology (TU/e), Eindhoven, The Netherlands
2021 – 2023	🔖	**Junior Research Fellow** Centre for Industrial Consultancy and Sponsored Research, Chennai, India

Education

2023 – Ongoing	🔖	**Ph.D., Eindhoven University of Technology** Industrial Design. Thesis title: *Connected data from autonomous vehicles and road users to enhance safety.*
2021 – 2023	🔖	**M.Sc., Indian Institute of Technology (IIT) Madras** in Robotics and Artificial Intelligence. Thesis title: *Data driven control for marine vehicle maneuvering.*
2016 – 2020	🔖	**B.tech. ,Jamia Millia Islamia** in Mechanical Engineering. Thesis title: *Design of Product Prototype for Inventory Management 4.0.*

Skills

|		
Languages	🔖	English
Coding	🔖	Python, C++, C, C#, JavaScript, R, Go, Rust, Latex,
Machine/Deep Learning	🔖	TensorFlow, PyTorch, JAX, Numpy, Pandas, Transformers, NLP, LangChain, Prompt Engineering, Reinforcement Learning, GANs, Graph Neural Networks
ML Engineering	🔖	Model Deployment, ML Pipelines, Model Monitoring, A/B Testing, slurm
MLOps	🔖	Docker, Kubernetes, MLflow, DVC, CI/CD for ML, Terraform
Data Engineering	🔖	SQL, Apache Spark, Hadoop, Snowflake
Data Visualization	🔖	Matplotlib, Seaborn, Plotly, Dash, Power BI, Excel
Web Development	🔖	Html, CSS, JavaScript, Apache Web Server, Tomcat Web Server, Flask, FastAPI, Heroku
Database Management	🔖	MongoDB
Robotics	🔖	ROS, Sensor Integration
Version Control	🔖	Git, GitHub, GitLab, Bitbucket
Cloud Platforms	🔖	Amazon AWS (Sagemaker), Google Cloud Platform (GCP), Microsoft Azure
Misc.	🔖	Unity, Unreal Engine, Scala

Research Publications

Journal Articles

1 M. S. Alam, V. Deogaonkar, and A. Somayajula, "Enhancing autonomy: Comparative analysis of machine learning-based controllers in extended action states," *Under Review*, Apr. 2025.

2   M. S. Alam and I. Carlucho, "Harnessing traditional controllers for fast-track training of deep reinforcement learning control strategies," *Journal of Marine Engineering & Technology*, pp. 1–12, 2024. DOI: https://doi.org/10.1080/20464177.2024.2367276.

3   R. Deraj, R. S. Kumar, M. S. Alam, and A. Somayajula, "Deep reinforcement learning based controller for ship navigation," *Ocean Engineering*, vol. 273, p. 113 937, 2023. DOI: https://doi.org/10.1016/j.oceaneng.2023.113937.

Conference Proceedings

1   M. S. Alam and P. Bazilinskyy, "Cross or nah? llms get in the mindset of a pedestrian in front of automated car with an ehmi," in *Adjunct Proceedings of the 17th International Conference on Automotive User Interfaces and Interactive Vehicular Applications*, ser. AutomotiveUI '25 Adjunct, Association for Computing Machinery, 2025, pp. 19–34, ISBN: 9798400720147. DOI: 10.1145/3744335.3758477.

2   M. S. Alam, M. Martens, and P. Bazilinskyy, "Generating realistic traffic scenarios: A deep learning approach using generative adversarial networks (gans)," 3, vol. 3, AHFE Open Acces, 2025. DOI: 10.54941/ahfe1005927.

3   M. S. Alam, M. H. Martens, and P. Bazilinskyy, "Pedestrian planet: What youtube driving from 233 countries and territories teaches us about the world," in *Proceedings of the 17th International Conference on Automotive User Interfaces and Interactive Vehicular Applications*, ser. AutomotiveUI '25, Brisbane, QLD, Australia: Association for Computing Machinery, 2025. DOI: 10.1145/3744333.3747827.

4   M. S. Alam, S. H. Parmar, M. H. Martens, and P. Bazilinskyy, "Deep learning approach for realistic traffic video changes across lighting and weather conditions," in *2025 8th International Conference on Information and Computer Technologies (ICICT)*, Hilo, HI, USA, 2025, pp. 180–185. DOI: 10.1109/ICICT64582.2025.00034.

5   M. S. Alam, Z. Wang, L. Zhang, and P. Bazilinskyy, "Exploring veo 3's capabilities for generating urban traffic scenes in 76 cities worldwide," 2025. URL: https://www.researchgate.net/publication/393086985.

6   P. Bazilinskyy, M. S. Alam, and R. Merino-Martınez, "Pedestrian crossing behaviour in front of electric vehicles emitting synthetic sounds: A virtual reality experiment," in *Proceedings of InterNoise, 54rd International Congress & Exposition on Noise Control Engineering*, Sao Paulo, Brazil, 2025.

7   P. Bazilinskyy, M. S. Alam, and R. Merino-Martınez, "Psychoacoustic assessment of synthetic sounds for electric vehicles in a virtual reality experiment," in *Proceedings of 11th Convention of the European Acoustics Association (Euronoise)*, Malaga, Spain, 2025. DOI: 10.48550/arXiv.2510.25593.

8   M. Fortes-Ferreira, M. S. Alam, and P. Bazilinskyy, "Vibe coding in practice: Building a driving simulator without expert programming skills," ser. AutomotiveUI '25 Adjunct, Association for Computing Machinery, 2025, pp. 60–66, ISBN: 9798400720147. DOI: 10.1145/3744335.3758482.

9   M. S. Alam, T. Subramanian, M. Martens, W. Remlinger, and P. Bazilinskyy, "From a to b with ease: User-centric interfaces for shuttle buses," in *Adjunct Proceedings of the 16th International Conference on Automotive User Interfaces and Interactive Vehicular Applications*, ser. AutomotiveUI '24 Adjunct, Stanford, CA, USA: Association for Computing Machinery, 2024, pp. 111–116, ISBN: 9798400705205. DOI: 10.1145/3641308.3685033.

10   M. S. Alam, S. K. Ramkumar Sudha, and A. Somayajula, "Ai on the water: Applying drl to autonomous vessel navigation," in *Proceedings of the Sixth International Conference in Ocean Engineering (ICOE2023)*, 2023. DOI: https://doi.org/10.48550/arXiv.2310.14938. arXiv: 2310.14938 [eess.SY].

11   J. Jose, M. S. Alam, and A. S. Somayajula, "Navigating the ocean with drl: Path following for marine vessels," in *Proceedings of the Sixth International Conference in Ocean Engineering (ICOE2023)*, 2023. DOI: https://doi.org/10.48550/arXiv.2310.14932. arXiv: 2310.14932 [eess.SY].

12 S. K. Ramkumar Sudha, M. S. Alam, B. Reddy, and A. S. Somayajula, "Comparison of path following in ships using modern and traditional controllers," in *Proceedings of the Sixth International Conference in Ocean Engineering (ICOE2023)*, 2023. arXiv: 2310.14940 [eess.SY]. 🔗 URL: https://arxiv.org/abs/2310.14940.

Miscellaneous Experience

Awards and Achievements

2022   🔖 **Winner at VRX Competition** organised by the Office of Naval Research (ONR), Naval Postgraduate School (NPS), and Open Robotics, competing against teams from 5 continents.

🔖 **Winner, Data Analysis Hackathon Competition** organised by IEEE Oceans 2022.

Reviewer

2024   🔖 **NeurIPS** Appointed as a NeurIPS conference reviewer.

🔖 **International Journal of Control, Automation, and Systems** Reviewed 4 journal article in the International Journal of Control, Automation, and Systems Journal.

🔖 **Journal of intelligent & robotic systems** Review of 9 journal paper in Journal of intelligent & robotic systems Journal.

🔖 **Ocean engineering** Reviewed 5 articles in the Ocean engineering Journal.

🔖 **Engineering Applications of Artificial Intelligence** Reviewed 1 journal paper in Engineering Applications of Artificial Intelligence Journal.

🔖 **Transportation research interdisciplinary perspectives** Reviewed 1 journal article in Transportation research interdisciplinary perspectives.

Internship

2022   🔖 **Goalwit Technologies**. Developed a deep learning model to protect premium members.

2018   🔖 **Guinea Motors Pvt. Ltd**. Developed an inventory management system using Linear Regression and classified the inventory according to Pareto distribution.

Certification

2022   🔖 **IELTS**. Got 7.5 band (in 2023).

2021   🔖 **Introduction to TensorFlow for Artificial Intelligence, Machine Learning & Deep Learning**. Awarded by DeepLearning.ai.

Other Activities

2024 - 2025   🔖 **Web Chair**. Appointed Web Chair for the IEEE conference: https://www.ro-man2025.org/.

2022 - 2023   🔖 **Placement Coordinator**. Appointed as placement coordinator for masters and PhD students at IIT Madras.