Anandi Dutta, Ph.D.

Assistant Professor, Electrical Engineering Program
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Education

Ph.D. in Computer Engineering; University of Louisiana at Lafayette, LA, USA, 2016

M.S. in Computer Engineering; University of Louisiana at Lafayette, LA, USA, 2014

M.S. in Electrical Engineering; Louisiana State University, Baton Rouge, LA, USA, 2010

Academic Appointments

Assistant Professor 2024–Present
Texas State University, San Marcos, TX

Assistant Professor of Instruction 2020–2024
University of Texas at San Antonio, San Antonio, TX

Senior Lecturer 2019–2020
Ohio State University, Columbus, OH

Lecturer 2016–2018
Texas A&M University, College Station, TX

Previous and Current Grants

- Dutta, A. (Co-PI). BTSCRP BTS 42: Guidelines for Authorizing, Implementing, and Operating Automated Traffic Enforcement Programs. National Academies of Sciences, Engineering, and Medicine (Federal). 450,000 USD. 2026 to 2028. (Develops national guidelines for planning and operating automated traffic enforcement programs)
- Dutta, A (PI) Development of Holographic Digital Inspector, Ingram Hall Makerspace Digital Twin Project Awards, Texas State University, Funded: February 2026 - May 2026).
- Dutta, A (PI) SafeT: an Application for Safe Teen Driving that can help identify and mitigate unsafe conditions through personalized engagement using real-time data and machine learning models, FIAP, Texas State University, 10000. (Funded: August 2025 - August 2026).
- Dutta, A (Co-PI). Telematics-Informed Crash Risk Modeling to Support Targeted Traffic Enforcement for CMV Safety, FMCSA, Federal, 100000. (Funded: February 1, 2026 - January 31, 2028)
- Dutta, A. (Senior Personnel). M-POWER: MATRIX-Provided AI and ML Open-Source Resource Center for Behavioral Health Empowerment. National Institutes of Health AIM AHEAD Program. 2024. (Establishes an AI resource center supporting behavioral health research and health equity)
- Dutta, A. (PI). Exploring Big Data in Voice and Text to Develop an AI-Based Language Learning Application for Children. AMD High Performance Computing Fund Award. 20,000 USD. 2023. (Designs AI-based language learning tools using speech and text analytics)
- Dutta, A. (PI). Google exploreCSR Award. Google exploreCSR Program. 22,000 USD. 2022 to 2023. (Supports workshops and mentoring to encourage underrepresented students, particularly women, to pursue AI research careers)
- Dutta, A. (Coordinator). Artificial Intelligence Boot Camp for MD/MSAI (Doctor of Medicine and Master of Science in Artificial Intelligence) (Conducts a workshop on AI). Department of CS, UTSA. 2023. (Conducts a workshop on AI to MD/MSAI students at UTSA)
- Dutta, A. (PI). Identify and Integrate Effective Teaching Components from the Pandemic Era to Traditional In-Person Teaching. Kay and Steve Robbins Faculty Teaching Fellowship Award, Department of Computer Science, UTSA. 10,560 USD. 2022. (Investigates effective remote teaching strategies and integrates them into in-person instruction)
- Dutta, A. (PI). NVIDIA Academic Hardware Grant Award. NVIDIA Academic Hardware Grant Program. Hardware support equivalent to 10,560 USD. 2022. (Supports development of laboratory modules for machine learning education)
- Dutta, A. (Co-PI). Electronic Health Record Big Data and Radiomic Analytics for Precision Medicine Approach to Long-COVID. San Antonio Partnership for Precision Therapeutics. 200,000 USD. 2021 to 2023. (Uses big data and radiomics to support precision medicine approaches to Long-COVID)

Selected Journal Publications

- Anannya Ghosh Tusti, Anandi Dutta, Syed Aaqib Javed, Subasish Das, Driving education advancements of novice drivers: A review of studies in the United States, Transportation Research Part F: Traffic Psychology and Behaviour, Volume 121, 2026, 103678, ISSN 1369-8478. https://doi.org/10.1016/j.trf.2026.103678
- Somvanshi, S., Dutta, A. Das, S. Benchmarking Advanced Tabular AI Models for Classifying SAE Automation Levels in Crash Data. Data Sci. Transp. 8, 19 (2026). https://doi.org/10.1007/s42421-026-00162-8
- Somvanshi, S., Islam, Md. M., Rafe, A., Tusti, A. G., Chakraborty, A., Dutta A (2026). Bridging the Black Box: A Survey on Mechanistic Interpretability in AI. ACM Computing Surveys, 58(8), Article 210, 1 to 35. https://doi.org/10.1145/3787104
- Mimi, M. S., Das, S., Dutta, A. K. (2026). Non-spatial AI Modeling to Estimate Traffic Volume Measures on Local Roadways. International Journal of Urban Sciences. https://doi.org/10.1080/12265934.2025.2612094
- Barua, S., Das, S., Dutta, A. (2026). A multimodal data framework for motorcyclist injury severity on rural undivided roads. Scientific Reports https://doi.org/10.1038/s41598-026-40755-5
- Somvanshi, S., Islam, M. M., Chhetri, G., Chakraborty, R., Mimi, M. S., Shuvo, S. A., Islam, K. S., Javed, S., Rafat, S. A., Dutta, A., and Das, S. 2026. From Tiny Machine Learning to Tiny Deep Learning: A Survey. ACM Computing Surveys, 58(7), Article 168, 1 to 33. https://doi.org/10.1145/3776588
- Das, S., Dutta, A., Tamakloe, R., and Khan, M. N. 2023. Analyzing the time varying patterns of contributing factors in work zone related crashes. Journal of Transportation Safety and Security, 16(6), 655 to 682. https://doi.org/10.1080/19439962.2023.2246020
- Das, S., Wei, Z., and Dutta, A. 2022. Rules mining on hybrid electric vehicle consumer complaint database. Journal of Transportation Safety and Security, 15(10), 987 to 1007. https://doi.org/10.1080/19439962.2022.2147614
- Das, S., Dutta, A., and Geedipally, S. R. 2021. Applying Bayesian data mining to measure the effect of vehicular defects on crash severity. Journal of Transportation Safety and Security, 13(6), 605 to 621. https://doi.org/10.1080/19439962.2019.1658674

Selected Conference Publications

- Islam, K. S., and Dutta, A. 2025. Hybrid ML-RL approach for smart grid stability prediction and optimized control strategy. IEEE Smart World Congress 2025, Calgary, Alberta, Canada, August 18 to 22.
- Dutta, A., Mruthyunjaya, S., and Li, C. 2026. Interpretable and explainable predictive modeling with perioperative dataset. Proceedings of the 59th Hawaii International Conference on System Sciences (HICSS), Maui, Hawaii, January 6 to 9.
- Islam, K. S., and Dutta, A. 2026. Reasoning under uncertainty in multi-agent reinforcement learning with Upper Confidence Bound technique. 2026 IEEE 16th Annual Computing and Communication Workshop and Conference (CCWC), Las Vegas, Nevada, January 5 to 7.
- Islam, K. S., and Dutta, A. 2026. Edge-AI framework for Air Quality Index forecasting with quantized deep learning models. 2026 IEEE 16th Annual Computing and Communication Workshop and Conference (CCWC), Las Vegas, Nevada, January 5 to 7.
- S. D. Bristi, A. K. Dutta, T. Rahman and M. S. Uddin Khan, "Grain Boundary Segmentation in Additively Manufactured Stainless Steel 316L Using Transformer-Based Vision Model," SoutheastCon 2026, Huntsville, AL, USA, 2026, pp. 1-8, https://doi.org/10.1109/SoutheastCon63549.2026.11476503
- P, S., Dutta, A. K., Das, S. (2026). Characterizing and Predicting Wildfire Evacuation Behavior: A Dual-Stage ML Approach. In IEEE SouthEast Con 2026. https://doi.org/10.1109/SoutheastCon63549.2026.11476300
- Rashid, A., Dutta, A. K., Chen, Y. (2026). Prediction and Optimization of S11 (Reflection Coefficient) in Log-Periodic Toothed Antennas on Flexible Kapton Substrate Using Machine Learning. In IEEE SouthEast Con 2026. https://doi.org/10.1109/SoutheastCon63549.2026.11475983
- Roy, A., Dutta, A. K. (2026). Post-Earthquake Structural Damage Classification from Ground-Level Imagery Using Transfer-Learning Convolutional Neural Networks. In IEEE SouthEast Con 2026. https://doi.org/10.1109/SoutheastCon63549.2026.11476095
- Ahmed, A., Dutta, A., Rangelov, B. (2026). Unsupervised Telemetry Anomaly Detection for CubeSats Across OPSS-SAT and SatNOGS Data. In IEEE SouthEast Con 2026. https://doi.org/10.1109/SoutheastCon63549.2026.11476507
- M, S., Dutta, A. K. (2026). Framework for the Design and Evaluation of Patient-Friendly AI-Generated Medical Reports. In IEEE SouthEast Con 2026. https://doi.org/10.1109/SoutheastCon63549.2026.11476042
- Chhetri, G., Dutta, A., and Das, S. 2026. CognitiveSky: Scalable sentiment and narrative analysis for decentralized social media. Proceedings of the 59th Hawaii International Conference on System Sciences (HICSS), Maui, Hawaii, January 6 to 9.
- Somvanshi, S., Chakraborty, R., Dutta, A., and Das, S. 2025. Crash severity analysis of child bicyclists using Arm-Net and MambaNet. 2025 IEEE Conference on Artificial Intelligence (CAI), Santa Clara, California, May 5 to 7.
- Dutta, A., Mruthyunjaya, S., Islam, K. S., and Saddington, J. 2025. MentalicNet: Development of RAG-based conversational AI and evaluation framework for mental health support. IEEE International Symposium on Emerging Metaverse (ISEMV), Honolulu, Hawaii, October 19 to 20.

- Kayastha, R., Kisi, K. P., and Dutta, A. 2025. Plantar pressure distribution during stooping by novice roofers: Effects of slope angles across foot zones and machine learning-based classification. CSCE Construction Specialty Conference and ASCE Construction Research Congress, Montreal, Canada, July 28 to 31.
- Kaya, E. B., Aslan, S., Valles, D., Dutta, A., and Iscan, S. 2025. Motor fault diagnosis across variable power using deep learning. 2025 International Conference on Computer, Information and Telecommunication Systems (CITS), Colmar, France, pp. 1 to 7. https://doi.org/10.1109/cits65975.2025.11099471
- Mruthyunjaya, S., Dutta, A., and Islam, K. S. 2025. Introducing AI-driven IoT energy management framework. IEEE Smart World Congress 2025, Calgary, Alberta, Canada, August 18 to 22.
- Khan, M. S. U., and Dutta, A. 2025. Adaptive thermal comfort modeling using machine learning: A generalizable low-sensor approach for diverse climates and buildings. IEEE Smart World Congress 2025, August 18 to 22.
- Barua, S., Dutta, A., and Das, S. 2025. Modeling distracted driving: Analyzing driver gaze, vehicle positioning, and psychological response for enhanced traffic safety. 2025 IEEE Conference on Artificial Intelligence, May 5 to 7.

Book Chapters

- Non-fear-based Road Safety Campaign as a Community Service: Contexts from Social Media. Communication in Computer and Information Science. Conference Proceeding Book of 20th International Conference on Innovations for Community Services (I4CS). Dutta, A., and S. Das, 2020 https://link.springer.com/chapter/10.1007/978-981-15-5113-0_40
- Tweets about Self Driving Cars: Deep Sentiment Analysis using Long Short-Term Memory network (LSTM). Dutta, A., and S. Das, Springer, 2020 https://link.springer.com/chapter/10.1007/978-981-15-5113-0_40