

MD ZAHID HASAN

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PROFESSIONAL SUMMARY

- Machine Learning specialist with over two years of experience in Computer Vision, Multimodal learning, Vision-Language-based foundation models, and Video action understanding research
- Implemented deep learning frameworks like PyTorch, with a focus on fine-tuning and developing cutting-edge transformer models to optimize Vision-Language models for enhanced video action recognition
- Trained with a diverse skill set to perform both the development of advanced deep modeling techniques and their practical implementation in real-world scenarios
- Successfully collaborated with students, faculties and research scientists from diverse cultures and research groups in multiple Machine Learning and Computer Vision projects as a Graduate Research Assistant

SKILLS

Python, C, C++, R, PyTorch, Tensor Flow, Keras, OpenCV, SciKit-Learn, HuggingFace, Timm, Pandas, ViT, NumPy, Matplotlib, MATLAB, Microsoft Office, Amazon Web Services (AWS), Amazon SageMaker, MPI, CUDA, OpenMP, Unix/Linux, LaTeX, GitHub, Tableau, PostgreSQL, Transformer, GPT, Llama, LLM

EDUCATION

- | | |
|---|-------------------------------|
| Iowa State University (ISU), Ames, IA
Doctor of Philosophy, Ph.D., Electrical Engineering, GPA:3.81/4 | January 2021-June 2025 |
| Iowa State University (ISU), Ames, IA
Master of Engineering, M.Eng., Electrical Engineering, GPA:3.81/4 | January 2023-June 2024 |
| Bangladesh University of Engineering and Technology (BUET), Bangladesh
Bachelor of Science, B.S., Electrical and Electronic Engineering, GPA:3.52/4 | July 2014-October 2018 |

EXPERIENCE

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|--|------------------------------|
| ISU Electrical and Computer Engineering Department
Machine Learning Graduate Research Assistant | June 2021-Present |
| <ul style="list-style-type: none">• Expanded a vision-language-based framework with PyTorch to analyze distracted driving activity from naturalistic driving video (data-driven multi-modal model for understanding human behavior)• Applied feature extraction methods in large-scale, high-dimension naturalistic driving data to analyze spatial-temporal features for cognitive impairment analyses in Alzheimer patients (used Python and PyTorch)• Collaborated with an interdepartmental team of students and faculties from the University of Nebraska• Implemented real-world digital biomarker algorithm to analyze driving patterns from roadway weather conditions and drivers' speed compliance in naturalistic driving (used Python and Vision Transformer) | |
| Department of Electrical and Computer Engineering ISU
Communication and Signal Processing Graduate Teaching Assistant | January 2021-May 2021 |
| <ul style="list-style-type: none">• Graded homework assignments, final exams, and projects for ~40 undergraduate students• Conducted sessional class on Simulink toolbox and taught two classes and review sessions for ~15 students | |

BUET Electrical and Electronic Engineering Department, Bangladesh**January 2018-December 2020****Power Systems Undergraduate Research Assistant**

- Developed a power systems component Phase-locked loop using MATLAB's DSP toolbox and Simulink to analyze noisy signals and predict voltage variations in the power system

LEADERSHIP AND SERVICE EXPERIENCE**Graduate Organization of Electrical and Computer Engineering (GOECpE), ISU****January 2024-Present****Assistant Secretary**

- Fostered a sense of community via social interactions and assisted in the professional development of the Iowa State ECpE graduate students
- Served as a liaison between the graduate students and the Iowa State ECpE Department

Bangladesh Students' Association (BSA), ISU**January 2021-Present****Student Member**

- Mentored incoming Bangladeshi ISU students with onboarding information and procedures
- Engaged in student outreach and promoted the organization's mission
- Collaborated with the student officers to organize on-campus events and programs

IEEE-Eta Kappa Nu: Nu Chapter (IEEE-HKN), ISU**November 2021-May 2023****Graduate Member**

- Conducted help room sessions to mentor undergraduate students and provide academic assistance
- Communicated with the student officers and assisted in organizing the Fall'21 induction program

LICENSES AND CERTIFICATES

- Fundamentals of Deep Learning for Multi-GPUs, NVIDIA Deep Learning Institute August 2022
- CITI Program for Biomedical Research, The University of Nebraska Medical Center June 2021
- Applied Machine Learning: Algorithms, LinkedIn Learning May 2019
- Machine Learning and AI Foundations, LinkedIn Learning July 2020

PUBLICATIONS

- **Hasan, M. Z.**, Joshi, A., Rahman M., Venkatachalapathy, A., Hegde, C., Sharma, A., Sarkar S. "DriveCLIP: Zero-shot transfer for distracted driving activity understanding using CLIP," Machine Learning for Autonomous Driving Workshop at the 36th Conference on Neural Information Processing Systems (NeurIPS 2022), New Orleans, USA, 2022.
- **Hasan, M. Z.**, Basulto-Elias, G. and Tan, R. K. L., Chang, J. H., Sarkar, S., Sharma, A., Hallmark, S., and Rizzo, M. and Merickel, J. "Roadway weather challenges illuminate real-world driving biomarkers of dementia risk," Alzheimer's Association International Conference (AAIC) 2023 Annual Meeting, Amsterdam, Netherlands.
- **Hasan, M. Z.**, Chen J., Wang J., Rahman M. S., Joshi A., Velipasalar S., Hegde C., Sharma A., Sarkar S., "Vision-Language Models can Identify Distracted Driver Behavior from Naturalistic Videos," IEEE Transactions on Intelligent Transportation Systems (submitted in June 2023; under review) ([link](#))

PROFESSIONAL ASSOCIATIONS

Graduate Organization of Electrical and Computer Engineering (GOECpE) – Assistant Secretary

2024-present

Inter-Residence Hall Association – Graduate member

2023-present

Institution of Electrical and Electronics Engineers (IEEE) – Student member

2021-2023

IEEE-Eta Kappa Nu: Nu Chapter (IEEE-HKN) – Graduate member

2021-2023