

Emad Ali

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Education

2024 –

Ph.D. in Engineering Education, Virginia Tech.

Research: Coauthored several conference papers, published in ASEE and IEEE Ethics. Contributing to an NSF-funded project on Translational Ethical Competencies, and Generative AI use in Qualitative Research, and education.

Research Focus: Generative AI in education, ethical AI design, Assessment in the era of Gen AI

Methods: Survey analysis, statistical testing (R), systematic literature review (covidence), qualitative analysis (thematic analysis)

Courses: *Issues in Engineering Education, Disciplinary Literacy in Engineering Education, Research Methods, Quantitative Data Analysis, Qualitative Data Analysis, Intermediate Data Structures and Algorithms, Ethics and Professionalism in CS, Engineering Workforce Development, Applied Design and Assessment of Educational Experiences in Engineering, Learning & Cognition*

2020 – 2023

M.S. in Electrical Engineering, Information Technology University (ITU).

Thesis title: *Autonomous Smart Surveillance System.*

Courses: *Embedded Systems Design (ESD), Deep Learning (DL), VLSI Systems, Advanced Digital System Design (ADSD), Analysis of Stochastic Systems, Advanced Computer Architecture (ACA), Antenna Engineering and Wave Propagation (AEWP)*

2016 – 2020

B.E. in Avionics, National University of Sciences & Technology (NUST).

Final Year Design Project: *Design and Simulation of an all-electric trainer aircraft.*

Courses: *Logical System Designs (LSD), Electromagnetic Field Theory (EMFT), Microprocessors, and Microcontrollers, Microwave Engineering (ME), Antenna Engineering (AE)*

Research Publications

Conference Proceedings

- 1 A. Ashraf, E. Ali, K. A. Okegbenro, and D. Kim, "Wip: A delphi study on identifying competencies for entrepreneurial opportunity recognition and social impact measurement of engineers," in *2026 ASEE Annual Conference & Exposition*, 2026.
- 2 E. Ali, Q. Zhu, D. Kim, and H. Eldardiry, "Exploring how ai engineers perceive and develop translational ethical competency: Rfe-funded project updates," in *2026 ASEE Annual Conference & Exposition*, 2026.
- 3 A. Ashraf, B. K. McOwen, E. Ali, and D. Kim, "Exploring the intersection between lifelong learning and workforce development in engineering," in *2025 ASEE Annual Conference & Exposition*, 2025.
- 4 E. Ali, J. Weichert, Y. S. Sun, H. Eldardiry, Q. Zhu, and D. Kim, "Exploring translational ethical competency (tec) in ai design: Conceptual analysis and methodological reflections from a pilot study," in *2025 IEEE International Symposium on Ethics in Engineering, Science, and Technology (ETHICS)*, IEEE, 2025, pp. 1–7.
- 5 E. Ali, B. K. McOwen, A. Ashraf, and D. Kim, "Navigating the ai ethics frontier: A cross-national comparison of ai policy documents for developing responsible ai workforce," in *2025 ASEE Annual Conference & Exposition*, 2025.
- 6 B. K. McOwen, A. Ashraf, E. Ali, and D. Kim, "Considering personal mastery as a framework for developing students' affinity for lifelong learning," in *2025 ASEE Annual Conference & Exposition*, 2025.

Research & Teaching Experience

2026 –  **Graduate Teaching Assistant**, Virginia Tech.
Foundations of Engineering (Fall 26)

2024 –  **Graduate Research Assistant**, Virginia Tech.

Research Projects:

1) Translational Ethical Competency in AI. -NSF Grant Project

- Contributed to participant recruitment and selection
- Designed AI ethics scenarios for research in collaboration with the team
- Conducted the pilot study with team members, analyzed data, and presented our findings at the IEEE Ethics Conference 2025
- Led 10+ interviews with the AI professionals
- Conducting qualitative data analysis using the Grounded Theory approach

2) Student Perceptions of Generative AI

- Conducted quantitative data analysis in R on student survey data across two academic years
- Analyzed students' generative AI usage across course levels
- Analyzed students' perceptions of usefulness and ethicality across tasks and disciplines
- Analyzed data for statistical differences in students' frequency of GenAI use in Fall 2023 and Fall 2024
- Analyzed data for the distribution of course-level GenAI policies and students' reported change in use between two academic terms
- Drafted two journal articles (One is submitted for review, and the other one is in final revisions)

3) LLMs in Qualitative Research

- Lead researcher on the project
- Developed a research plan for conducting a Systematic Literature Review (SLR) on the use of LLMs in research
- Used VT ARC (Python scripts) to conduct initial data screening
- Led Manual Validation to establish the rigor of the study
- Currently conducting full-text article review

4) AI Policy Analysis

- Designed and conducted a review study focusing on AI policies of various regions
- Published in a peer-reviewed ASEE conference (2025)

Research & Teaching Experience (continued)

- 2023 – 2024  **Lecturer**, Superior University.
Administrative Charges: *Departmental Quality Circle Head (DQCH), Batch Advisor*
Courses Taught: *Embedded Systems, Artificial Intelligence, Engineering Entrepreneurship, Functional English, Web Development, Introduction to Aerospace Engineering, Electrical Wiring Interconnection (EWIS), Data Structures and Algorithms (DSA)*
Supervised Research Projects:
1) *Design and Prototyping of a scaled-down model of a Green Energy-based Airport.*
2) *Design and Development of an Autonomous Drone equipped with AI*
3) *Design and Development of Vision-Based Smart System via Human Tracking for Indoor Environment*
- 2021 – 2024  **Teaching Assistant**, Information Technology University (ITU).
Graduate Level Courses: *Embedded System Design (Spring 23 & 24), Information Security, Advanced Digital System Design (ADSD),*
Senior Year Courses: *Digital System Design (Fall 22 & 23)*
Junior Year Courses: *Operating System (Fall 21 & 22)*
- 2022 – 2022  **Lab Engineer cum Lecturer**, Superior University.
Courses Taught: *Electrical Fundamentals, Digital Logic Design (DLD)*

Miscellaneous Experience

Awards and Achievements

- 2024-2025  **Pratt Fellowship**, Graduate School, Virginia Tech.
- 2019 – 2020  **General Secretary**, The Aviators, NUST.
- 2019  **Founding Member**, The Aviators, NUST.
- 2018 – 2019  **Ambassador for Conference**, UET-Mode United Nations (MUN).
- 2015 – 2016  **General Secretary**, Forman Mathematics Society (FMS), FCCU.
- 2013  **3rd Position**, Water Conservation Speech Contest, TEDDS.

Certification

- 2024  **Machine Learning with Python.**
- 2023  **Introduction to Back-End Development.**
Principles of UX/UI Design.
Working with Data.
React Native.
React Basic.
Introduction to Front-End Development.
Programming with JavaScript.
Version Control.
Introduction to Mobile Development.

References

Available on Request