Hasnain Irshad Bhatti

http://hasnainirshad.github.io

Daejeon, South Korea

Email : hasnain@kaist.ac.kr

Mobile : +82-010-4240-8980

EDUCATION

Korea Advanced Institute of Science and Technology — Daejeon, KR
Ph.D. in Electrical Engineering (Advisor: Prof. Jaekyun Moon) — *Mar. 2022 – present*

Korea Advanced Institute of Science and Technology — Daejeon, KR
M.S. in Electrical Engineering (Advisor: Prof. Jaekyun Moon) — *Sept. 2020 – Feb. 2022*
Dissertation Title: Decoupled Training of Neural Networks with Periodic Knowledge Distillation

University of Engineering and Technology, Lahore — Lahore, PK
Bachelor of Science in Electrical Engineering; GPA: 3.825/4 , Double Gold Medalist — *Oct. 2016 – July. 2020*

PUBLICATIONS

- H. Kousar*, **Hasnain I. Bhatti*** and J. Moon, "Pruning-based Data Selection and Network Fusion for Efficient Deep Learning," Attributing Model Behavior at Scale (ATTRIB) workshop at Neural Information Processing Systems (NeurIPS), Dec. 2024.
- M. M. Rahimi, **Hasnain I. Bhatti**, Y. Park, H. Kousar and J. Moon, "EvoFed: Leveraging Evolutionary Strategies for Efficient and Privacy-Preserving Federated Learning," Neural Information Processing Systems (NeurIPS), Dec. 2023.
- **Hasnain I. Bhatti** and Jaekyun Moon, "Locally Supervised Learning with Periodic Global Guidance", Hardware Aware Efficient Training Workshop at ICML 2022.
- Wenchao Dong, Bryan Wong, **Hasnain Irshad Bhatti**, Lanu Kim, Meeyoung Cha. "Analyzing Web data to examine the gender pay gap in STEM fields." Proceedings of the Korea Computer Congress (KCC). 2022.
- Wenchao Dong, Bryan Wong, **Hasnain Irshad Bhatti**, Lanu Kim, Meeyoung Cha. "Analyzing Gender Pay Gap in STEM Fields by Life Trajectory." Extended Abstract at the International Conference on Computational Social Science (IC2S2). 2022.
- Dong-Jun Han, **Hasnain I. Bhatti**, Jungmoon Lee, and Jaekyun Moon, "Accelerating Federated Learning with Split Learning on Locally Generated Losses", ICML Workshop on Federated Learning for User Privacy and Data Confidentiality, July 2021.

EXPERIENCE

MoonLab, KAIST — Daejeon, KR
Lab Researcher — *Jan 2021 - Present*
At MoonLab, I have led multiple research projects in distributed machine learning, focusing on improving the scalability and efficiency of neural network architectures. My recent work includes pruning-based data selection strategies and network fusion techniques for deep learning, presented at NeurIPS 2024. I have also worked on evolutionary strategies for federated learning, addressing privacy and efficiency concerns. In addition, my contributions to locally supervised learning have optimized distributed model training processes. I am currently exploring low-rank adaptation methods for full model scaling to enhance adaptability in dynamic environments.

Al-Khawarizmi Institute of Computer Science, UET Lahore — Lahore, PK
Research Intern — *April 2019 - Feb 2020*
I developed a real-time accident detection system utilizing deep learning and computer vision on Nvidia Jetson Nano. I worked on monocular depth estimation using vanishing points and blur content analysis and used small ML models for real-time prediction.

Advanced Communication Laboratory, LUMS — Lahore, PK
Research Intern — *July 2019 - Dec 2019*
Worked on the estimation of breathing rate of a person using RSS(received signal strength) of WiFi signals. Furthermore, I modeled and evaluated the channel for complex environmental factors in the breathing rate estimation.

Honors and Leadership

- **Young Future Energy Leader**: Khalifa University, 2022-2023.
- **Vice President and Head Robotics**: IET On Campus UET Lahore, 2019-2020.
- **Director Education**: Education for Every Child Foundation, 2019-2020.
- **Dean's roll of honor**: Fall 2016, Spring 2017, Fall 2017, Spring 2018, Fall 2019.
- **Best Microprocessor Project Award**: Electrical Engineering Dept, UET Lahore, 2018.
- **Scholarship Recipient**: Pakistan Engineering Congress (2018, 2019).

Programming Skills

- **Languages**: Python, Pytorch, C, Java, Verilog, x86 assembly, SQL **Microcontrollers**: RPI, STM32, Tiva-C series, Intel Cyclone-V, Arduino