









Muhammad Usama Mirza

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Education

- 2021 – Present  **M.Sc. Electrical and Electronics Engineering**
CGPA: 3.77 / 4.00
- 2017 – 2021  **B.Sc. Electrical Engineering**
CGPA: 3.77 / 4.00
Final Year Project: Crop Monitoring using Computer Vision and IoT



Research Publications

- 1 O. Dalmaz, U. Mirza, G. Elmas, *et al.*, “Pflsynth: Personalized federated learning of image synthesis in multi-contrast mri,”
- 2 O. Dalmaz, B. Saglam, G. Elmas, M. Mirza, and T. Çukur, “Denoising diffusion adversarial models for unconditional medical image generation,” in *2023 31st Signal Processing and Communications Applications Conference (SIU)*, 2023, pp. 1–5.  DOI: 10.1109/SIU59756.2023.10223912.
- 3 M. U. Mirza, O. Dalmaz, H. A. Bedel, *et al.*, *Learning fourier-constrained diffusion bridges for mri reconstruction*, 2023. arXiv: 2308.01096 [eess.IV].
- 4 M. U. Mirza and T. Çukur, “Super-resolution diffusion model for accelerated mri reconstruction,” in *2023 31st Signal Processing and Communications Applications Conference (SIU)*, 2023, pp. 1–4.  DOI: 10.1109/SIU59756.2023.10223786.
- 5 O. Dalmaz, U. Mirza, G. Elmas, M. Özbey, S. U. H. Dar, and T. Çukur, “A specificity-preserving generative model for federated mri translation,” in *Distributed, Collaborative, and Federated Learning, and Affordable AI and Healthcare for Resource Diverse Global Health*, S. Albarqouni, S. Bakas, S. Bano, *et al.*, Eds., Cham: Springer Nature Switzerland, 2022, pp. 79–88, ISBN: 978-3-031-18523-6.
- 6 O. Dalmaz, U. Mirza, G. Elmas, *et al.*, *One model to unite them all: Personalized federated learning of multi-contrast mri synthesis*, 2022. arXiv: 2207.06509 [eess.IV].
- 7 M. U. Mirza, O. Dalmaz, and T. Çukur, “Skip connections for medical image synthesis with generative adversarial networks,” in *2022 30th Signal Processing and Communications Applications Conference (SIU)*, 2022, pp. 1–4.  DOI: 10.1109/SIU55565.2022.9864939.


Internships


- 2019  **Research Intern**, TUKL Research and Development Lab
Worked on the acceleration of Deep Neural Networks on FPGAs.
- 2021  **Intern**, SUPERNET (Islamabad).
Completed a two month internship in the field of Satellite communication.


Skills

- Coding  Python, C++, MATLAB, \LaTeX , HTML, CSS
- Frameworks  PyTorch, TensorFlow

Academic Achievements

- 2011, 2013  **Silver Medal**, in the International Kangaroo Mathematics Contest, Pakistan

- 2015  **Outstanding Cambridge Learner Awards**, highest mark in the world in O-Level Mathematics.

- 2017  **Outstanding Cambridge Learner Awards**, Second highest marks in Islamabad for Best Across three Cambridge International AS Levels.

References

Dr. Tolga Çukur, Professor, National Magnetic Resonance Research Center (UMRAM), Department of Electrical and Electronics Engineering, Bilkent University, Ankara, Email: cukur@ee.bilkent.edu.tr

Dr. Sajjad Hussain, Assistant Professor, Department of Electrical Engineering, School of Electrical Engineering and Computer Science, NUST, Islamabad, Email: sajjad.hussain2@seecs.edu.pk