

MUHAMMAD AMMAR UL HASSAN

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Location: 69 Jayang-ro 19-gil, Gwangjin-gu, Seoul, South Korea

DOB: 1991/01/01, Nationality: Pakistan

GitHub: <https://github.com/ammar-deep>

Personal Website: <https://ammar-deep.github.io>

Portfolio: [Link](#)



I aspire to work in the field of Deep Learning by developing cutting-edge AI-based solutions and applying Neural Networks to core Computer Vision techniques like Classification, Object Detection, Image Segmentation, Generative modeling, and Depth Estimation.

PROFESSIONAL PROFILE

With a robust background in both academic research and industry, I bring a total of 5 years of experience to my role as a Computer Vision and AI Research Engineer. My research & development primarily centers around designing cutting-edge deep learning methods, with a predominant focus on 2D image processing techniques while also encompassing 3D image processing, leveraging supervised/semi-supervised/unsupervised learning, Few-shot learning, Metric learning, Contrastive learning, Generative Adversarial Networks (GANs), Image-to-Image translation, and Style transfer techniques.

EDUCATION

PhD	Soongsil University, Seoul, South Korea Department: <i>Computer Science & Engineering</i> Dissertation: "Unsupervised Image Generation for Multiple Domains based on Mixing Regularization and Projection Encoder" Advisor: Prof. Jaeyoung Choi	Feb 2023
MS	Soongsil University, Seoul, South Korea Department: <i>Computer Science & Engineering</i> Thesis: "FreeType Outlet Adapter (FOA): A module for adding new functionality inside the FreeType rasterizer." Advisor: Prof. Jaeyoung Choi	Aug 2018
BS	International Islamic University, Software Engineering Final Project: Tic Tac Toe game in android using SMS	Aug 2013

SKILLS

Computer Vision: Image generation, Generative Adversarial Networks (GANs), Classification, Object detection, Image segmentation, Depth estimation, Supervised /

Unsupervised image-to-image (I2I) translation, Multi-Domain-Multi-Modal-Few-shot image generation & Style transfer.

Programming Languages: Python, C (knowledgeable), C++ (knowledgeable), PHP.

Deep Learning Frameworks: PyTorch, TensorFlow.

Sensors and Edge devices: RGB pinhole/Fisheye cameras, LiDAR, Jetson, TI board.

Web Dev: HTML, CSS, jQuery, Bootstrap, CodeIgniter, WordPress, OpenCart.

Databases: MySQL, MongoDB.

Misc.: Git / Github, Jira, MLOps (knowledgeable), Docker (knowledgeable), Confluence, Academic research, teaching.

WORK EXPERIENCE

Computer Vision/AI Engineer

03/2023 – Present

DeltaX, Seoul, South Korea

- Developing solutions for Advanced Driver Assistance Systems (ADAS)
 - In-Cabin Monitoring System (ICMS)
 - Exterior Monitoring System (EMS)
 - Surround View Monitoring System (SVM)
- Developing and deploying Cutting-edge Classification, Object Detection, Semantic Segmentation, and Depth Estimation models for Edge devices
 - Texas Instruments (TI-board)
 - NVIDIA Jetson
- Participated in cutting-edge R&D projects which eventually progressed to industrial PoCs.
 - Developed person detection solution, enabling accurate detection of individuals beyond 45 meters in both day and night conditions.
 - Developed Pseudo-LiDAR solution with mono-camera based on lightweight and high-precision depth estimation using deep learning.
 - Developed solution for Face Anonymization to enhance privacy and confidentiality in visual data.

Graduate Research Associate (During PhD.)

09/2018 – 02/2023

System Software Lab, Soongsil University, Seoul, South Korea

- Designed a controllable unsupervised generative adversarial network (GAN) architecture, enabling disentanglement of content and style without label supervision.
 - Applied in image style transfer, attribute manipulation, and domain transfer.
- Developed Metric and Contrastive learning-based networks for few-shot font generation, applied in text editing, font library creation, and cross-lingual font generation.

- Led font family data collection, preprocessing, and labeling efforts. Engineered a real-time generative model for font family generation, particularly applicable to Variable fonts for typeface variations.
- Applied an end-to-end GAN for character image skeletonization, resulting in a Skeleton-driven character synthesis image generator.

Graduate Research Assistant (During MS.)

09/2016 – 08/2018

System Software Lab, Soongsil University, Seoul, South Korea

- MetaFont Module for FreeType rasterizer
 - Developed and Integrated MetaFont driver module in FreeType rasterizer for Linux operating system

Web Developer

2014 – 2016

Tangent Technologies Pvt Ltd, Islamabad, Pakistan

- Developed, designed, and managed web applications
- Built and deployed plugins and extensions for WordPress and OpenCart
 - DHL and Endicia Postage label printing extensions for OpenCart
- Collaborated closely with other team members to efficiently plan, design, and develop robust solutions

PUBLICATIONS

My [Google Scholar](#) profile contains a comprehensive listing of my publications.

Hassan, A. U., Memon, I., & Choi, J. Learning font-style space using style-guided discriminator for few-shot font generation. *Expert Systems with Applications*, 242, 122817. (2024).

Hassan, A. U., Lee, H., & Choi, J. Exploiting mixing regularization for truly unsupervised font synthesis. *Pattern Recognition Letters*, 169, 35-42. (2023).

Hassan, A. U., Memon, I., and Choi, J., “Real-time high quality font generation with conditional font gan,” *Expert Systems with Applications*, 213, 118907. <https://doi.org/10.1016/j.eswa.2022.118907>. (2022).

Hassan, A. U., and Choi, J., “Fontnet: Closing the gap to font designer performance in font synthesis,” *AI for Content Creation (AI4CC), CVPR*. (2022).

Hassan, A. U., Ahmed, H., and Choi, J., “Unpaired font family synthesis using conditional generative adversarial networks,” *Knowledge-Based Systems*, 229, 107304. <https://doi.org/10.1016/j.knosys.2021.107304>. (2021).

PATENTS

Hassan, A. U., and Choi, J., “METHOD AND APPARATUS FOR GENERATING FONT FAMILY USING DEEP LEARNING,”, Soongsil University Industry-Academic Cooperation Foundation, Patent, No. 2-2006-027849-9 (Korea), 2022.

TEACHING & PRESENTATION EXPERIENCE

- AI for Content Creation Workshop at CVPR** Jun 2022
Presented [FontNet](#) paper at AI4CC
- Presented my research on learning font style in embedding space
 - Introduced Triplet loss for learning style space and training style encoder separately
- Soongsil University** March 2021 to Jun 2021
Head TA for Deep learning programming (5041345801)
- Taught Applications of Deep Neural Networks by Jeff Heaton
 - Python programming language to implement deep learning using TensorFlow 2.0
- Korean Society of Computational Science and Engineering** Dec 2020
Invited Lecturer for Machine Learning Winter School (KSCSE)
- Tutorial on Generative Adversarial Networks (GANs)
 - TensorFlow 2.0
 - [Tutorial details on Website](#)
- The 9th International Conference on Smart Media and Applications** Sep 2020
Presented Font2Fonts paper at SMA
- Modified image-to-image translation framework for font generation
 - Received best paper bronze award
- AMGCC Workshop** Aug 2020
Talk on Font Generation trends using Machine Learning
- Discussed various state-of-the-arts font generation methods
 - Presented our work on font generation and future directions

HONORS AND AWARDS

- International Graduate Research Scholarship** 2018 – 2023
Soongsil University
- Best Paper Bronze award** 2020
International Conference on Smart Media and Applications (SMA)

International Graduate Research Scholarship
Soongsil University

2016 – 2018

Federal Government Scholarship

2009 – 2013

Given to undergraduates whose GPA is high-ranking in his/her own major University

LANGUAGES

English: Proficient

Korean: Learner

Urdu / Hindi: Native Language

REFERENCES

Available on Request