Avinash Kumar

Date of birth: 21/02/1999 | **Phone number:** (+82) 1021339128 (Mobile) | **Email address:**

kumaravinashsw44@gmail.com | **Website:** avinashkumar44.github.io | **LinkedIn:**

Avinash Kumar

ABOUT ME

Computer Vision specialist with a strong background in Generative AI, image generation, and image processing. Experienced in designing and deploying advanced deep learning models using PyTorch and TensorFlow. Proven research expertise in advanced domains including GANs, Diffusion Models, and Vision Transformers. Passionate about solving real-world problems through innovative AI-driven solutions at the intersection of deep learning and computer vision.

EDUCATION AND TRAINING

01/09/2022 – 30/08/2024 Seoul, South Korea
MASTER OF SCIENCE IN ENGINEERING Soongsil University, Seoul South Korea

Website https://ssu.ac.kr/ | **Field of study** Computer Science and Engineering | **Final grade** 4.34/4.50 |

Thesis Korean Font Image Generation using Position-based Components (YOLOV8, GANs, PyTorch and Python)

21/10/2016 – 10/01/2021 Khairpur Mir's , Pakistan
BACHELOR'S OF ENGINEERING Mehran University of Engineering and Technology (SZAB Campus) Khairpur Mir's

Website https://www.muetkhp.edu.pk/ | **Field of study** Software Engineering | **Final grade** 3.86/4.0 |

Thesis FIS (Food Internet Security) Hostel

WORK EXPERIENCE

01/09/2022 – CURRENT Seoul, South Korea
UNIVERSITY RESEARCH ASSOCIATE SYSTEM SOFTWARE LAB SOONGSIL UNIVERSITY

- Developed generative adversarial networks (GANs) for image generation and trained YOLOV8/deep learning models for segmentation, classification, and objection detection.
- Deep learning services development; applying knowledge of generative models and computer vision tasks like segmentation through hands-on projects and product development.
- Research publications in various Journals and peer International Conferences related to Deep Learning and Computer Vision.
- Collaborated with team members in the lab to enhance research skills and gain hands-on experience working in a research group setting for image processing and image-generating techniques like OpenCV, GANs, and Diffusion Models

Department Computer Science and Engineering | **Website** https://ss.ssu.ac.kr/

01/02/2022 – 30/08/2022 Karachi, Pakistan
SOFTWARE DEVELOPER CUBIX

- Developed smart contracts for gaming-related tokens and NFTs using Solidity on Remix IDE and Truffle framework, gaining experience building on blockchain.
- Integrated blockchain code with JavaScript to build multiple decentralized web-based projects, demonstrating full-stack development skills.

- Wrote test cases and scenarios to verify smart contract code using frameworks like Truffle, ensuring code quality and functionality.
- Worked on decentralized exchanges, developing liquidity pools, and integrating codes to build out blockchain applications and platforms.

Website www.cubix.co

SKILLS

Programming Lanugages

Python (computer programming) | JavaScript | Java (computer programming) | C++ | C (Knowledgeable)

Frameworks & Libraries

Pytorch,Tensorflow | software components libraries | OpenCV | Keras | Pandas | Matplotlib | Seaborn | Scikit-Learn | NumPy

Computer Vision

deep learning | machine learning | Generative Modeling | Classification | Object Detection | GANs | Diffusion Models | Supervised/Unsupervised Image to Image Translation | Metric Learning | Neural Networks | Feature Extraction | Image Analysis

Databases

MySQL | MongoDB | Microsoft Access

Network Security

operating systems | Linux | Server Management

Research Skills

perform field research | identify research topics | draft scientific or academic papers and technical documentation | writing techniques | LaTeX (very good)

PROJECTS

my writing: Generative Handwriting Font Project

- Developed a system to generate 2,780 Korean characters using only 43 character image handwritten samples.
- Implemented YOLOv8 for efficient character detection and segmentation.
- Used GAN models (PACGAN) to synthesize high-quality Korean font styles.
- Designed and deployed a web platform (mywriting.kr) to showcase and download generated TTF fonts.
- available at https://mywriting.kr/

Automated Web Scripting & Data Visualization Toolkit

- Developed Python scripts for automated web scraping, extracting structured data from multiple sources.
- Created interactive data visualizations using JavaScript (D3.js, Chart.js) and Python (Matplotlib, Seaborn, Plotly).
- Automated journal formatting and scripting for specific academic and event-based publishing tasks.
- Designed and implemented task-specific automation scripts to streamline workflows and reduce manual efforts.
- Built algorithms for problem-solving and data manipulation, enhancing accuracy and performance.
- Integrated data pipelines for real-time data processing and visualization dashboards.

FontFusionGAN: Enhancing Handwriting Images Quality

Developed a GAN-based solution to enhance the quality of old or imperfect handwriting by blending it with printed handwriting styles.
Implemented StyleGAN as the core model for generating high-quality handwriting outputs.
Built and trained the FontFusionGAN (FFGAN) model for effective handwriting refinement.
Published the project in MDPI Electronics journal; the detailed article is accessible online at **https://doi.org/10.3390/electronics12204246**

WAGMI GAME: Blockchain-Based Gaming Project

- Managed backend development and blockchain integration for the WAGMI GAME project at Cubix software house.
- Designed and implemented smart contracts using Solidity to enable secure and transparent in-game transactions.
- Developed APIs and backend systems using Node.js to support seamless gaming experiences.
- Collaborated with cross-functional teams to deliver a scalable blockchain-based gaming solution.

FIS HOSTEL: Find a Available Hostel for stay in Particular City Android Application

- Developed an Android application to help students traveling to different cities find suitable hostels.
- Designed and implemented the app using Java and XML in Android Studio, focusing on user-friendly features.
- Created a detailed UI/UX prototype to visualize app functionality and ensure seamless user experience.
- Secured funding for the project through the prestigious Ignite Funding program.

PUBLICATIONS

2023
A Study on the Refining Handwritten Font by Mixing Font Styles

Kumar Avinash, et al. (2023). A Study on the Refining Handwritten Font by Mixing Font Styles. In MITA 2023, Jul 7, 2023, Technical University of Ostrava, Ostrava, Czech.

Authors: Avinash Kumar, Kyeolhee Kang, Ammar ul Hassan, Jaeyoung Choi | **Journal Name**: MITA 2023

2023
FontFusionGAN: Refinement of Handwritten Fonts by Font Fusion

Kumar, A., Kang, K., Muhammad, A. u. H., & Choi, J. (2023). FontFusionGAN: Refinement of Handwritten Fonts by Font Fusion. Electronics, 12(20), 4246. https://doi.org/10.3390/electronics12204246

Authors: Avinash Kumar, Kyeolhee Kang, Ammar ul Hassan, Jaeyoung Choi | **Journal Name**: MDPI Electronics

2023
Deep Adaptive Feature Selection in Deep Recommender Systems

Kayange, H., Kumar, A., Lee, Y., Jung, H., & Choi, J. (2023). Deep Adaptive Feature Selection in Deep Recommender Systems. Journal of the Korean Information Science Society, pp. 1562-1564.

Authors: Hyston Kayange, Avinash Kumar, Yejung Lee, Hoonseo Jung, Jongsun Choi

2024
CKFONT3: Component-Based Korean Font Generation Using Positional Aware Component Decomposition

Kumar Avinash, et al, Ckfont3: Component-Based Korean Font Generation Using Positional Aware Component Decomposition. Available at SSRN: https://ssrn.com/abstract=5030035 or http://dx.doi.org/10.2139/ssrn.5030035

Authors: Avinash Kumar, Irfanullah Memon, Abdul Sami, Youngwon Jo, Jaeyoung Choi

2025
Text-Conditioned Diffusion Model for High-Fidelity Korean Font Generation

Sami Abdul, Kumar Avinash, Jo Youngwon, Memon Irfanullah, Rizwan Muhammad, Choi Jaeyoung (2025). Text-Conditioned Diffusion Model for High-Fidelity Korean Font Generation. In ICOIN 2025, Jan 14, 2025, Chiang Mai, Thailand.

Authors: Abdul Sami, Avinash Kumar, Youngwon Jo, Irfanullah Memon, Muhammad Rizwan, Jaeyoung Choi | **Journal Name**: ICOIN 2025

HONOURS AND AWARDS

09/2023
Best Research Paper Award – MITA Conference 2023

- Honored with Best Research Paper Award at MITA Conference 2023

09/2022
Master's Fully Funded Scholarship – Soongsil University

- Awarded with Professor's Scholarship for Master's Degree
- Learn and Develop Generative Models
- Publish Various Scientific Papers

10/2018
Sakura Exchange Program Japan – University of Tokyo

- Selected as top student from the batch for Sakura Exchange Program Japan.
- Hackathon at University of Tokyo in cyber security.

11/2016
HEC Scholarship – Mehran University of Engineering and Technology

- Higher Education Commission Scholarship for Bachelor's Degree in Software Engineering

LANGUAGE SKILLS

Mother tongue(s): **URDU**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C2	C1	C1	C1
KOREAN	B1	B1	A2	A2	A1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

RECOMMENDATIONS

Professor Jaeyoung Choi Supervisor – Master's Program

Worked under his supervision as a Research Associate, contributing to research in system software and advanced deep learning applications.
Professor, School of Computer Science and Engineering Soongsil University

Email choi@ssu.ac.kr

Professor Jongsun Choi

Served as my lab professor, providing mentorship and guidance during my studies.
Associate Professor, School of Computer Science and Engineering Soongsil University

Email jongsun.choi@ssu.ac.kr

Dr Nouman Qadeer Soomro Supervisor -- Bachelor's Program

Supervised my Bachelor's thesis and final-year project, guiding me through research and practical implementation in software engineering.
Associate Professor, Chairman of Department of Software Engineering

Email nomanqadeer@muetkhp.edu.pk