Danyal Sarfraz | Curriculum Vitae

DanyalPortfolio.com
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Currently a designer and researcher at UNIST, Danyal is exploring spatial computing, human-computer interaction, and human-centered AI, with a particular interest in how emerging technologies can enable more intuitive interactions and design workflows. I combine user-centered research methods with technical prototyping, developing and evaluating interactive systems across mixed reality, robotics, and AI-assisted design workflows. My work includes peer-reviewed publications, industry collaborations, and independently developed software tools.

Education

Master's in Engineering Design (MSc.)
February 2026

Department of Human-Centered Design and Technology (Formerly Department of Design), Ulsan National Institute of Science & Technology (UNIST), South Korea
Research-based master's program with focus on Human-Computer Interaction (HCI), Spatial Computing, human-robot interaction, and XR-enabled prototyping.

Courses: Spatial Computing, Advanced Human-Computer Interaction, Advanced Information Visualization, 3D CAD

Thesis project: "A Framework for Developing Contextual Physical Actions in Non-Humanoid robots." (Supervisor: Prof. KwanMyung Kim) – Submitted to CHI '27

Bachelor's in Industrial Design (BSc.)
June 2023

School of Art, Design & Architecture (SADA), National University of Science & Technology (NUST), Pakistan
Focus on core foundation industrial design skills along with understanding of broader design contexts.

Courses: Industrial Design Studio, Design Research, Manufacturing Processes, Technical Drawings & Communications, Sustainable and Universal Design

Thesis project: "Waveform, Device to encourage movement during period of extended screen time." (Supervisor: Dr. Raja Mubashar Karim) - Highest Score in Batch (91%)
Project Link: https://www.behance.net/gallery/176802621/Waveform-Industrial-Product-Design

Developed Applications & Tools

Concordia – Explore Northern Pakistan (Under-review at AppStore)
An iPhone travel guide to Gilgit-Baltistan, Azad Kashmir, Chitral and Swat, with 140+ places, 28 trails and offline maps that work without a signal. It includes an itinerary planner that runs on Apple Intelligence on the phone, plus safety tools like trail tracking, check-ins and nearby medical help. (SwiftUI, SwiftData, Foundation Models).

ProjectAR – 3D Design in AR (AppStore Link)
A Blender add-on and iPhone/iPad app that streams the open Blender scene into augmented reality over the local network. Changes to objects, modifiers and materials show up in AR within a fraction of a second, and several phones can view the scene at once. (Swift, ARKit, RealityKit, Python).

Almanac – Ancient Cycles (AppStore Link)
An iPhone app that converts any date from 10,000 BC to AD 3000 into the Maya, Egyptian, Islamic and Chinese calendars. It also shows when 50+ ancient sites, like Stonehenge and Chichén Itzá, line up with the sun, moon and stars. Everything is calculated offline on the phone from published astronomy.

Publications

Animate, Validate, Situate: Pre-Hardware Action Design for Non-Humanoid Robots — Initial Acceptance (Final Dec 17)
ACM Conference on Human Factors in Computing Systems (CHI '27)
Danyal Sarfraz, Ulugbek Ismatullaev, Muhammad Tufail, Raja Mubashar Karim, KwanMyung Kim

Capable but Not Scalable: Requirements and Interaction Costs of Building Multi-View CAD Datasets — December 2026 (Seoul, Korea)
KSDS (Korean Society of Design Science) Conference Proceedings | DOI: 10.48550/arXiv.2611.02108
Danyal Sarfraz, SeEun Lee, Ulugbek Ismatullaev, Jounghyun Kim, KwanMyung Kim

Assessment of Multi-View Consistency in Product Form Analysis — June 2026 (Seoul, Korea)
KSDS (Korean Society of Design Science) Conference Proceedings
Danyal Sarfraz, KwanMyung Kim

A Component Based Approach for Developing Actions in Non-humanoid Elderly care robot — December 2025 (Taipei, Taiwan)
IASDR (International Association of Societies of Design Research) | DOI: 10.21606/iasdr.2025.1139
Danyal Sarfraz, Ulugbek Ismatullaev, KwanMyung Kim

Synthetic Realities: Evaluating Human Ability to Distinguish AI Generated Videos from Real Footage — December 2025 (Taipei, Taiwan)
IASDR (International Association of Societies of Design Research) | DOI: 10.21606/iasdr.2025.1050
Danyal Sarfraz, Raja Mubashar Karim, KwanMyung Kim

Developing a Hierarchically Structured Action Catalogue for an Elderly Care Robot through Participatory Design — May 2024 (Seoul, Korea)
KSDS (Korean Society of Design Science) Conference Proceedings
Danyal Sarfraz, Ulugbek Ismatullaev, KwanMyung Kim

Work Experience

Integrative & Innovation Design Lab (UNIST), Designer & Researcher — February 2024 - Present
Research focused on 3D HCI, HCAI, and HRI

Full Researcher / Designer. (Design Dept.)
As a Researcher, I have been involved in research activities at IID Lab working on multiple projects.

Development of Technology for Predicting and Optimizing Design-Production Process Conflict Factors — June 2025 - Ongoing
Focus: Human-Centered AI, Training and implementation of AI models, ComfyUI
Other Collaborating bodies: Intensive & Korea University.

Design and Commercialization of intelligent Customized Care Product-Service System for the Entire Life Cycle of the Elderly — February 2024 - March 2026
Focus: Human-Robot Interaction, AR Based Prototyping, Action & Behavior Design
Other Collaborating bodies: Shinsung Delta Tech Co.

Civil-Military Technology Cooperation (Force Support System Development Project) — February 2024 - March 2026
Backpack design, Weight Distribution, Human Ergonomics
Other Collaborating bodies: Republic of Korean Army (ROKA)

Development of sensor modules and creations that can monitor upper body angle and speed — February 2024 - Oct 2024
Focus: Product Design, Research & Development, Wearable strap
Other Collaborating bodies: LG Electronics

Teaching Assistant. (Design Dept.) — February 2024 - Present
Class: DES232 - 3D CAD & Prototyping
First half of the semester helped develop modeling skills in SolidWorks, while the second half focused on prototyping tools and methods. I helped introduceMu a new pipeline to the coursework

using polygonal opensource software (Blender) and Gen AI based workflows as an alternative to traditional Keyshot rendering to enhance visualization.

Upwork, 3D Artist & Designer — February 2020 - Jan 2024
Top 3% among 12 million freelancers (Top Rated Plus)
Completed over 70 fixed-budget contracts and worked more than 1200 hours

Metablaze, 3D Artist (Full Time)
Collaborated closely with a USA / Turkey based design team and developed 3D models for in-game usage and cinematic trailers. Tools used included but not limited to: Gaea, Unreal Engine, Substance Painter, and Blender.

Jackbots.io, Advertisement Design
Remote collaboration on marketing material for crypto campaign. Advertisement displayed in Times Square (New York)

Symspace Labs Inc. (Previously: Waveworld), AR Projection Artist / 3D Generalist
Created artworks for clothing that were projected on clothing by mobile AR

National University of Science and Technology (NUST), Designer — February 2019 - January 2023
Helped work on different projects, student club related activities, and internships

Arçelik Global, Industrial Designer
Collaboration with NUST. Participated in designing components for a refrigerator freezer in a team of 2. Received distinction (1st prize) for best design among 15 teams.

NUST Fine Arts Club, Vice-President
Collaborated in planning, arranging, and executing events. Focus on media, promotional materials, and event coverage. Had three teams under myself including: Social Media and Graphics, Photography, and Videography.

Adidas / Forward Sports, Design Intern
Streamlined assembly line to increase output while also reducing errors. Inspected and evaluated the overall manufacturing efficiency.

Skills

Research
Research Methodology, Data Collection & Analysis, Research report writing.

Development
Swift (SwiftUI, RealityKit, ARKit), Python: Object Oriented Programming (OOP), Visual Scripting & XR Development.

Visualization
3D Modeling, Texturing and Rendering, Environment and Terrain Generation, Simulations, Compositing and Video Editing.

Product Design
Sketching and Idea generation, Mind mapping, Storyboarding, Brainstorming, SCAMPER, etc.

AI
Prompt Engineering, Gen. AI Workflows, AI Model Training & Implementation.

Tertiary
Photography, Videography, 3D Photo-Scanning, OpenUSD + NVIDIA Omniverse and Isaac Sim.

Technical Tools / Software

Design Focused

SolidWorks
3D CAD Modeling for products

Photoshop
Photo manipulation, retouching, mockups

DaVinci Resolve
Color grading and post processing

Premiere Pro
Video Editing and Assembly

3D Visualization

Unreal Engine 5
Visual Scripting, VR Prototyping, Environment Design.

Blender
DCC / 3D modeling and texturing

Substance Painter
Texturing software

EmberGen / LiquiGen
Real-time Pyro and fluid simulations

Development Tools

Gaea
Procedural Terrain Generation
(Node Based)

Houdini
Simulations and VFX
(Currently learning)

Swift
Apple's Language for Native Development

ComfyUI
Node Based Software that enables complex generative AI workflows

NVIDIA Omniverse
Digital Twins and Physics based 3D Simulation
(Currently learning)

Figma
UI / UX Design and Prototyping

Unity
AR Based application development
(Currently learning)

Achievements

Blender Addon Published, Blender Foundation Review – More than 4500 downloads — September 2025
CES '25 Innovation Award Lemmy, AI Healthcare Robot – Team Project at IID Lab, UNIST — January 2025
First Position (XR Competition), 3rd National Heritage Digital Content Competition — September 2024
Scholarship for Masters, Ulsan National Institute of Science & Technology (UNIST) — February 2024
VP Media, NUST Fine Arts Club (NFAC) — September 2021
Arçelik Dawlance Excellence Certificate, Best Design Certificate — May 2021
Stone Carving Workshop, Ivy Tech Community College, Bloomington, Indiana, USA — December 2019
Photographer & Videographer, NUST Orientation — September 2019
IoT Workshop, School of Electrical Engineering and Computer Sciences — September 2019
BURAQ Camp, Among top 40 students (O level) in sciences nationwide — December 2014

Talks

Learning Design in the Age of AI: Generalist or Specialist? — November 2026
1 hour presentation and discussion at HCDT, UNIST (In-person)

Special Session for 3D Rendering and Animation — October 2024
Product Visualization Workshop for third year (Industrial Design) students at SADA, NUST (Online)

Certifications

XR in Healthcare Education and Clinical Practice, Imperial College London — 2026
OpenUSD: Intro to strength ordering, Nvidia — 2025
Prompt Engineering with LLaMA-2, Nvidia — 2025
Synthetic data generation for training computer vision model, Nvidia — 2025
OpenUSD: Stages, Prims and Attributes, Nvidia — 2024
User Experience Design, Georgia Institute of Technology (Coursera) — 2024
Arduino Platform and C Programming, University of California, Irvine (Coursera) — 2023
Foundations of AR, Meta (Coursera) — 2023
AR in Marketing using Meta Spark, Meta (Coursera) — 2023
Programming for Everybody, University of Michigan (Coursera) — 2023

Areas of Interest: Spatial Computing (VR/XR) and Immersive Experiences | Advanced 3D Design and Animation Techniques | 3D Reconstruction and Novel Rendering Techniques | Visual Design

Professional Member: ACM SIGCHI (Special Interest Group on Computer-Human Interaction), SIGGRAPH (Special Interest Group on Computer Graphics and Interactive Techniques), DRS (Design Research Society), & KSDS (Korea Society of Design Science)