



Sangeen Khan

BIM Specialist & AI Applications Developer in Construction

Ljubljana, Slovenia • sangeen.se@gmail.com • +386 69 843 628 • linkedin.com/in/engr-sangeen

BIM specialist and AI applications developer in construction, building practical AI tools, managing project Common Data Environments, and moving everyday manual work into faster digital workflows. Qualified with a Master's in Structural Engineering and an Erasmus Mundus Master in BIM (BIM A+). Recent research focuses on controlling BIM software with natural language using MCP.

■ WORK EXPERIENCE

Specialist in BIM & Construction Informatics

Oct 2025 – Present

Kolektor Koling d.o.o. — Digitalization & BIM / Construction Informatics · Idrija, Slovenia

CONSTRUCTION PROJECTS

- **Drugi tir Diváča–Koper** (Diváča–Koper 2nd railway track) — Managed the site's Common Data Environment in Dalux Field and linked project documents to BIM elements for streamlined facility management.
- **Luka Koper – Severni pomol** (Port of Koper – North Pier) — Used AI to extract pile data and enrich it with metadata pulled from certificates and other records.
- **Luka Koper – skladišče za avtomobile** (Port of Koper – car storage) — Collaborated on 4D and 5D BIM integration (construction schedule + cost) on the project model.
- **SB Celje** (Celje General Hospital) — Managed project documentation and digitalized the workflow; built an AI-powered Power BI dashboard with an embedded BIM viewer.
- **Dograditev infekcijske klinike** (Infectious Diseases Clinic extension) — Maintained the CDE and attached bills of quantities (BOQ) to model elements, linking them to BLIST software for automated cross-checks.

APPLICATIONS DEVELOPED

- **Kolektor IFC Editor** — Designed and built a browser-based BIM/IFC viewer and editor deployed on the company server (coordination, in-model editing, clash detection, quantity take-off); a lightweight everyday alternative to Navisworks/Solibri.
- **Scan2Archive** — AI document archive combining OCR, retrieval-augmented search (RAG), and Microsoft sign-in; makes tens of thousands of construction documents instantly searchable.
- **Scan2Read** — Pipeline that reads construction drawings and extracts bills of quantities (BOQ) into Excel.
- **Scan2Search** — Offline OCR web app for fast on-machine document search.
- **IFC Converter** — Python tool that converts IFC files between schema versions.
- **Prompt Generator** — Internal tool for building high-quality AI prompts, live on the company server.

AI Strategy — Authored Kolektor Koling's AI-in-construction strategy for leadership and delivered internal lectures to colleagues on using AI in construction; set AI governance and ISO 19650 standards.

Structural Designer & BIM Engineer

Jan 2023 – Aug 2024

United Envision Consultants (UEC) · Mingora, Swat, Pakistan

- Designed and analyzed complex structural systems for commercial and residential buildings — including the G+8 Ihsan Tower — using ETABS, SAP2000, and SAFE, ensuring compliance with ACI 318-19, BCP 2021, and ASCE 7-16.
- Built and managed 3D models in Autodesk Revit; ran clash detection and simulations in Navisworks; optimized designs for quality, efficiency, and sustainability.
- Collaborated closely with architects and contractors to keep designs practical, cost-effective, and compliant with safety and project requirements.

Site Engineer (Structures)

Jun 2022 – Dec 2022

Frontier Works Organization (FWO) · M2 Motorway, Pakistan

Replacement of bearing pads and rehabilitation of expansion joints across all M2 bridges.

- Led replacement of 25-year-old elastomeric bearing pads, overseeing careful bridge lifting to protect girders and deck slabs.
- Rehabilitated expansion joints and conducted comprehensive inspections of piers, cracks, and structural conditions.
- Ensured compliance with ASTM and AASHTO standards; coordinated all maintenance phases with contractors and reported progress to the Consultancy Directorate.

Junior Design Engineer (Structures)

May 2021 – May 2022

United Engineers Consultants (UEC) · Mingora, Pakistan

- Designed and analyzed midrise commercial and residential buildings per ACI 318, BCP 2007, and UBC 97.
- Prepared detailed design calculations, drawings, and specifications; ran frequent site visits with senior designers to resolve technical challenges.

Junior Engineer (Civil)

Apr 2018 – Apr 2021

Partners In Development Consultants (PID) · Peshawar, Pakistan

CAREC Regional Improving Border Services (RIBS) — Torkham, Chaman & Wagha BCPs.

- Managed and reviewed digital survey data; prepared and reviewed 2D/3D model design for roads, retaining walls, drainage, and water supply.
- Produced detailed drawings in AutoCAD and Civil 3D; managed design interfaces across drainage, utilities, and pavement disciplines.
- Performed earthwork volume calculations and material take-offs; prepared technical reports for clients and authorities.

■ EDUCATION

Erasmus Mundus Master's in BIM A+ University of Minho (Portugal) & University of Ljubljana (Slovenia) <i>Thesis / Research: MCP-based systems for natural-language control of BIM software.</i>	2024 – 2025
MSc, Structural Engineering Military College of Engineering (MCE), NUST · Risalpur, Pakistan · GPA 3.25/4 <i>Thesis: Predicting the Ultimate Axial Capacity of Uniaxially Loaded CFST Columns Using Multiphysics AI.</i>	2018 – 2022
Post-Graduate Diploma, BIM & Construction Management Brains Institute · Peshawar, Pakistan · Final grade 3.44/4	2022 – 2023
BSc, Civil Engineering University of Engineering & Technology (UET) · Peshawar, Pakistan	2013 – 2017

■ SKILLS & TOOLS

AI & Automation in Construction	Python	Autodesk Revit
Navisworks	CSI ETABS	Dynamo
CDE Management (ISO 19650)	Grasshopper	4D/5D BIM
Parametric Modelling		

■ LANGUAGES

Pashto	Native
English	Proficient (C1-C2)
Urdu	Proficient (C1-C2)

■ PUBLICATIONS

Predicting the Ultimate Axial Capacity of Uniaxially Loaded CFST Columns Using Multiphysics Artificial Intelligence Khan S., Khan M.A., Zafar A., Javed M.F., et al. · <i>Materials</i> , 2021 · Q1, IF 3.784
Mechanical Behaviour of E-waste Aggregate Concrete Using Multi-Expression Programming (MEP) Shah S., Houda M., Khan S., Althoey F., et al. · <i>Journal of Materials Research and Technology</i> , 2023 · Q1, IF 6.4

■ LICENSES & CERTIFICATIONS

Professional Engineer (PE) Pakistan Engineering Council · ID Civil/47468 · 2023	PTE Academic — Score 63 Pearson · 2024–2026
BIM Fundamentals for Engineers National Taiwan University (Coursera) · 2023	Revit 2020: Essential Training for Structure LinkedIn Learning · 2024
Revit & Robot Structural Analysis + BOQ Udemy · 2023	

■ REFERENCES

Dr. Sajjad Wali Khan Associate Professor, UET Peshawar · BSc thesis supervisor	Col. Dr. Adeel Zafar Assoc. Prof. / HOD Structural Eng., NUST · MSc thesis supervisor	Prof. Dr. Žiga Turk Professor of Construction Informatics, University of Ljubljana (FGG) · BIM A+ thesis supervisor
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Full contact details available on request.