

Mohit Gupta

mgupta70@asu.edu | (480) 764 0822 | [LinkedIn](#) | [Google Scholar](#) | mgupta70.github.io

EDUCATION

Doctor of Philosophy in Civil & Environmental Engineering <i>Arizona State University, United States</i> Advisor: Dr. Thomas Czerniawski	<i>Aug 2021 - Aug 2025 (Expected)</i>
M.Tech. in Design Engineering (GPA: 9.62/10) <i>Birla Institute of Technology and Science (BITS) Pilani, India</i>	<i>Aug 2019 - May 2021</i>
B.E.(Hons.) in Civil Engineering (GPA: 9.19/10) <i>BITS Pilani, India</i>	<i>Aug 2011 - May 2015</i>

RESEARCH PROJECTS & HACKATHONS

Semi-supervised Symbols Detection in Piping and Instrumentation Drawings • Developed a Siamese Network for symbol retrieval and with K-means coreset sampling the developed algorithm achieved nearly the same performance to using the full dataset, while utilizing only 30% of the data.	<i>(Pytorch)</i>
3D reconstruction by NeRF and SfM from 360°camera images • Compared geometrical accuracy of NeRF (via Nerfstudio) and SfM (via Colmap) in 3D scene representation of a construction site reconstructed from its 360°camera imagery .	
Detecting Visual Discomfort due to Daylight Glare • Trained an LSTM-network with 73% test accuracy to detect visual discomfort caused by sunlight glare. Dataset comprised of facial videos of occupants and their subjective responses (for training).	<i>(Pytorch)</i>
Automated 2D Building Plans to 3D Digital Model • Trained a Yolov3 model to recognize building components (walls, doors & columns) in 2D CAD. Linked the output of Yolo model with Dynamo to create 3D models in Revit.	<i>(Pytorch, Dynamo)</i>
Kaggle DFL Bundesliga Data Shootout • Implemented an LSTM network achieving 76% test accuracy to recognize different types of soccer passes in Football tournament videos.	<i>(Pytorch)</i>
Polyp Segmentation in the Colonoscopy videos • Developed a 2-stage method for polyps locating polyps in colonoscopy examination. Stage-1 examines the video frame quality, and; Stage-2 localises polyps using a U-Net architecture.	<i>(Pytorch)</i>

PUBLICATIONS

- **M. Gupta**, T. Czerniawski, Semi-supervised symbol detection in Piping & Instrumentation drawings, Automation in Construction, 2023 (In review).
- **M. Gupta**, A. Borrmann, T. Czerniawski, Comparison of 3D reconstruction between Neural Radiance Fields and Structure-from-Motion based Photogrammetry from 360°videos , ASCE International Conference on Computing in Civil Engineering 2023.
- C.Wei, **M. Gupta**, T. Czerniawski, Interoperability between Deep Neural Networks and 3D Architectural Modeling Software: Affordances of Detection and Segmentation, Journal of Computing in Civil Engineering (In review).
- **M. Gupta**, C. Wei, T. Czerniawski, Automated valve detection in Piping & Instrumentation drawings, ISARC 2022.
- C. Wei, **M. Gupta**, T. Czerniawski, Automated wall detection in 2D CAD drawings to create digital 3D models, ISARC 2022.

PROFESSIONAL AND RESEARCH EXPERIENCE

Research intern , Technical University of Munich, Germany Chair of Computational Modeling and Simulation , Advisor: Prof. Andre Borrmann	<i>May 2022 - June 2022</i>
• Compared geometrical accuracy in 3D reconstruction of NeRF and SfM for construction sites captured via 360 cameras.	
Senior Engineer , THDC India Limited, India	<i>Oct 2018 - July 2021</i>
• Analysed spatio-temporal rainfall data to predict flood and check the suitability of 3 different catchments for constructing a new hydraulic dam.	
BIM Engineer , Vconstruct Private Limited, India	<i>May 2015 - July 2016</i>
• Team Lead for the Structural modelling; developed Revit workflows and interfaced with clients, defining the scope of work and deliverables' schedule.	

ACADEMIC ACHIEVEMENTS

- Rank-1 in the graduate program (out of 120 students).
- All India Rank of 88 out of 153,000+ applicants in GATE 2018, India's most competitive engineering exam with 13% passing rate.
- Recipient of Merit Scholarship in the undergraduate degree program for being in top 1%.

LEADERSHIP EXPERIENCE

- Captain, Table Tennis team at THDC India Limited.
- Joint coordinator of APOGEE 2013 (BITS Technical Festival), and successfully organized one of the four kernel events.
- Project Leader at Nirmaan (100+ members), an NGO working to improve education standards in impoverished communities of India.

SKILLS

Languages	Python, Matlab, C
Tools and Frameworks	PyTorch, Tensorflow, Keras, Git
3D Modelling	Autodesk-Revit, AutoCAD, Navisworks, Sketchup

CERTIFICATIONS

- AWS Cloud Practitioner
- Machine Learning Specialization, Coursera
- Deep Learning Specialization, Coursera