

SHEIKH JUNAID FAYAZ

PhD Researcher, Civil Engineering | Artificial Intelligence for Cement Manufacturing
New Delhi, India | cez218290@iitd.ac.in | +91 9541024033 |

PROFESSIONAL SUMMARY

I am a PhD researcher at the Indian Institute of Technology (IIT) Delhi working at the intersection of artificial intelligence and cement production. My research focus on developing a self-driving digital twin for cement production which can predict key performance indicators of cement production, forecast threats and autonomously control plant operation for reduced fuel consumption, improved product quality and lower by-product emissions.

TECHNICAL SKILLS

Programming and Computing: Python, C++, Linux, high-performance computing (HPC)

Engineering and Process Tools: Aspen Plus, AutoCAD, Primavera P6

Research Domains: Artificial intelligence, cement production, process optimization.

EDUCATION

Indian Institute of Technology (IIT) Delhi | *PhD, Civil Engineering* | 2021-present

- Supervisor: Prof. N. M. Anoop Krishnan.
- Research focus: Developing self-driving digital twin for optimizing cement production.

National Institute of Technology (NIT) Srinagar | *BTech, Civil Engineering* | 2017-2021

- CGPA: 9.53/10; Department Rank 1; **Gold Medalist**.
- BTech project: Incremental stiffening approach for cold-formed steel built-up beams with large imperfections.

RESEARCH AND PROJECT EXPERIENCE

AI-Driven Acceleration of Cement Manufacturing | *IIT Delhi* | 2022-present

- Working on artificial-intelligence-based methods for accelerating cement manufacturing and supporting process optimization.
- Research affiliations include IIT Delhi, Politecnico di Milano, University of São Paulo, and the Global Cement and Concrete Association.
- Research mentors and collaborators: Prof. N. M. Anoop Krishnan, Prof. Manuele Gatti, Prof. Matteo C. Romano, and Prof. Marcelo Finger.

Automated Monitoring of Green Highways Using AI and Drone Videography | *IIT Delhi / NHAI* | 2021-2022

- Core contributor to an AI-driven framework for monitoring roadside plantations using drone videography.
- Delivered an AI-driven framework for monitoring roadside plantations using drone video data.

Incremental Stiffening of Cold-Formed Steel Built-Up Beams | *NIT Srinagar / collaborators* | 2020-2021

- Developed retrofitting-based stiffening strategies for enhancing load-carrying capacity of deformed CFS beams.
- Reported improvement of approximately 100% in load-carrying capacity; manuscript under peer review.

Junior Research Fellow | *Indian Institute of Science (IISc), Bangalore* | Dec 2019-Feb 2020

- Research internship under Prof. P. Anbazhagan on seismotectonic mapping of south India.

Winter Intern | *ERA Construction Private Limited* | Jan 2018-Feb 2018

- Gained field experience at the construction of a grade-separated flyover at Rambagh, Jammu and Kashmir.

PUBLICATIONS AND MANUSCRIPTS

[Link to my Research Gate profile](#)

SELECTED HONORS AND AWARDS

- Gold Medal, Civil Engineering Department, NIT Srinagar, 2021.
- Institute Merit Certificate for top three rankers at institute level, NIT Srinagar, 2021.
- Rank 1 in Civil Engineering Department, NIT Srinagar, across all eight semesters, 2017-2021.
- Rank 1 in Kashmir division in Jammu and Kashmir Common Entrance Examination (CET), 2017.

- Selected as constitutional member of the Departmental Undergraduate Committee, Civil Engineering Department, NIT Srinagar, 2020.
- Nominated by NIT Srinagar for the International Youth Exchange Programme, 2018.

MEDIA COVERAGE

- My PhD research was covered [by IIT Delhi newsletter](#), [IIT Delhi Spotlight Research](#), [Tribune India](#), and [The Indian Express](#).
- Contributed public-facing articles on improving cement production in [Rising Kashmir](#) and [Kashmir Observer](#).