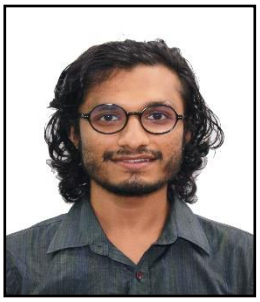
KRISHNAN UNNI A S



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PROFILE

Graduate in civil and structural engineering; with professional interest in the areas of application of science and technology for sustainable and innovative construction materials; Acquire strong analytical skills in the field of advanced construction material characterization; capable of carrying out independent and collaborative research in the field of concrete technology and structural performance; Experienced in advanced and innovative concrete designs and testing its mechanical, durability and functional performance. Well versed with knowledge of fiber concrete, nano material embedded concrete composite and engineered cementitious composite.

EXPERIENCE

April 2016- July 2017 — Research Associate, *Nanyang Technological University Singapore*

EDUCATION

Bachelor of Technology in Civil Engineering

2013 -SRM University, Chennai, India

CGPA - 9.469 / 10.0 (first class with distinction)

Master of Science in Civil Engineering (Structural)

2016 – Nanyang Technological University, Singapore

CGPA of 4.13 / 5.0

PhD

(2017-Present) – Nanyang Technological University, Singapore.

RESEARCH PROJECTS

- "**Study on Engineering Properties of Fly Ash Based Geopolymer Concrete and Its Comparison with High Volume Fly Ash Concrete**".

In this study, the mechanical properties of geopolymer concrete were compared to that of high-volume fly ash concrete. Unlike the in the conventional concrete, Geopolymer concrete uses by product materials like fly ash, rice husk ash as the binder material

- **"Study the Effect of Si/Al Ratio on Compressive Strength of Geopolymer As Well As the Microstructure of Geopolymer"**

The main aim of the project is to study find out the amorphous content in the fly ash using XRF, XRD and chemical extraction and using the results obtained to find out the relation of Si/Al to compressive strength. And to describe the microstructure of geopolymer using SEM and XRD.

- **"Effect of nano-TiO_2 on the Functional Properties of Metakaolin Based Geopolymer"**

The objective of the study was to examine the effects of incorporation of nano-TiO_2 on functional properties of metakaolin based geopolymer. Another objective was to develop a self-cleaning geopolymer material using the photocatalytic property of nano TiO_2.

- **"Piezo resistivity of ECC and development of smart sensing strain hardening geopolymer concrete"**

Recently introduced, cement-based sensors are piezoresistive and therefore can be used to sense stress/strain, simply by monitoring their electrical resistivity. These sensors, also known as smart (self-monitoring) structural materials can be used as a part or total component of structures and provide both structural capability and response to applied stress and damage.

C0-CURRICULAR ACHEIVEMENTS

- Welfare Director
  Nanyang Technological University Graduate Students' Association (NTUGSA)
  Apr 2019 – Mar 2020 Volunteer
  Cause: Social Services, student wellbeing

- Vice President
  Nanyang Technological University Graduate Students' Association (NTUGSA)
  Dates volunteered Apr 2020 – Present
  Cause: Social Services, mental health awareness program, urban farming, yoga, multicultural interactive program, student wellbeing, University Health Board member

- Best teaching assistant award 2019-2020

PUBLICATIONS

Self-cleaning performance of nano-TiO_2 modified metakaolin-based geopolymers

K. U. Ambikakumari and E. Yang

Jan 1, 2021. cement and concrete composites

Investigating the potential reactivity of fly ash for geopolymerisation

K. U. Ambikakumari, M. Lahoti, and E. Yang

Nov 20, 2019. Construction and Building Materials