

CURRICULUM VITAE

Ananya Ajayan

M.S. Research Student
Department of Civil Engineering
Indian Institute of Technology Madras, Chennai- 600 036, INDIA
Phone: +91 94970 45090
E-mail: ananvashyja@gmail.com
Web: <https://civil.iitm.ac.in/faculty/pillai/people.php>



EDUCATION

-
- | | |
|---|---------------------|
| M.S. in Civil Engineering
Indian Institute of Technology Madras, Chennai
CGPA: 8.43/10 | July 2021 - Present |
| B. Tech. in Civil engineering
College of Engineering Trivandrum, A.P.J. Abdul Kalam
Kerala Technological University, Trivandrum
CGPA: 8.05/10 | July 2019 |
-

RESEARCH INTERESTS

- Corrosion, durability, and service life assessment of concrete structures
 - Repair and rehabilitation of concrete structures
 - Cathodic protection of concrete structures
-

RESEARCH EXPERIENCE

- **Assessment of corrosion and service life of steel in cementitious systems with biochar as an additive, IIT Madras and BAM Germany** (November 2022 – present)
Project Team: Mr. Umesh Hule, Dr. Radhakrishna G. Pillai, Dr. Wolfram Schmidt

This project focuses on the determination of the effect of biochar concentration on the carbonation rate of cementitious systems using accelerated carbonation tests at 3% CO₂ (as per EN12390) and also to determine the chloride threshold of steel in biochar-based cementitious systems using an in-house developed test method adopting EIS technique. My role in this work is to modify the in-house Accelerated Chloride Threshold (ACT) test to suit the biochar-based cementitious systems.

- **Cathodic prevention/protection of reinforced lime concrete chajjas in Rashtrapati Bhavan, New Delhi** (December 2021 – present)
Project team: Ms. Keerthi V.T., Mr. Naveen Krishnan, Dr. Deepak Kamde, Dr. Radhakrishna G. Pillai

The project focuses on the performance of galvanic anodes in low pH concrete (non-hydraulic lime concrete). The pilot study is done on 10 m long sunshade in Rashtrapati Bhavan (The official residence of Indian President), New Delhi. Our team from IITM have been monitoring the performance of CP system from last 2 years, I have joined the project in December 2021, and I am continuing the monitoring process and analysing the electrical response from the CP systems installed.

- **Long term performance assessment of reinforced concrete panels with CP system, IIT Bombay** (December 2021 – present)
Project team: Mr. Karthikeyan Manickam, Dr. Deepak Kamde, Dr. Radhakrishna G. Pillai

This study aims to assess the long-term performance of 15-year-old reinforced concrete panels with CP system. The data obtained by the team was analysed to understand the cause of premature failure of anodes in high relative humidity environment. The performance of anodes was monitored by the IITM team for 12 years, I have joined the team in December 2021 and I am monitoring the response to devise

specifications that will aid long-term performance of CP systems and also study the factors affecting anode performance.

- **Electrical/electrochemical modelling for non-destructive testing of cathodic protection systems in reinforced concrete structures, IIT Madras** (November 2021 – June 2022)

Project team: Ms. Keerthi V.T., Mr. Naveen Krishnan, Dr. Deepak Kamde, Dr. Radhakrishna G. Pillai

The project focuses to assess the feasibility of existing test method for long term performance of CSA systems and also to characterize the electrical and electrochemical response from the system and developing a non-destructive test method to assess the performance of CP system. The IITM team have already created test specimens with controlled environment conditions, I monitored the response from the specimen for a period of three months.

TEACHING ASSISTANCE EXPERIENCE

- Teaching assistant for the Construction Materials Lab course offered by Dr. Ramamurthy K. (April 2023 – present)
- Teaching assistant for NPTEL Online course on Maintenance and Repair of Concrete Structures offered by Dr. Radhakrishna G. Pillai, IIT Madras (January 2023 – present)
- Teaching assistant for the Industrial Seminar course offered by Dr. Ravindra Gettu and Dr. Radhakrishna G. Pillai, IIT Madras (July 2022 – November 2022)
- Teaching assistant for NPTEL Online course on Basic Construction Materials offered by Dr. Manu Santhanam and Dr. Radhakrishna G. Pillai, IIT Madras (January 2022 – April 2022)

INVOLVEMENTS IN STANDARD MODIFICATION

- Assisting in revising the Indian Standard “IS 1786 - Reinforcement Bars for Structural Concrete”
- Assisting in preparing the new Indian Standard on “Galvanic Cathodic Protection of Steel in Concrete”

CONFERENCE PRESENTATIONS

- Ananya Ajayan and Radhakrishna G. Pillai, “Field performance of hybrid and galvanic anodes in reinforced lime concrete heritage structure using electrochemical studies,” ICCRRR 2022, Cape Town, South Africa
- Ananya Ajayan and Radhakrishna G. Pillai, “Challenges and remedies to the design of SACP system in concrete,” CORCON 2022, AMPP India Chapter, Udaipur, India

WORKSHOPS AND INTERNSHIPS

- Week on Technologies for Low Carbon & Lean Construction (TLC2), IIT Madras, January 2023
- International Workshop on Smart and Resilient Bridges, IIT (ISM) Dhanbad, December 2021
- Seminar on Corrosion Control in Concrete Structures (C3S), ICI and NIGIS, December 2021
- 2-Day International Workshop on Advances in Technologies for Low Carbon & Lean Construction, IIT Madras, December 2021
- Intern at Costford Constructions Limited, focusing on cost-effective building construction techniques, June 2018, Trivandrum
- Intern at Kerala Public Works Department, under the PWD bridge division for one week, July 2017, Trivandrum
- Intern at Kerala State Nirmithi Kendra (KESNIK), one week internship at various construction sites, July 2016, Trivandrum

ORGANISING PROFESSIONAL EVENTS

- Student volunteer for TLC2 Week, IIT Madras, January 2023
 - Student volunteer for CORCON 2022, AMPP India Chapter, Udaipur, India
 - Organiser for Civil technical fest PANTHEON, Department of Civil Engineering, College of Engineering Trivandrum, October 2018
-

ACADEMIC ACHIEVEMENTS

- Graduate Aptitude Test for Engineering (GATE – 2020), Civil Engineering paper percentile score 98.583 out of 100
 - Kerala State Engineering Architecture and Medical entrance examination (KEAM – 2015) rank 594 out of about 1,82,131 examinees
 - Kerala Sahodaya North Zone Topper for Mathematics and Chemistry (AISSCE – 2015)
-

PROFESSIONAL MEMBERSHIP

- Student Member, International Union of Laboratories and Experts in Construction Materials, Systems, and Structures (RILEM); since April 2023
 - Student Member, NACE International Gateway India Section (NIGIS); since December 2021
-

PROJECTS

- **Failure mechanism and selection of galvanic anodes and durable design of cathodic protection system for concrete structures** July 2021 – present
The work focuses on the development of an optimal design framework and specifications for galvanic anodes in concrete structures.
 - **Proposal for New block for Ladies' Hostel, College of Engineering Trivandrum** September 2018 - June 2019
The plan and structural layout of 5 storey hostel structure was developed.
 - **Design project on Palm reinforced concrete** October 2017
The project focused on the effectiveness of partial replacement of tension steel in RCC with palm.
-

COURSES AND TRAININGS

- **STAAD Pro Basic Content Edition & Foundation Design** April 2019
Bentley Institute & Intercad Systems
 - **Numerical methods: Finite difference approach** May 2018
NPTEL Online course, IIT Roorkee
 - **Principles of Construction Management** October 2017
NPTEL Online course, IIT Kharagpur
-

REFERENCES

Dr. Radhakrishna G. Pillai

Professor
Dept. of Civil Engineering,
Indian Institute of Technology
Madras
Chennai, INDIA
pillai@civil.iitm.ac.in

Dr. Manu Santhanam

Professor
Dept. of Civil Engineering,
Indian Institute of Technology
Madras
Chennai, INDIA
manus@civil.iitm.ac.in

Dr. -Ing. Lakshman Neelakantan

Professor
Dept. of Metallurgical and Materials
Engineering,
Indian Institute of Technology Madras
Chennai, INDIA
nlakshman@iitm.ac.in
