

# CURRICULUM VITAE

## Karthikeyan M

Assistant Professor

Department of Civil Engineering

National Institute of Technology (NIT) Rourkela, Odisha – 769 008, INDIA

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## EARNED DEGREES

- **Ph.D. in Civil Engineering** *July 2023*  
Indian Institute of Technology Madras (IITM), Chennai, India  
Thesis title: “Corrosion of anchorage regions in post-tensioned concrete bridges and chemical & electrochemical repair methods.”
- **M.E. in Construction Engineering and Management** *April 2018*  
College of Engineering Guindy, Anna University, Chennai, India  
CGPA: 9.37/10  
Thesis title: “A feasibility study on the concrete made with micronized biomass silica, M-sand and copper slag as replacement materials.”
- **B.E. in Civil Engineering** *April 2015*  
PSG College of Technology, Anna University, Coimbatore, India  
CGPA: 8.69/10  
Thesis title: “Synthesis of titanium dioxide nanoparticles and its partial replacement for cement in concrete and beam-column joint.”

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## RESEARCH EXPERIENCE

- **Postdoctoral Researcher** *July 2023 to June 2024*  
Building Technology, Construction Materials, and Management Group  
Indian Institute of Technology Madras (IITM), Chennai, India

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## AWARDS AND RECOGNITIONS

- Recipient of the **ICI Ultratech outstanding doctoral thesis in the field of concrete award 2025**
- Recipient of the **RILEM PhD Travel Grant 2023** (Rs. 1,80,000)
- **Institute postdoctoral equivalent fellowship** (Rs. 90,000) at IIT Madras from Jan to June 2023

- **Finalist** of the RILEM Young Researcher's Symposium on Technologies for Low-Carbon and Lean Construction (TLC2), Chennai, 2023
- **Best poster award**, for "*Performance evaluation and service life estimation of galvanic anodes in reinforced concrete systems*" at CORCON 2021
- **Winner of segment 2** (Durability and life-cycle assessment in urban and marine conditions), for the poster titled, "*Accelerated testing and service life estimation of galvanic anodes in reinforced concrete systems*" at 75<sup>th</sup> RILEM Annual week, Merida, Mexico, 2021
- **NACE Foundation India Scholarship 2020** (Rs 1,50,000; one among five winners in India)
- **KN Chintamani Memorial Award** for best project work titled "*Synthesis of titanium dioxide nanoparticles and its partial replacement for cement in concrete and beam-column joint*", PSG College of Technology, 2015
- Secured second rank in Higher Secondary Board Examination, Nirmala Matriculation Higher Secondary School, Chidambaram, 2011

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## RESEARCH AREAS

- Corrosion and durability of reinforced and prestressed concrete systems
- Grouting of post-tensioned concrete systems
- Cathodic protection of concrete systems
- Supplementary cementitious materials

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## REFEREED JOURNAL PAPERS

1. **Karthikeyan M.**, Kamde, D.K. & Pillai, R.G. (2024). *Service life estimation, failure mechanisms, and specifications of galvanic anodes for corroding reinforced concrete structures*, Materials and Structures, 58(2). <https://doi.org/10.1617/s11527-024-02536-2>
2. **Karthikeyan M.** & Pillai, R.G. (2024). *Chemical and electrochemical repair methods for the anchorage regions of grouted, post-tensioned concrete systems*, Structures, 69, 107595. <https://doi.org/10.1016/j.istruc.2024.107595>
3. **Karthikeyan M.** & Pillai, R.G. (2024). *Galvanic corrosion of prestressed strands in re-grouted, post-tensioned concrete bridges*. Corrosion, 80(2), 130-141. <https://doi.org/10.5006/4461>.
4. **Karthikeyan M.** & Pillai, R. G. (2023). *Grouting materials and practices for century-long corrosion protection of post-tensioned concrete bridges*. Indian Concrete Journal, 97(1), 6-20. <https://www.scopus.com/record/display.uri?eid=2-s2.0-85147195738&origin=resultslist&sort=plf-f>
5. Kamde, D. K., **Karthikeyan M.**, Pillai, R. G., & Sergi, G. (2021). *Long-term performance of galvanic anodes for protection of steel reinforced concrete structures*. Journal of Building Engineering, 42, 1-14. <https://doi.org/10.1016/j.jobbe.2021.103049>

## REFEREED CONFERENCE PAPERS

1. **Karthikeyan M.**, & Pillai, R. G. (2023). *Galvanic corrosion and cathodic protection of re-grouted post-tensioned concrete systems*, MATEC Web of Conferences. <http://dx.doi.org/10.1051/mateconf/202337807002>
  2. Pillai, R.G., **Karthikeyan M.**, Joseline, D., Srinivasan, S. (2024). *Corrosion and its control in prestressed concrete structures*, RILEM Bookseries, Vol 48, Springer, Cham. [https://doi.org/10.1007/978-3-031-53389-1\\_79](https://doi.org/10.1007/978-3-031-53389-1_79)
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## OTHER CONFERENCE PROCEEDINGS

1. **Karthikeyan M.** & Pillai, R. G. (2025). *Repair and service life extension of grouted, post-tensioned bridges*, International Conference on Construction Materials and Structures (ICCMS-2025), Tirupati, India.
  2. **Karthikeyan M.** & Pillai, R. G. (2023). *Assessment of galvanic corrosion in grouted post-tensioned concrete systems*, 77<sup>th</sup> RILEM Annual week and 1<sup>st</sup> Interdisciplinary symposium on smart & sustainable infrastructures, Vancouver, Canada.
  3. Pillai, R.G., **Karthikeyan M.**, Joseline, D. & Srinivasan, S. *Corrosion and its control in prestressed concrete structures*, 77<sup>th</sup> RILEM Annual week and 1<sup>st</sup> Interdisciplinary symposium on smart & sustainable infrastructures, Vancouver, Canada
  4. **Karthikeyan M.** & Pillai, R. G. (2023). *Galvanic corrosion and service life extension of grouted post-tensioned concrete systems*, RILEM spring convention and 4th international congress on materials & structural stability, Rabat, Morocco.
  5. **Karthikeyan M.** & Pillai, R. G. (2022). *Galvanic corrosion of prestressed strands in re-grouted post-tensioned concrete systems*, 6<sup>th</sup> International conference on repair, rehabilitation and retrofitting, Cape Town, South Africa.
  6. **Karthikeyan M.**, Kamde, D. K., & Pillai, R. G. (2022). *Long-term performance parameters influencing the service life of galvanic anodes in reinforced concrete system*, 6th International conference on repair, rehabilitation and retrofitting, Cape Town, South Africa.
  7. **Karthikeyan M.**, Kamde, D. K., & Pillai, R. G. (2022). *Service life estimation of galvanic anodes in reinforced concrete system*, 76th RILEM annual week, Kyoto, Japan.
  8. **Karthikeyan M.** & Pillai, R. G. (2021). *Performance evaluation and service life estimation of galvanic anodes in reinforced concrete systems*, CORCON 2021, India.
  9. **Karthikeyan M.**, Srinivasan V., & Pazhani K.C. (2018). *Experimental evaluation on micronized biomass silica with M-sand and copper slag as fine aggregates in concrete*, Advances in Construction Materials and Structures, IIT Roorkee, Uttarakhand, India.
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## PATENT (in-review)

1. Pillai, R.G & **Karthikeyan M.** *Chemical and electrochemical repair of anchorages of grouted, post-tensioned concrete systems.*

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## POSTER PRESENTATIONS

1. **Karthikeyan M.** & Pillai R.G. (2021). *Performance evaluation and service life estimation of galvanic anodes in reinforced concrete systems*, CORCON 2021.
  2. **Karthikeyan M.**, Kamde D., & Pillai R.G. (2021). *Accelerated testing and service life estimation of galvanic anodes in reinforced concrete systems*, 75<sup>th</sup> RILEM Annual Week, 2021.
  3. **Karthikeyan M.** & Pillai R.G. (2021). *Service life estimation of galvanic anodes in reinforced concrete systems*” Corrosion 2021.
  4. **Karthikeyan M.** & Pillai R.G. (2019). *Understanding the compatibility issue in void re-grouting of post-tensioned concrete systems*, CORCON 2019, Mumbai, India.
  5. **Karthikeyan M.** & Pillai R.G. (2019). *Cathodic prevention of prestressed concrete systems*, Concrete Research in India (CRI) symposium, IIT Bombay, India.
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## TEACHING EXPERIENCE

- **Assistant Professor** 2024 – Present  
National Institute of Technology Rourkela
    - CE 6605 – Economics and Finance Management in Construction
    - CE 6671 – Advanced Construction Materials Lab I
    - CE 1100 – Engineering Mechanics
    - CE 3001 – Estimation and Construction Management
    - CE 1010 – Computer Aided Drawing and Graphics
  - **Graduate Teaching Assistant** 2018 – 2024  
Indian Institute of Technology Madras
    - CE 2330 – Civil Engineering Materials and Construction
    - CE 5120 – Maintenance and Rehabilitation of Constructed Facilities
    - NPTEL Course – Maintenance and Repair of Concrete Structures
    - NPTEL Course – Construction Technology and Management
  - **Teaching Assistant** 2016 – 2018  
College of Engineering Guindy, Anna University
    - CE 5331 – Strength of Materials Laboratory
    - CE 5312 – Construction Materials Laboratory
    - CE 5611 – Building and Structural Drawing
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## INTERNSHIP AND TRAINING

- **Exchange scholar** at Civil and Construction Engineering, College of Engineering, **Oregon State University**, USA, under the supervision of Prof. David Trejo for 30 days.

- **Research internship** at the Institute of Building Materials Research and Chair of Building Materials, **RWTH Aachen University**, Aachen, Germany, under the supervision of Prof. Michael Raupach for 30 days.
  - Training with Southern Railways India for 30 days
  - Training with Neyveli Lignite Corporation (NLC), Tamil Nadu for 15 days
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## **REVIEWER OF JOURNALS**

- Sustainable and Resilient Infrastructure (Taylor & Francis)
  - Materials and Structures (Springer)
  - Journal of Building Pathology and Rehabilitation (Springer)
  - Journal of Materials in Civil Engineering (ASCE)
  - npj Materials Degradation (Nature)
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## **PROFESSIONAL SERVICES**

- Secretary of AMPP Gateway India Section – South Zone Student Section (NIGIS – SS) (November 2021 to December 2023).
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## **PROFESSIONAL MEMBERSHIP**

- AMPP – Student Member (August 2018 to till date)
  - RILEM – Staff Member (July 2020 to till date)
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