

Curriculum Vitae

Anupama V.A., PhD

Institute Postdoctoral Fellow
Department of Civil Engineering
Indian Institute of Technology Bombay (IITB)
Mumbai, Maharashtra, India - 400076

E-mail : anupama_va@iitb.ac.in,
vaanupama9@gmail.com
Phone : +91 7012251760



Passionate civil engineer, specialising in material durability studies, with experience in understanding the mechanisms of weathering in masonry and developing sustainable solutions for the preservation of historic structures.

1. Education and Background

PhD in Civil Engineering, *CGPA 10/10*,
Indian Institute of Technology (IIT) Madras, India
PhD defended on 30/04/2025 and awarded on 11/06/2025
Research Advisor: Dr Manu Santhanam

January 2020 – June 2025

Exchange student at the University of Bologna, Italy
Research Advisor: Dr Enrico Sassoni

September 2022 – December 2022

Master of Technology in 'Construction Technology and Management, *CGPA 9.06/10*
Indian Institute of Technology (IIT) Madras, India
Thesis Advisor: Dr G Robinson

July 2017 – June 2019

Bachelor of Technology in Civil Engineering, *CGPA 8.78/10*
National Institute of Technology (NIT) Calicut
Project Advisor: Dr Sudhakumar and Ms Reesha Bharath

July 2013 – June 2017

2. Professional Experience

Institute postdoctoral fellow at Indian Institute of Technology Bombay
Research Advisor: Dr Swathy Manohar

June 2026 – Present

CNRS postdoctoral fellow at Université de Pau et des Pays de l'Adour (UPPA)
Research Advisor: Dr Hannelore Derluyn

April 2025 – April 2026

Planning engineer at the Transportation Infrastructure Independent Company, Larsen and Toubro (L&T) Ltd.

July 2019 – Nov 2019

Summer intern at L&T Ltd.

April 2018 – June 2018

Summer intern at IIT Madras

April 2015 – June 2015

3. Academic and Research Accomplishments

3.1 Research Interests

My research interests include the development of accelerated ageing test methods to study the durability of heritage masonry structures and treatment methods for historic masonry conservation. My work also focuses on the study of lime and repair mortars, concrete technology and microstructural characterisation of building materials.

3.2 Journal publications

1. **V. A. Anupama**, S. Divya Rani, Swathy Manohar & Manu Santhanam, “*Investigation of weathering resistance and damage manifestations of mortar formulations for heritage structures in saline environment*”, International Journal of Architectural Heritage, <https://doi.org/10.1080/15583058.2024.2374028>
2. **V. A. Anupama** & Manu Santhanam, “*Salt Weathering Resilience in Masonry: An Accelerated Laboratory Study Involving Wind-Induced Variations*”, Construction and Building Materials, <https://doi.org/10.1080/15583058.2024.2374028>
3. **V. A. Anupama**, Enrico Sassoni & Manu Santhanam, “*Long-term Retention and Efficiency of DAP and TEOS Consolidants in Weathered Masonry*”, RILEM Technical Letters, <https://doi.org/10.21809/rilemtechlett.2024.206>
4. **V. A. Anupama**, Enrico Sassoni & Manu Santhanam, “*Investigating salt weathering performance of TEOS-consolidated brick masonry with naturally carbonated lime mortar*”, Research Data & Reports, <https://doi.org/10.70002/itrm.rdr.1.1.49>
5. **V. A. Anupama**, Enrico Sassoni & Manu Santhanam, “*Performance of TEOS and DAP for the consolidation of brick-mortar masonry under salt weathering*” (Under second review in Journal of Cultural Heritage).

Publications under preparation:

1. **V.A. Anupama**, Pascale S  n  chal, and Hannelore Derluyn, “*Mechanistic assessment of salt-induced deterioration under realistic and accelerated exposure regimes: Insights from Khondalite building stone*”.

3.3 Conference proceedings

1. **V. A. Anupama** & Manu Santhanam, “*Impact of wind on the salt weathering resistance of masonry mortars*”, RILEM Week 2024.
2. **V. A. Anupama** & Manu Santhanam, “*Morphological evolution of calcium carbonate crystals in dry hydrated lime mortar*”, 6th Heritage Mortar Conference (HMC 2022).
3. **V. A. Anupama** & Manu Santhanam, “*Durability of heritage masonry structures: Review on the substrate-mortar interaction*”, 75th RILEM Week, 2021.
4. Swathy Manohar, **V. A. Anupama**, & Manu Santhanam, “*Salt deterioration of heritage structures – Correlating the insights from field and lab studies*”, 75th RILEM Week, 2021.
5. Sripriya Rengaraju, Sundar Rathnarajan, **V. A. Anupama**, Oviya Pugal and Radhakrishna G. Pillai, “*Effect of Corrosion Inhibitors on Durability Parameters of Cement Mortar*”, CORCON 2015.

3.4 Conference presentations

1. **Anupama V.A.**, Pascale S  n  chal and Hannelore Derluyn (2026). “*Assessment of microstructural evolution in Khondalite rock subjected to accelerated salt weathering using X-ray tomography*”, SWBSS 2026, Budapest,

Hungary.

2. **Anupama V.A.**, Pascale Sénéchal, Manu Santhanam and Hannelore Derluyn (2025). “*Understanding Salt Weathering in Khondalite through Mineralogy and Microstructure*”, CRYSPOM 2025, Barcelona, Spain.
3. **Anupama V.A.**, Enrico Sassoni and Manu Santhanam (2025). “*Salt ingress in consolidated brick masonry systems with lime mortar*”, HMC 2025, Padova, Italy.
4. **Anupama V.A.**, Enrico Sassoni, and Manu Santhanam (2024). “*Effect of consolidants on the salt intake of lime mortar*”, SUBLime 2024, Madeira, Portugal.
5. **Anupama V.A.**, Divyasri K.S. and Manu Santhanam (2024). “*Carbonated Lime-Based Mortar Mixes performance in accelerated salt weathering*”, CONSEC24, Chennai, India.
6. **Anupama V.A.**, Divya Rani S., Swathy Manohar and Manu Santhanam (2022). “*An investigation of the salt weathering resistance of heritage repair mortar mixes*”, HMC 2022, Ljubljana, Slovenia.
7. **Anupama V.A.** and Manu Santhanam (2022). “*Effect of ageing of lime putty on the morphology and weathering resistance of lime mortars*”, RILEM Week 2022, Japan.
8. **V. A. Anupama** & Manu Santhanam, “*An investigation of the salt weathering resistance of dry hydrated lime mortar subjected to accelerated carbonation*”, RILEM TC-277 Workshop on ‘Lime-based materials for repairing historic structures, 2022.’

3.5 Poster presentations

1. “*Impact of wind on the salt weathering resistance of masonry mortars*”, at the 3rd International Workshop on TLC2 (2024), IIT Madras, Chennai, Tamil Nadu, India.
2. “*Salt weathering in brick-mortar masonry systems*”, at the Prime Minister’s Research Fellowship (PMRF) Annual symposium (2024), IIT Indore, Madhya Pradesh, India.
3. “*Built heritage conservation in salt-laden environments – Challenges and the way forward*”, at the Young Researchers’ Symposium (2023), IIT Madras, Chennai, Tamil Nadu, India.
4. “*Effect of consolidants on the salt weathering resistance of brick, mortar and brick-mortar sandwiches*” at the IIE day celebration (2022), Global Engagement Office, IIT Madras, Chennai, Tamil Nadu, India.

3.6 Invited talks

1. Anupama V.A. (2025). “*Understanding Salt Weathering in Combined Substrate-Mortar Masonry Systems*” at 3rd Young Researchers’ Symposium, Technology of Low Carbon and Lean Concrete (TLC2), Chennai, India.
2. Anupama V.A. (2024). “*Conservation of Heritage Structures*” at the peer-to-peer webinar organised by the South Asia representative of the RILEM Youth Council.
3. Anupama V.A. (2024). “*Unlocking the Potential of Supplementary Cementitious Materials (SCMs)*” for Estate & Premises Department at the Reserve Bank Staff College, Chennai, Tamil Nadu, India.

4. Awards and honours

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| 1. | Shree Gaayathree Devi Award – Woman PhD scholar with highest CGPA, IIT Madras | July 2025 |
| 2. | Publication Selected – “Consolidants in Salt-Weathered Masonry: Retention and Efficiency of DAP and TEOS” featured in the upcoming ACRP Yearbook by the European Association for Construction Repair, Reinforcement and Protection and RILEM | March 2025 |

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| 3. | Special Mention among the finalists for the Surendra P Shah Award for best PhD at Young Researchers' Symposium (YRS) – Technology for Low Carbon and Lean Construction Centre of Excellence, IIT Madras | January 2025 |
| 4. | Best Poster Award – “Conservation of Heritage Structures: Connecting the Past and Future,” IIT Bombay | September 2024 |
| 5. | RILEM Best Paper Award – 78th RILEM Week, Toulouse, France | August 2024 |
| 6. | PhD Travel Grant – Awarded by RILEM | April 2024 |
| 7. | Best Poster Award – PMRF Annual Symposium, for Civil Engineering, Earth Science, Architecture, Ocean and Naval Engineering category | March 2024 |
| 8. | Second Prize – 180Research@CE-IITM Season 2, Civil Engineering Association, IIT Madras | August 2022 |
| 9. | International Immersion Experience Travel Award – Office of Global Engagement, IIT Madras | January 2022 |
| 10. | Prime Minister's Research Fellowship – Government of India | December 2020 |
| 11. | Larsen and Toubro Build India Scholarship (BIS)
to pursue the Master of Technology in Construction Technology and Management at IIT Madras, | April 2017 |

5. Professional activities

- Led the cultural and hospitality team for TLC2 Week 2025 (Technology for Low Carbon and Lean Construction), IIT Madras, Chennai.
- Organised conservation-focused stalls for the IIT Madras Institute Open House (NCSHS) to raise awareness on heritage structures – January 2025.
- Led the registration team for CONSEC24 – 10th International Conference on Concrete Under Severe Conditions, IIT Madras, Chennai.
- Member of the organising committee for TLC2 Week 2024, IIT Madras, Chennai.
- Member of the organising committee for the TLC2 Workshop 2023, IIT Madras, Chennai.
- Delivered GATE coaching classes on ‘Building Materials’ for 3rd- and 4th-year undergraduates at Sri Venkateswaraa College of Technology, Sriperumbudur – September 2021.
- Executive, hospitality and public relations committee, national conference TISI-2015, NIT Calicut.

6. Professional memberships

- Young Member at RILEM - Réunion Internationale des Laboratoires et Experts des Matériaux, systèmes de construction et ouvrages.
- Technical Committee Member (at RILEM) of
 - RILEM TC CTM - Testing Methods for Masonry Core
 - RILEM TC DRS : Assessing Durability, Resilience and Sustainability of Lime Based Repair Mortars for Historic Structures. From Laboratory to Practice

7. Research experience

Experience	Year	Key Contributions
Postdoctoral Fellowship, CNRS–UPPA	Apr 2025 – Apr 2026	1. Advanced X-ray CT investigation of salt crystallisation in Khondalite. 2. Experimental study of drying kinetics and salt interaction in stone materials.
Doctoral Research, IIT Madras	Jan 2020 – June 2025	1. Identified microstructural factors controlling salt-weathering resistance in mortars and masonry. 2. Established criteria for selecting consolidants and compatible repair mortars in heritage structures.
SHRI – DST India Project	2023	1. Designed an accelerated weathering chamber simulating realistic salt-laden coastal exposure. 2. Conducted laboratory and visual condition assessment of stone deterioration in Konark Sun Temple and Puri Jagannath Temple.
Master's Thesis, IIT Madras / L&T	Jun 2018 – May 2019	1. Demonstrated economic viability of the sandwich technique in RE wall construction using PLAXIS 2D. 2. Optimised geogrid spacing and backfill combinations for structural efficiency.
Bachelor's Project, NIT Calicut	Jul 2016 – May 2017	1. Evaluated aerated lightweight concrete using RHA/CBRHA as sand replacement. 2. Identified optimal replacement levels for strength and durability improvement.
Academic Internship, IIT Madras	May 2015 – Jul 2015	1. Assessed the performance of corrosion inhibitors on mortar durability. 2. Analysed the impact of inhibitor type and dosage on strength and sorptivity.

8. Student guidance

- Ms Ashita Yedida**, IIT Madras, India (January 2024 – March 2025, MS Thesis)
Research focus: Accelerated weathering setup with salt spray and wind effect
- Ms Divyasri K.S.**, IIT Madras, India (September 2023 – July 2024, project staff)
Research focus: Laboratory-scale weathering of brick masonry specimens.
- Ms Vaishnavi**, NIT Rourkela, India (May 2024 – July 2024, Undergraduate Intern)
Topic: Cyclic testing on masonry mortars
- Mr Sourabh Sanjayrao Deshmukh**, Sant Gadge Baba Amravati University, Maharashtra, India (July 2022- August 2022, Undergraduate Intern)
Topic: Casting and curing of masonry mortar specimens in the laboratory and preliminary mechanical testing

9. Teaching activities

- Teaching assistant for NPTEL courses (course material preparation, assignments, live sessions, weekly tutorials; managed 4500+ students):
 - Concrete Technology (September 2023)
 - Characterisation of Construction Materials (January 2023 – April 2023)
 - Basic Construction Materials (January 2022 – May 2022, January 2021 – May 2021)
 - Advanced Topic in the Science and Technology of Concrete (January 2022 – May 2022)

5. Advanced Concrete Technology (July 2020 – December 2020, July 2022 – October 2022)
- Teaching assistant for the courses at IIT Madras:
 1. Construction materials laboratory (January 2020 – July 2020)
 2. Construction contracts and specifications (June 2018 – May 2019)
 3. Construction software laboratory (June 2018 – May 2019)

10. Other activities

- Volunteer of SPICMACAY - Society for the Promotion of Indian Classical Music and Culture Amongst Youth (2022 – Present)
- Led the team creating the official website for the Department of Civil Engineering, IIT Madras (September 2020 – February 2021)
- At NIT Calicut,
 - Elected member of Students Activity Council of NIT Calicut (2016-2017)
 - Chief Student Editor of NITC College Magazine
 - Member of NITC National Service Scheme (2016-'17)
 - Senior executive of the Literary and Debating Club (2016-2017)
 - Founder organiser of I-INK, the Literature festival of NITC (2016).

11. Language skills

Language	Proficiency
English	C2 (Native / Bilingual Proficiency)
Malayalam	C2 (Native / Bilingual Proficiency)
Hindi	C2 (Native / Bilingual Proficiency)
Tamil	B1 (Minimum Professional Proficiency)