

Durgesh Tamhane

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PROFILE

Researcher with a broad interdisciplinary background in physics, electrical engineering, electrochemistry, and materials science. Demonstrated ability to develop viable corrosion sensing technologies through academic–industry collaboration. Skilled in material evaluation, prototype development, sensor data analysis, and multiphysics simulations. Experienced in customizing lab-scale experiments to assess coatings and materials using electrochemical and physical instrumentation. Innovator of multiple patented technologies developed through industry-focused research.

EDUCATION

Ph.D. in Electrical Engineering Indian Institute of Technology Bombay	August 2022
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WORK EXPERIENCE

Senior Project Engineer IIT Bombay	June 2026 - Present
Research Consultant/Mentor ESSAI Education Krishna Conchem Products Pvt. Ltd.	November 2025 - Present
Senior Research Officer Krishna Conchem Products Pvt. Ltd.	November 2024 - November 2025
Research Associate IISc Bangalore	March 2023 - April 2024
Project Research Assistant IIT Bombay	June 2015 - July 2017

FELLOWSHIP/INTERNSHIP

Intern , University of Pune Material Synthesis, Characterization & Sensor Fabrication	November 2013 - May 2014
Junior Research Fellow , Center of Excellence in Basic Sciences Experimental Nuclear Structure Physics	February 2013 - August 2013
Intern , Cochin University of Science and Technology Chemical Synthesis & Characterization of Nanofluids for Cooling Application	November 2011 - January 2013

AWARDS AND CERTIFICATIONS

KPMG's Lean Six Sigma – Green Belt Certification	October 2021
Excellence in Teaching Assistantship, EE 617: Sensors in Instrumentation, IIT Bombay	January 2020
First Prize at the IEEE International Sensors and Measurement Student Contest, Canada	October 2019
Excellence in Teaching Assistantship, EE 783: Advanced Semiconductor Devices Lab, IIT Bombay	June 2019
First Prize at the IEEE International Sensors and Measurement Student Contest, India	October 2018

PUBLICATIONS

Journal

1. **Durgesh Tamhane**, "Field-Deployable Electrochemical Methods for Assessing Corrosion Inhibitors and Coatings," *Journal of Scientific and Industrial Research*, 2026. Manuscript in preparation.
2. **Durgesh Tamhane**, J. Thalapil, S. Banerjee, and S. Tallur, "Performance evaluation of electro-mechanical impedance based state of health estimation of sacrificial anodes in reinforced concrete structures," *Construction and Building Materials*, vol. 342, p. 128034, 2022
3. **Durgesh Tamhane**, S. Banerjee, and S. Tallur, "Monitoring Corrosion in Sacrificial Anodes With Pulsed Eddy Current and Electromechanical Impedance: A Comparative Analysis," *IEEE Sensors Journal*, vol. 22, no. 8, pp. 8147–8154, 2022
4. **Durgesh Tamhane**, J. Patil, S. Banerjee, and S. Tallur, "Feature engineering of time-domain signals based on principal component analysis for rebar corrosion assessment using pulse eddy current," *IEEE Sensors Journal*, vol. 21, no. 19, pp. 22086–22093, 2021
5. **Durgesh Tamhane**, J. Thalapil, S. Banerjee, and S. Tallur, "Smart cathodic protection system for real-time quantitative assessment of corrosion of sacrificial anode based on electro-mechanical impedance (EMI)," *IEEE Access*, vol. 9, pp. 12230–12240, 2021
6. J. Thalapil, **Durgesh Tamhane**, S. Banerjee, and S. Tallur, "Vibration-based inverse graphical technique for thickness estimation of bulk acoustic wave (BAW) resonators: application for corrosion monitoring of sacrificial anodes," *Smart Materials and Structures*, vol. 30, no. 5, p. 055015, 2021
7. **Durgesh Tamhane** and M. Anantharaman, "Design and Fabrication of a Simple and Inexpensive Measurement Probe for the Evaluation of Thermal Conductivity of Nanofluids," *Journal of Nanofluids*, vol. 6, no. 2, pp. 390–394, 2017
8. **Durgesh Tamhane** and A. R. Morarka, "On the Attenuation of Light by a Polydimethylsiloxane (PDMS) Foam and Its Implementation as a Weight Sensor," *Mapan*, vol. 32, no. 1, pp. 1–6, 2017

Conference

1. **Durgesh Tamhane**, "Potentiostat-independent tools for electrochemical assessment of performance of coatings, admixtures, and corrosion inhibitors," in *CORCON*, p. CLI24, 2026
2. J. Thalapil, **Durgesh Tamhane**, S. Banerjee, and S. Tallur, "Corrosion monitoring of sacrificial anodes based on contour plot analysis of electro-mechanical impedance spectra," in *2021 21st International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers)*, pp. 1182–1185, IEEE, 2021
3. **Durgesh Tamhane**, S. Banerjee, and S. Tallur, "Non-invasive detection of extent of corrosion in steel reinforcing bars by magnetic force measurement," in *Advances in Non-Destructive Evaluation*, pp. 11–17, Springer, 2021

Patents

1. **Durgesh Tamhane**, S. Banerjee, S. Tallur, and J. Patil, "Apparatus and method for detecting corrosion of conducting material based on pulsed eddy current." Indian Patent Number 485364, granted on 19 December, 2023
2. **Durgesh Tamhane**, S. Tallur, and S. Banerjee, "Method and Apparatus for an Electromechanical Impedance (EMI) based monitoring of sacrificial anode in a cathodic protection system." Indian Patent Number 557521, granted on 7 January, 2025