

Siddharth G. Tallur

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Education

M.S. – Ph.D. Electrical and Computer Engineering, **Cornell University**, 2013.

Dissertation: Leveraging Opto-Mechanics For High Performance RF Oscillators.

Advisor: Prof. Sunil A. Bhave, *GPA:* 4.00/4.00 (4.079 including A+ grades).

B.Tech. Electrical Engineering, **Indian Institute of Technology Bombay**, 2008.

CGPA: 9.15/10.00, Ranked 2nd in Electrical Engineering

Awards and Honors

Inspire Faculty Fellowship, Department of Science and Technology (DST) of the Government of India

2013 ECE Director's best thesis award, Cornell University, March 2013

2012 Best Student Paper Award from U.S. Advisory Committee to the International Commission for Optics (USAC/ICO) and Best Student Paper Award at IEEE Photonics Conference, September 2012

Best Paper finalist at International Symposium on Low Power Electronics and Design, August 2010 (Design Contest winner), and IEEE International Frequency Control Symposium, June 2010, July 2017

Student honors: Best paper award at 2018 IEEE Sensors conference; Best paper finalist at 2017 and 2021 IEEE IFCS-EFTF joint symposia; Winner of IEEE International Sensors and Measurement Student Contest at 2018 and 2019 IEEE Sensors conferences; Analog Devices India Anveshan Design Fellowship (Winners: 2018 and 2020; Finalists in 2019); DST NIDHI PRAYAS Fellowship (2020); Best M.Tech thesis (EE IITB 2020, 2021) and Academic Excellence award (EE IITB 2020)

Professional Appointments/Employment

**Associate Professor, Department of Electrical Engineering,
IIT Bombay, Mumbai, India** (May 2021–Present; Assistant Professor, November 2016–May 2021)

P.I. at the Applied Integrated Micro-Systems (AIMS) Lab at IIT Bombay, exploring design and applications of hybrid integrated sensors and embedded system applications.

Engaged in pursuit of novel scientific ideas with direct translational impact through application oriented research

Demonstrated impact and leadership through numerous student awards, 25 journal publications, 34 conference papers and 6 Indian patent applications in < 5 years of establishment of an experimental research group at IIT Bombay

**MEMS Sensor Platform Development and Applications Engineer,
Analog Devices Inc., Wilmington MA, USA** October 2013–November 2016

Primary roles include working in teams to identify learning cycles for new sensor platforms and statistical analysis of part performance to set datasheet and production test limits, novel applications for wireless low power inertial sensor systems

Part of design and product development team for novel gyroscope and accelerometer architectures

Business Analyst,**A. T. Kearney Ltd., Mumbai, India** July 2008–May 2009

Worked with teams to develop a regression analysis based pricing strategy for a large automobiles manufacturing company, analyze net operating working capital cycle (NOWC) for a wind mill manufacturing company and build a CEO agenda for a large oil and gas major in India.

Selected Recent Publications

25 journal papers, 34 conference papers, 6 Indian patent applications and 1 granted US patent. Complete list available at <http://www.ee.iitb.ac.in/~stallur/publications/>

Journals

1. D. 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* (2021). (Early access DOI: 10.1109/JSEN.2021.3103545)
2. I. Mukherjee and **S. Tallur**, “Light-weight CNN enabled edge-based framework for machine health diagnosis,” *IEEE Access*, vol. 9, pp. 84375-84386 (2021).
3. M. S. Kumar, R. Nandeshwar, S. B. Lad, K. Megha, M. Mangat, A. Butterworth, C. W. Knapp, M. Knapp, P. A. Hoskisson, D. K. Corrigan, A. C. Ward, K. Kondabagil and **S. Tallur**, “Electrochemical sensing of SARS-CoV-2 amplicons with PCB electrodes,” *Sens. and Act. B: Chemical*, vol. 343, 130169 (2021).
4. S. Sawant, S. Banerjee and **S. Tallur**, “Performance evaluation of compressive sensing based lost data recovery using OMP for damage index estimation in ultrasonic SHM,” *Ultrasonics*, vol. 115, 106439 (2021).
5. D. 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. R. Nandeshwar and **S. Tallur**, “Integrated low cost optical biosensor for high resolution sensing of myeloperoxidase (MPO) activity through carbon nanotube degradation,” *IEEE Sensors Journal*, vol. 21, no. 2, pp. 1236-1243 (2021).

Conferences

1. J. Thalapil, D. Tamhane, S. Banerjee and **S. Tallur**, “Corrosion monitoring of sacrificial anodes based on contour plot analysis of electro-mechanical impedance spectra,” *Proceedings of the 21st International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers) 2021*, pp. 1182-1185, June 2021.
2. P. Das, K. Saha and **S. Tallur**, “Anomalous dispersion in blue wavelength range in vertically coupled III-nitride waveguides,” presented at CLEO 2021 virtual conference, May 2021.
3. S. Sawant, S. Banerjee and **S. Tallur**, “Compressive sensing based data-loss recovery enables robust estimation of damage index in ultrasonic structural health monitoring,” *2020 IEEE Sensors Conference, Rotterdam, Netherlands*, pp. 1-4, October 2020.
4. H. Iyer and **S. Tallur**, “Study of angular gain in lobe-like modes for annular ring bulk acoustic wave (BAW) gyroscopes,” presented at the 2019 IEEE International Ultrasonics Symposium, Glasgow, Scotland, October 2019.
5. Supriya Asutkar, Dipti Gupta and **S. Tallur**, “Machine health monitoring using a novel low cost elastomer based vibration sensor,” presented at the 2019 Joint Conference of the IEEE International Frequency Control Symposium & European Frequency and Time Forum, Orlando FL, USA, April 2019.
6. R. Nandeshwar, N. Maheshwari and **S. Tallur**, “Precision low cost phase sensitive optical sensor for detecting carbon nanoparticle degradation,” presented at IEEE Sensors Conference, New Delhi, India, October 2018.

Professional Activities

Technical Program Committee Member at following conferences:

IEEE International Frequency Control Symposium (2016, 2018, 2020)

IEEE International Frequency Control Symposium & European Frequency and Time Forum Joint meeting (2017, 2019, 2021)

IEEE Photonics Conference (2017, 2018, 2019)

Review Editor for Integrated Circuits and VLSI (specialty section of Frontiers in Electronics) and Micro- and Nanoelectromechanical Systems (specialty section of Frontiers in Mechanical Engineering)

Last updated: August 24, 2021