Curriculum Vitae

PERSONAL INFORMATION

Dr. SHOUVIK CHAUDHURI

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https://scholar.google.co.in/citations?user=sXYaj-AAAAAJ&hl=en (Google Scholar)

https://www.scopus.com/authid/detail.uri?authorId=14062861300 (Scopus)

https://orcid.org/0000-0001-8957-5086 (Orcid)

https://publons.com /researcher /3305820/shouvik-chaudhuri/ (Publons)

https://www.linkedin.com/in/shouvik-chaudhuri-53131b2b/ (LinkedIn)

Sex	Male
Date of birth	16 December 1988
Nationality	Indian
Marital Status	Single
Current Academic Status	PhD Completed
Member of Professional Bodies	IEEE (since 2017)
Reviewer For	IEEE/ASME Transactions on Mechatronics IEEE Journal of Emerging and Selected Topics in IE Control Engineering Practice (Elsevier) Journal of the Brazilian Society of Mechanical Sciences and Engineering (Springer) IEEE Transactions on Vehicular Technology

WORK EXPERIENCE

07 Dec'15 – Present

Research Fellow (CARS Project)

Hydraulics Laboratory, Jadavpur University, Kolkata, West Bengal (India)

Sponsoring Agency: *Centre for Artificial Intelligence & Robotics* (**CAIR**), Bengaluru, India

Project Title: *Design and Development of a Quadruped torso with external electrohydraulic power system for realisation of an autonomous robot.*

Principal Investigator: *Prof. Saikat Mookherjee*, Professor, Department of Mechanical Engineering, Jadavpur University.

Key Responsibilities:

- Development and assembly of an electro-hydraulic quadruped robot as part of an interdisciplinary research team.
- Expertise in design and implementation of real time controllers in LabVIEW for quadruped actuation system with external feedback.
- MATLAB/SIMULINK based simulation and optimization (GA based) studies.
- Maintenance and purchase of lab equipment.

02 Aug '13 – 07 Dec'15

Research Fellow (DARO Project)

Hydraulics Laboratory, Jadavpur University, Kolkata, West Bengal (India)

Sponsoring Agency: *Aeronautics Research & Development Board* (**AR&DB**), India

Project Title: *High-frequency real-time tracking control for linear servo actuation system*.

Principal Investigator: *Prof. Rana Saha*, Professor, Department of Mechanical Engineering, Jadavpur University.

Key Responsibilities:

- Development of model-free and adaptive controllers for motion control of linear actuators in the high frequency regime in LabVIEW environment.
- Application of control methodologies such as Sliding mode control, Fuzzy Logic and Neural networks in synergistic combinations.
- MATLAB/SIMULINK based simulation studies.
- Maintenance and purchase of lab equipment.

COLLABORATIONS

RNA Biology Lab (Department of Life Sc. and Biotechnology, Jadavpur University)

Collaborators: Prof. Biswadip Das and Dr. Subhadeep Das

Contribution: Development of image processing algorithms in MATLAB for analysing co-localization of yeast cells (*S. cerevisiae*) from confocal microscopy images.

Gachhui Lab (Department of Life Sc. and Biotechnology, Jadavpur University)

Collaborators: Prof. Ratan Gachhui and Dr. Soumyadev Sarkar

Contribution: Development of image processing algorithms in MATLAB for determining the area covered by the cells and the hyphal structures of *P. laurentii* from their SEM images.

PUBLICATIONS

Journals (First Authorship)

1. **Shouvik Chaudhuri**, Rana Saha, Amitava Chatterjee, Saikat Mookherjee and Dipankar Sanyal, *"Adaptive Neural-Bias-Sliding Mode Control of Rugged Electrohydraulic System Motion by Recurrent Hermite Neural Network,"* in **Control Engineering Practice** (Elsevier), Volume 103, p. 104588, October 2020, ISSN: 0967-0661, DOI: 10.1016/j.conengprac.2020.104588.
2. **Shouvik Chaudhuri**, Rana Saha, Amitava Chatterjee, Saikat Mookherjee and Dipankar Sanyal, "*Development of a Motion Sensing System based on Visual Servoing of an Eye-in-hand Electrohydraulic Parallel Manipulator*," in **IEEE Sensors Journal**, Volume 20, Issue 14, Pages 8108-8116, July 2020, ISSN: 1558-1748, DOI: 10.1109/JSEN.2020. 2979490.

Journals (Co-Authorship)

3. Priyankan Datta, Aranyak Chakravarty, Ritabrata Saha, **Shouvik Chaudhuri**, Koushik Ghosh, Achintya Mukhopadhyay, Swarnendu Sen, Anu Dutta, Priyanshu Goyal, "*Experimental investigation on the effect of initial pressure conditions during steam-water direct contact condensation in a horizontal pipe geometry*" in **International Communications in Heat and Mass Transfer** (Elsevier), Volume 121, February 2021, 105082, ISSN 0735-1933, DOI: https://doi.org/10.1016/ j.icheatmasstransfer.2020.105082.

4. Soumyadev Sarkar, Avishek Mukherjee, Subhadeep Das, Bidisha Ghosh, **Shouvik Chaudhuri**, Debanjana Bhattacharya, Arpita Sarbajna, Ratan Gachhui, "*Nitrogen deprivation elicits dimorphism, capsule biosynthesis and autophagy in Papiliotrema laurentii strain RY1,"* in **Micron** (Elsevier), Volume 124, September 2019, 102708, ISSN 0968-4328, DOI: https://doi.org/10.1016/j.micron.2019.102708.

5. Subhadeep Das, Subir Biswas, **Shouvik Chaudhuri**, Arindam Bhattacharyya, and Biswadip Das, "*A nuclear zip code in SKS1 mRNA promotes its slow export, nuclear retention, and degradation by the nuclear exosome/DRN in Saccharomyces cerevisiae*," in **Journal of Molecular Biology** (Elsevier), Volume 431, Issue 19, 2019, Pages 3626-3646, September 2019, ISSN 0022-2836, DOI: https://doi.org/10.1016/j.jmb.2019.07.005.

Book Chapter

6. **Shouvik Chaudhuri**, Sibshankar Dasmahapatra, Amitava Chatterjee, Rana Saha, Saikat Mookherjee and Dipankar Sanyal, '*Adaptive Fuzzy - Sliding Mode Control With Fixed Bias Compensator For An Electrohydraulic Actuation System With Hard Nonlinearities*', Fluid Mechanics and Fluid Power – Contemporary Research, Lecture Notes in Mechanical Engineering, DOI: 10.1007/978-81-322-2743-4_116 (Springer).

Conference Proceedings

7. **Shouvik Chaudhuri**, Rana Saha, Saikat Mookherjee, Dipankar Sanyal and Amitava Chatterjee, "*Visual sensing based adaptive sliding mode control of position tracking in electrohydraulic systems*," 2016 2nd International Conference on Control, Instrumentation, Energy & Communication (CIEC), Kolkata, January 2016, Pages 25-29, DOI: 10.1109/CIEC.2016.7513762 (IEEE Explore).

8. **Shouvik Chaudhuri**, Saikat Mookherjee and Dipankar Sanyal, "*Adaptive force tracking in electrohydraulic system with first-order sliding mode control*," 2016 IEEE First International Conference on Control, Measurement and Instrumentation (CMI), Kolkata, January 2016, Pages 300-304, DOI: 10.1109/CMI.2016.7413759 (IEEE Explore).

9. Sibshankar Dasmahapatra, **Shouvik Chaudhuri**, Pranibesh Mandal, Saikat Mookherjee and Rana Saha, "*Fuzzy-PI control of motion tracking by an electrohydraulic system with multiple nonlinearities*," Michael Faraday IET International Summit 2015, Kolkata, 2015, Pages 89-92, DOI:10.1049/cp.2015.1612 (IEEE Explore).

10. Soumalya Kundu, Rajarshi Bhattacharjee and **Shouvik Chaudhuri**, "*Evaluation of fuzzy-logic based position control strategies for an electrohydraulic actuation system*," 2021 International Conference on Advances in Electrical, Computing, Communication and Sustainable Technologies (ICAECT), Bhilai, India, 2021, pp. 1-7, doi: 10.1109/ICAECT49130.2021.9392479 (IEEE Explore).

11. Rajarshi Bhattacharjee, Soumalya Kundu and **Shouvik Chaudhuri**, "*Evaluation of Workspace and Coupled Motions of an Electrohydraulic Parallel Manipulator*," 2021 Fourth International Conference on Electrical, Computer and Communication Technologies (ICECCT 2021), Tamil Nadu, India, 2021, pp. 1-8, doi: 10.1109/ICECCT52121.2021.9616672 (IEEE Explore).

Books

12. **Shouvik Chaudhuri**, '*Pressurised Water Nuclear Reactor – Dynamics, Modelling and Simulation*', Lap-Lambert Publishing House, ISBN: 978-620-0-09362-2.

ACADEMIC CREDENTIALS

14 July'15 – 01 Nov'21

PhD (Engineering)

Electrical Engineering Department, Jadavpur University, Kolkata, W.B., India

Thesis Supervisors: Prof. Amitava Chatterjee (Professor, Electrical Engg. Dept.)
Prof. Saikat Mookherjee (Professor, Mechanical Engg. Dept.)

Thesis Title: *Developing Electrohydraulic System Solutions using Adaptive-Neuro-Sliding Mode Control and Vision Sensing*

Major Fields of Work: Adaptive Control, Sliding Mode Control, Neural Networks, Image-based Visual Servoing, Electrohydraulic Actuation Systems, Parallel Manipulators.

Summary of the Work: Developing real-time control solutions for industry-grade Electrohydraulic actuation systems (EHAS) by utilizing hybrid adaptive control strategies constructed around the sliding mode control approach and the recurrent neural networks. In addition, vision based feedback control or visual servoing principles (image-based) are utilized to develop a motion sensing application with the aid of a multi-actuator EHAS or parallel manipulator (*Stewart Platform*) and a monocular camera mounted on the end-effector of the parallel manipulator.

Aug'11 – June'13

Master of Nuclear Engineering [M.E.]

Jadavpur University, Kolkata, West Bengal, India

Total Marks: 86.28%

Major Subjects: Reactor Physics & Engineering – I & II, Analysis and Computational tools in Nuclear Engineering, Reactor Control Engineering, Concepts in Nuclear Science, Active Circuits & Systems, Reactor Thermal Hydraulics, Microscale Heat Transfer, Two Phase Flow, Boiling & Condensation.

Aug '07 – June '11

Bachelor of Technology in Electrical Engineering [B.Tech in EE]

Seacom Engineering College, West Bengal University of Technology, W.B., India

DGPA: 8.73

Major Subjects: Engineering Physics, Basic Electrical Engineering, Mechanical Sciences, Circuit theory & Networks, Electrical and Electronics Measurement, Numerical Methods & Programming, Electrical Machines – I & II, Analog Electronic Circuits, Digital Electronics, Electromagnetic Field Theory, Power System – I , II & III, Control Systems – I & II, Power Electronics, Microprocessors and Microcontrollers, Digital Signal Processing, Electric Drives.

April 2006

Higher Secondary [Class XIIth]

Kendriya Vidyalaya Ballygunge (KVB) [CBSE], Kolkata, West Bengal, India

Total Marks: 87.20%

Subjects: Physics, Chemistry, Mathematics, Biology, English.

April 2004

Secondary [Class Xth]

Kendriya Vidyalaya Ballygunge (KVB) [CBSE], Kolkata, West Bengal, India

Total Marks: 90.60%

Subjects: Science, Mathematics, Social Science, English, Hindi.

DISSERTATIONS

July '12– June '13

Postgraduate Dissertation

Bhabha Atomic Research Centre (BARC), Mumbai

Dissertation Advisor: Dr. Siddhartha Mukhopadhyay (Scientist H+, Instrumentation & Control Division)

Dissertation Title: *Compact Reactor Modelling*

Major Fields of Work: Pressurised Water Nuclear Reactors, Reactor Modelling, Thermal Hydraulics, Xenon Poisoning, Reactor Regulating System, Lyapunov Stability.

Summary of the Work: Developed an analytical model of the PWR with primary and secondary loops, alongside a reactor regulating system based on first principle approach within MATLAB/Simulink environment. Stability issue of the developed models were investigated based on the Lyapunov criteria.

Dec '10– April '11

Undergraduate Dissertation

Seacom Engineering College, West Bengal University of Technology, W.B., India

Dissertation Advisor: Mr Sarbojit Mukherjee (Assistant Professor, Electrical Engineering Department)

Dissertation Title: *Study and fabrication of a battery – low indicator*

Major Fields of Work: Circuit Simulation & Fabrication, DC and Transient Analysis

Summary of the Work: Developing a low-power and efficient circuit for indicating low battery conditions of a rechargeable battery. Simulation and analysis of the circuit was carried out on Circuit Maker before the hardware fabrication process. The fabrication of the circuit was performed in-house and was tested for various modes of operation using a regulated power supply.

PERSONAL SKILLS

Mother tongue(s): Bengali

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English*	C1	C1	C1	C1	C1
Hindi	C1	C1	C1	C1	C1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user
*Certified by THE BRITISH COUNCIL

Computer Proficiency

OPERATING SYSTEMS	SOFTWARES	LANGUAGES
Windows x86, x64, Ubuntu	LabVIEW, MATLAB / SIMULINK, AutoCAD, Solidworks, Arduino IDE, Automation Studio	MATLAB scripting language, LabVIEW G language, Python (basic)

Self-assessment (Strengths): Enthusiastic, Inquisitive, Responsible, and Punctual with comprehensive problem-solving abilities and excellent communication skills (verbal and written). Belief in Team effort. Always ready to learn.

Interests & Hobbies: Bibliophile, Author (Poems and Short Stories), Pet Lover, Music, Cricket and Tennis.

DISCLAIMER

I hereby declare that all the furnished information is true to the best of my knowledge. Any suspicion of fallacy can be subjected to questioning and verification.

Date : 31.01.2022
Place : Kolkata, India

Shouvik Chaudhuri

(Signature)