

CURRICULUM VITAE

NAME: Dr. SHUBHOBRATA RUDRA

AFFILIATION: Assistant Professor Grade II
Electrical Engineering Department
NIT Rourkela
Rourkela-769008
Odisha, India

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PLACE OF BIRTH: India

CITIZENSHIP: Indian

DATE OF BIRTH: 12th August, 1985.

RESEARCH INTERESTS:

1. Nonlinear Control Systems.
2. Adaptive Control
3. Robust Control

TEACHING INTERESTS:

1. Control System Engineering.
2. Circuit Theory.
3. Electrical Machines

EDUCATIONAL QUALIFICATIONS:

Degree	Major / Specialization	University	Year of Passing	Class / Grade Obtained
PhD	Control Algorithm Design for Underactuated System	Jadavpur University, India	2015	
Master of Electrical Engineering	<i>Major:</i> Electrical Engineering <i>Specialization:</i> Control System Engineering	Jadavpur University, India	2010	First Class
Bachelor of Electrical Engineering	Electrical Engineering	West Bengal University of Technology, India	2007	First Class

Ph.D. Thesis:

Thesis Title: "Nonlinear State Feedback Control Law Design for Underactuated Mechanical Systems"

Thesis Advisor: Dr. Ranjit Kumar Barai

Associate Professor
Control system Division
Dept. of Electrical Engineering
Jadavpur University
Kolkata-700032
India

Dr. Madhubanti Maitra
Professor
Control system Division
Dept. of Electrical Engineering
Jadavpur University
Kolkata-700032
India

PhD Degree Awarded in the year 2015.

PROFESSIONAL & RESEARCH EXPERIENCE:

07.03.17-till Date	Assistant Professor Grade II, Electrical Engineering Department NIT Rourkela
01.02.2016-02.03.17	Assistant Professor, Electrical Engineering Department, Techno India Saltlake Kolkata, West Bengal India
14 th July 2014-31.01.2016	Assistant Professor, Electrical Engineering Department, Birbhum Institute of Engineering and Technology, Suri, Birbhum India
1 st January 2012 – 13 th July 2014	Inspire Research Fellow, Control System Division, Electrical Engineering Department, Jadavpur University, Kolkata, India.
10 th August 2007 – 26 th Dec 2011	Assistant Professor, Electrical Engineering Department, Calcutta Institute of Engineering and Management, Kolkata, India

HONORS AND AWARDS:

- 1. Inspire Fellowship (Awarded by the department of Science and Technology, GOA).**

2. **University Gold Medal at the fifth Convocation of Jadavpur University, for standing 1st at the Master of Control System Engineering Examination, 2010.**
3. **GATE Fellowship (Awarded by the Ministry of Human Resource Development Govt. of India)**

MEMBERSHIP OF LEARNED SOCIETY:

1. Member of IEEE Control System Society.
2. Member of Robotics Society of India.

SUBJECTS TEACHING / RECENTLY TAUGHT:

A. Masters Level:

1. Control System Engineering (Master of Control Engineering: 1st Semester, 2012 to present session, Jadavpur University)
2. Control System Laboratory (Master in Control System Engineering & Master in Electrical Engineering: 1st Semester, 2010 session, Jadavpur University)
3. Control System I, II, and III at different colleges affiliated by West Bengal University of Technology

PUBLICATIONS:

Book Publications

- [1] S. Rudra, R. K. Barai, and M. Maitra, *Block Backstepping Design of Nonlinear State Feedback Control Law for Underactuated Mechanical Systems*, Springer Science+Business Media Singapore, ISBN: 978-981-10-1955-5.

Journal Publications

- [1] S. Rudra and R. K. Barai, "Robust Adaptive Backstepping Control of Inverted Pendulum on Cart System," *International Journal of Control and Automation*, vol. 5, no. 1, pp. 13-26, 2012.
- [2] S. Rudra, R. K. Barai, M. Maitra, S. Ghosh, S. Dam, P. Bhattacharya, and A. Dutta, "Guaranteed Anti-Sway Operation of an Overhead Crane: A Cascaded backstepping Approach," *Journal of Control Engineering and Technology*, vol. 3, no. 1, pp. 8-11, 2013.
- [3] S. Rudra, R. K. Barai, and M. Maitra, "Nonlinear State Feedback Controller design for Underactuated Mechanical System: a Modified Block Backstepping Approach," *ISA Transactions*, Vol. 53, No. 2, pp. 317-326, Mar. 2014.

- [4] S. Rudra, R. K. Barai, and M. Maitra, "Design and implementation of a block-backstepping based tracking control for nonholonomic wheeled mobile robot," *International Journal of Robust and Nonlinear Control*, vol. 26, no. 14, pp. 3138-3135, 2016

Conference Publications

- [1] S. Rudra, K. Ghosh, S. Pattanayak, "Robust Adaptive Backstepping Control and its Implementation on motion control system," *Proc. of Calcon*, 2011, pp. 41-46.
- [2] S. Rudra, K. Ghosh, M. Das, "Robust Adaptive Integral Backstepping Control and its Implementation on motion control system," *Proc. of EPSICON*, 2012, pp. 1-6.
- [3] S. Rudra, R. K. Barai, M. Maitra, D. Mandal, S. Ghosh, S. Dam, A. Dutta, and P. Bhattacharyya, "Robust Adaptive Integral Backstepping Control and its Implementation on Permanent Magnet Synchronous Motor," in *Proc. of IEEE India Annual Conference (INDICON)*, 2012, pp. 1072 – 1077.
- [4] S. Rudra, R.K. Barai, M. Maitra, D. Mandal, S. Ghosh, S. Dam, P. Bhattacharyya, A. Dutta, "Stabilization of TORA System: A Backstepping Based Hierarchical Sliding Mode Approach with Disturbance Estimation," in *Proc. of International Conference on Emerging Trends in Electrical, Communication and Information Technologies*, 2012, pp. 141-150.
- [5] S. Rudra, R. K. Barai, M. Maitra, D. Mandal, S. Ghosh, S. Dam, P. Bhattacharyya, and A. Dutta, "Design of Nonlinear State Feedback Control Law for Rotating Pendulum System: A Block Backstepping Approach," in *Proc. of International Conference on Emerging Trends in Electrical, Communication and Information Technologies*, 2012, pp. 133-140.
- [6] S. Rudra, R.K. Barai, M. Maitra, D. Mandal, S. Ghosh, S. Dam, P. Bhattacharyya, A. Dutta, "Design of Nonlinear State Feedback Control Law for Underactuated TORA System: A Block Backstepping Approach," in *Proc. of 7th International Conference on Intelligent Systems and Control*, 2013, pp. 93-98.
- [7] S. Rudra, R.K. Barai, M. Maitra, D. Mandal, S. Ghosh, S. Dam, P. Bhattacharyya, and A. Dutta, "Stabilization of Furuta Pendulum: A Backstepping Based Hierarchical Sliding Mode Approach with Disturbance Estimation," in *Proc. of 7th International Conference on Intelligent Systems and Control*, 2013, pp. 99-105.
- [8] S. Rudra, R.K. Barai, M. Maitra, D. Mandal, S. Ghosh, S. Dam, P. Bhattacharyya, and A. Dutta, "Global Stabilization of a Flat Underactuated Inertia Wheel: A Block Backstepping Approach," in *Proc. of 2nd International Conference Computer Communication and Informatics*, 2013, pp. 1-4.

- [9] S. Rudra, R.K. Barai, M. Maitra, "Design of Nonlinear State Feedback Control Law for Underactuated Two-Link Planar Robot: A Block Backstepping Approach," in *Proc. of Conference on Advances in Robotics*, 2013, pp. 1-6
- [10] S. Rudra and R.K. Barai, " Design of block backstepping based nonlinear state feedback controller for pendubot, " in *Proc. of Conference on IEEE First International Conference on Control, Measurement and Instrumentation (CMI)*, 2016, pp. 1-5.

LANGUAGE SKILL:

Language known	Proficiency
English (2 nd Language)	Fluent in reading, writing, and speaking.
Bengali (1 st Language)	Fluent in reading, writing, and speaking.

SOFTWARE / PROGRAMMING EXPERIENCE & SKILL:

1. Developed Matlab and Simulink based control design algorithm for Underactuated Mechanical System.

REFERENCES:

- **Dr. Ranjit Kumar Barai**
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