Debarshi Patanjali Ghoshal

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Education

Montreal, Canada McGill University

Doctor of Philosophy in Electrical Engineering

2014 – Present

Thesis: Finite-interval estimation using double-sided kernels and differential invariants

Supervisor: Prof. Hannah Michalska

Indian Institute of Technology Kanpur

Kanpur, India

2012 - 2014

Master of Technology in Electrical Engineering Thesis: Robot learning from a human expert through modified kinesthetic teaching

Supervisor: Prof. Laxmidhar Behera

Kolkata, India

Bachelor of Electrical Engineering

2007 - 2011

Elective: Control Systems Engineering

Experience

Summer Internship

Jadavpur University

Research.....

Aerial Technologies Montreal. Canada

Industrial R&D Oct 2018 - Present

Applying Feature Engineering in Artificial Intelligence/Machine Learning to solve practical problems in the field of WiFi Motion Analytics; the project started as a Research Internship, which was later extended into a paid position as an independent Research Scientist Consultant.

Jadavpur University Kolkata, India

Research Project Oct 2011 - May 2012

Project title: Robust controller design for boiler burning process using RBode plot

Supervisor: Prof. Smita Sadhu (Department of Electrical Engineering, Jadavpur University)

The work resulted in a peer-reviewed conference paper.

Indian Institute of Science, Bangalore Bangalore, India

May 2010 - Jun 2010 Project title: Waypoint navigation system for unmanned aerial vehicles (UAV)

Supervisor: Prof. Seetharama M. Bhat (Department of Aerospace Engineering, IISc.)

Jadavpur University Kolkata, India

May 2009 - Apr 2010 Research Project

Project title: Neural network approach for automatic number plate recognition (ANPR) Supervisor: Prof. Anjan Rakshit (Department of Electrical Engineering, Jadavpur University)

The work resulted in a peer-reviewed conference paper, which also won the best-paper prize of the conference.

Teaching..... McGill University Montreal, Canada Graduate Teaching Assistant, Electrical & Computer Engineering Dept. Sep 2017 - Dec 2018 ECSE 404 Control Systems (Fall 2018, Fall 2017) Indian Institute of Technology Kanpur Kanpur, India Teaching Assistant, Electrical Engineering Department Aug 2012 - Apr 2014 Control System Analysis (Spring 2014, Spring 2013) Basics of Modern Control Systems (Fall 2013) Intelligent Informatics Lab (Fall 2012) Miscellaneous... McGill University Montreal. Canada Grader, Electrical and Computer Engineering Department Sep 2016 - Dec 2018 ECSE 500 Mathematical Foundations of Systems (Fall 2018) ECSE 443 Introduction to Numerical Methods in Electrical Engineering (Winter 2017) ECSE 404 Control Systems (Fall 2016) Honours & Awards **NSERC Engage Plus Fellowship** Natural Sciences and Engineering Research Council of Canada 2019 - 2020**NSERC Engage Fellowship** Natural Sciences and Engineering Research Council of Canada 2018 - 2019 **Lorne Trottier Engineering Graduate Fellowship** McGill University - Faculty of Engineering 2014 - 2017Geoff Hyland Fellowship in Engineering McGill University - Faculty of Engineering 2014 - 2017**Graduate Excellence Fellowship - Engineering** McGill University - Faculty of Engineering 2014 - 2017

Selected Publications

Ministry of Human Resource Development, Govt. of India

MHRD Scholarship

- D. P. Ghoshal and H. Michalska, "Finite interval estimation of LTI systems using differential invariance, instrumental variables, and covariance weighting," in *2020 American Control Conference (ACC)*, pp. 731–736, IEEE, 2020.
- D. P. Ghoshal and H. Michalska, "Finite-interval kernel-based identification and state estimation for LTI systems with noisy output data," in *2019 American Control Conference (ACC)*, pp. 4982–4989, IEEE, 2019.
- D. P. Ghoshal, S. Sinha, and H. Michalska, "Algebraic nonlinear identification and output tracking control of synchronous generator using differential flatness," in *2019 23rd International Conference on System Theory, Control and Computing (ICSTCC)*, pp. 206–211, IEEE, 2019.

2012 - 2014

- A. Pandey, D. P. Ghoshal, and H. Michalska, "Variational approach to joint linear model and state estimation," in 2018 Annual American Control Conference (ACC), pp. 3520–3525, IEEE, 2018.
- D. Sridhar, D. P. Ghoshal, and H. Michalska, "B-splines in joint parameter and state estimation in linear time-varying systems," in *2018 Annual American Control Conference (ACC)*, pp. 3508–3513, IEEE, 2018.
- D. P. Ghoshal, K. Gopalakrishnan, and H. Michalska, "Kernel-based adaptive multiple model target tracking," in *Control Technology and Applications (CCTA), 2017 IEEE Conference on*, pp. 1338–1343, IEEE, 2017.
- D. P. Ghoshal and H. Michalska, "Double-sided kernel observer for linear time-varying systems," in *Control Technology and Applications (CCTA)*, 2017 IEEE Conference on, pp. 922–927, IEEE, 2017.
- D. P. Ghoshal, K. Gopalakrishnan, and H. Michalska, "Algebraic parameter estimation using kernel representation of linear systems," *IFAC-PapersOnLine*, vol. 50, no. 1, pp. 12898–12904, 2017.
- D. P. Ghoshal, K. Gopalakrishnan, and H. Michalska, "Using invariance to extract signal from noise," in *American Control Conference (ACC)*, 2017, pp. 2588–2593, IEEE, 2017.
- D. P. Ghoshal, N. Das, S. Dutta, and L. Behera, "Robot learns from human teacher through modified kinesthetic teaching," *IFAC Proceedings Volumes*, vol. 47, no. 1, pp. 773–780, 2014.
- A. Roy and D. P. Ghoshal, "Number plate recognition for use in different countries using an improved segmentation," in *Emerging Trends and Applications in Computer Science (NCETACS)*, 2011 2nd National Conference on, pp. 1–5, IEEE, 2011.

Computer skills

Programming: Python, Go, MATLAB, C, Fortran **Publishing**: LaTeX

Libraries: Scikit-learn, NumPy, SciPy, Matplotlib Miscellaneous: Git, Linux

Volunteer work

Reviewer:

American Control Conference (2019)

Computer Science and Electronic Engineering Conference (2018, 2015)

International conference on Advances in Control and Optimization of Dynamic Systems (2014)

Elected position: Vice-President of Facilities

McGill University - Electrical Engineering Graduate Student Society (EEGSS) 2016 – 2017

International Student Buddy

McGill University - International Student Services 2015 – 2017