HIYA ROY

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RESEARCH INTERESTS

My research interests are in computer vision, machine learning, deep learning, and image processing.

EDUCATION

The University of Tokyo, Japan Sept 2017 – Present
Doctor of Philosophy (Ph.D),
Advisor: Dr. Tatsuaki Hashimoto, Dr. Toshihiko Yamasaki
Department of Electrical Engineering & Information Systems

The University of Tokyo, Japan Sept 2015 – Aug 2017
Master of Science (M.S),
Advisor: Dr. Tatsuaki Hashimoto
Department of Electrical Engineering & Information Systems
Dissertation Topic: Planetary surface image recognition using deep learning

Jadavpur University, India. July 2008 - June 2012
Bachelor of Engineering (B.E)(Hons.)
Department of Electrical Engineering
GPA: **8.57/10** (Top 10%)
Dissertation Topic: Vision based door detection

WORK EXPERIENCE

NASA Jet Propulsion Laboratory, USA Oct 2019 – Jan 2020
Position: Visiting Student Researcher (additional role to PhD fellowship)
Task: To develop a joint lightweight neural network framework for Multitask learning (image segmentation and captioning) onboard planetary rovers;
Worked with the Machine learning-based Analytics for Autonomous Rover Systems (MAARS) research group on the Robotic Surface Mobility Group (347F); Supervisor: Dr. Masahiro Ono

NEC Data Science Research Laboratories, Japan Jan 2017-Mar 2017
Position: Research Intern
Task: Worked on satellite image analysis using deep learning.

Tata Power Company Limited, India July 2012 – July 2015
Position: Lead engineer (Full time employee)
Task: To work as a core Electrical Testing team member whose job is to conditionally monitor and test all Electrical equipments(all over Tata Power), to carry out comissioning tests of new switchgear equipments and relay panels.

PUBLICATIONS

Journal

- **Roy H.**, Chaudhury S., Yamasaki T., Hashimoto T., **Improving image inpainting by Frequency-based priors**, Springer Multimedia Tools and Applications (under review)
- Verspieren Q., Coral G., Pyne B., **Roy H.**, **An Early History of the Philippine Space Development program**, Acta Astronautica, Volume 151, October 2018, Pages 919- 927

Conference

- Ono M., Rothrock B., Otsu K., Higa S., Iwashita Y., Didier A., Islam T., Laporte C., Sun V., Stack K., Sawoniewicz J., Daftry S., Timmaraju V., Sahnoune S., Mattmann C., Lamarre O., Ghosh S., Qiu D., Nomura S., **Roy H.**, **MAARS: Machine Learning-Based Analytics for Rover Systems**, IEEE Aerospace conference 2020
- **Roy H.**, Chaudhury S., Yamasaki T., DeLatte D.M., Ohtake M., Hashimoto T., **Lunar surface image restoration using U-Net based deep neural networks**, 50th Lunar and Planetary Science Conference 2019
- **Roy H.**, Yamasaki T., Hashimoto T., **Do hashtags help? – Image aesthetics prediction using only hashtags**, Women in Computer Vision Workshop (WICV) in conjunction with CVPR 2018, Salt Lake City, USA
- **Roy H.**, Yamasaki T., Hashimoto T., **Predicting Image Aesthetics using Objects in the Scene**, International Joint Workshop on Multimedia Artworks Analysis and Attractiveness Computing in Multimedia (MMArt and ACM) in conjuction with ICMR, June 2018, Yokohama, Japan
- Chaudhury S., and **Roy H.**, **Can fully convolutional networks perform well for general image restoration problems?**, Intl. Conf. on Machine Vision Applications, 2017
- **Roy H.**, Hashimoto T., **Planetary image recognition using deep learning**, The 31st International Symposium on Space Technology and Science, ISTS 2017

Book chapter

- **Roy H.**, Chaudhury S., Yamasaki T., Hashimoto T., "**Machine Learning for Planetary Science**", to be published by "Elsevier Science and Technology Books" by the end of 2020.

Other publications

- Karthikeyan G., **Roy H.**, Han J., MacDonald M.C., **Location based Emergency Shelter Awareness and Training (LESAT)**, Proceedings of the Global Public Policy Network (GPPN) Conference, Paris, February 2017.
- Pyne B., Coral G., Karthikeyan G., **Roy H.**, Lee Hee Woon, MacDonald M.C.,**Space Innovation Policy for Disaster Management capabilities-SIPDMC**, Conference on Space Based Technologies for Disaster Risk Reduction "Understanding Disaster Risk",**United Nations Office for Outer space affairs (UN-SPIDER)**, Beijing, China, September 2016.

AWARDS AND ACHIEVEMENTS

- **MEXT Fellowship** (文部科学省奨学金) by Government of Japan, Oct 2017 - Sept 2020
- Part of a leadership program- **GSDM** offered by University of Tokyo. Oct 2016 - Present
- Awarded title of **Amul Vidya Bhushan** by Amul Sagar for outstanding Academic performance **(90% marks, Rank: 12/400,000 students)** at the WB Higher Secondary Examination 2008.
- Secured rank **278/100,000** students in WB Engineering Entrance Examination 2008.
- Participated in **CSIR Program on Youth for leadership in Science** organized by IICB & CGCRI for outstanding performance **(95.37% marks, Rank:20/500,000 students)** in WB Secondary Board Examination 2006.

TECHNICAL SKILL

Machine Learning tools	PyTorch, Tensorflow, scikit-learn, Theano + Lasagne, Keras, Caffe
Language	Python, C/C++
Tools	MATLAB, MS Office, Latex