

Hareesh Ravi

GRADUATE STUDENT AT RUTGERS - THE STATE UNIVERSITY OF NEW JERSEY

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RESEARCH INTERESTS Multi-modal data understanding, cross modal generation and retrieval; Joint Image-Text representation learning, Graph representation learning for social network evolution and information diffusion.

EDUCATION **Doctor of Philosophy** (2016-Present)
Computer Science
Rutgers - The State University of New Jersey
GPA: 3.66/4

Bachelor of Engineering (2009-2013)
Instrumentation and Control Engineering
Anna University, Chennai, India
CGPA: 8.19/10

PUBLICATIONS **Ravi, H.**, Zhou, H., Muniz, C., Azizi, V., Ness, L., De Melo, G., Kapadia, M., ‘*GitEvolve: Predicting the Evolution of Github Repositories*’, **Under Review** in The WebSci 2020.

Ravi, H., Wang, L., Muniz, C., Sigal, L., Kapadia, M., ‘*Show Me a Story: Towards Coherent Neural Story Illustration*’, in 2018 IEEE/CVF Conference on Computer Vision and Pattern Recognition (IEEE CVPR), pp 7613-7621

Sharma, S., **Ravi, H.**, Subramanyam, A. V., Emmanuel, S. ‘*Anti-forensics of Median Filtering and Contrast Enhancement*’, Journal of Visual Communication and Image Representation (JVCI), 2019 **Accepted**.

Ravi, H., Subramanyam, A. V., Emmanuel, S. ‘*ACE - An Effective Anti-forensic Contrast Enhancement Technique*’, IEEE Signal Processing Letters (IEEE SPL), Vol 23 No 2, Feb 2016, pp 212-216.

Ravi, H., Subramanyam, A. V., Emmanuel, S. ‘*Forensic Analysis of Linear and Non Linear Image Filtering using Quantization Noise*’, ACM Transactions on Multimedia Computing Communications and Applications (ACM TOMM), 2015.

Saxena, S., Subramanyam, A.V. and **Ravi, H.**, ‘*Video Inpainting Detection and Localization Using Inconsistencies in Optical Flow*’, in Proc. IEEE TENCON, Nov 2016, pp 1361-1365.

Ravi, H., Subramanyam, A. V., Emmanuel, S. ‘*Spatial Domain Quantization Noise Based Image Filtering Detection*’, in Proc. IEEE International Conference on Image Processing (IEEE ICIP), Sep 2015, pp. 1180-1184.

Ravi, H., Subramanyam, A. V., Gupta, G. and Avinash Kumar, B., ‘*Compression Noise Based Video Forgery Detection*’, in Proc. IEEE International Conference on Image Processing (IEEE ICIP), Oct 2014, pp. 5352-5356.

RESEARCH
EXPERIENCE

PhD Research, Rutgers University

(Sep, 2016 - Present)

Adviser(s): Dr. Mubbasis Kapadia and Dr. Gerard De Melo, Rutgers University

Summary: My thesis focuses on representation learning for multi-modal data with applications to cross-modal retrieval, storytelling and illustration. Traditional joint representation learning of images and text look at highly descriptive text whereas human perception and discourse is rather subjective and colloquial. My thesis concentrates on joint understanding of sequences of images and abstract or subjective text apart from the traditional descriptive text.

Lead of DARPA SocialSim Project

(Jan 2018 - June 2019)

Adviser(s): Dr. Mubbasis Kapadia and Dr. Gerard De Melo, Rutgers University

Lead a team of 3 PhD and 4 MS students for a DARPA funded project. Its a series of challenges related to simulation of information flow within and across multiple social networks and information cascade evolution prediction. Large amounts of data of events made in social networks, associates users and their profile were given. Graph based node representation learning and multi-task recurrent architectures formed the basis of techniques used to solve associated problems.

WORK
EXPERIENCE

Associate Intern, Disney Research

(Jun, 2017 - Sep, 2017)

Adviser(s): Dr. Mubbasis Kapadia, Disney Research

Summary: We proposed a hierarchical recurrent architecture optimized over sequential order embedding loss function for story illustration task. The performance was evaluated quantitatively and qualitatively and the results are published in IEEE CVPR 2018.

Research Associate, IIIT-Delhi

(Nov, 2013 - June 2016)

Adviser(s): Dr. A.V.Subramanyam, Assistant Professor, IIITD

Summary: Focus was on forgery detection in images and videos based on feature extraction from noise (caused by the camera sensor or compression). Machine Learning models were trained to detect anomalies caused by operations such as filtering or inpainting. The position also involved being an active member of CERC and was funded by *Department of Electronics and Information Technology (DeitY), Govt of India* and *Cybersecurity Education and Research Centre (CERC@IIITD)*.

TEACHING
EXPERIENCE

Teaching Assistant

Probability and Statistics

(Fall 2016)

Principles of Programming Languages

(Spring 2017)

SKILL SET

Programming languages : Python, MATLAB, C++, C, SQL
Libraries : Tensorflow, Keras, PyTorch, Scikit-learn, Gensim, nltk, pandas
OpenCV, libSVM
Tools : Git, Spyder, Jupyter Notebook, SteerSuite