

Gnana Praveen R

Curriculum Vitae

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Summary

Researcher with 10 years of industry and academic experience in Machine Learning and Computer Vision. Passionate to design and build solutions for real-world problems related to computer vision and multimodal learning applications.

Education

2018–2023



PhD, *Ecole de Technologie Supérieure (ETS)*, Montreal, Canada.

Department of Systems Engineering

Laboratory for Imagery Vision and Artificial Intelligence (LIVIA)

Thesis: [Deep learning-based Regression models for Dynamic Expression Recognition in videos](#)

Advisors: [Prof. Eric Granger](#) and [Prof. Patrick Cardinal](#)

2010–2012



Masters of Technology, *Indian Institute of Technology Guwahati (IITG)*, India.

Electronics and Electrical Engineering

Image Processing and Computer Vision Laboratory

Master Thesis: [A Code and Domain-Independent Traitor Tracing System](#)

Advisor: [Prof. Kannan Karthik](#)

2005–2009



Bachelor of Technology, *Jawaharlal Nehru Technological University (JNTU)*, Kakinada, India.

Specialization: Electronics and Communication Engineering

Undergraduate Thesis: Image Inpainting using Exemplar-Based Synthesis

Research Interests

I am interested in the area of Machine Learning and Computer Vision including

- Multimodal Learning
- Deep Learning
- Affective Computing
- Video Analytics

Research Experience

Jul '17 - Jan '18



Synechron, Bangalore, India.

Lead Engineer

Automated Document Classification

- Developed a system for the automatic classification of financial documents.
- Programming: Python

Iris Recognition

- Proposed an algorithm for Iris Recognition using Visible Images.
- Explored the prospect of Iris Recognition with low-resolution visible images.
- Programming: Python

Jul '15-Jun '17



Impartus Innovation, Bangalore, India.

Digital Signal Processing Engineer

Facial Analysis

- Developed a system for automatic face recognition of professors in classrooms.
- Developed a system for face tracking for the application of PIP in lecture videos.
- Programming: Python

Natural Language Processing

- Proposed an algorithm for automatic tagging of queries.
- Proposed an algorithm for similar query matching.
- Programming: Python

Automatic Speech Recognition

- Developed a system of automatic speech recognition for lecture videos using kaldi.
- Programming: Python, Shell Scripting

Feb '14-Jun '15



Samsung Research Institute, Bangalore, India.

Senior Software Engineer

NIR Imaging

- Explored the prospect of NIR Images for various applications.
- Proposed an algorithm for the enhancement of images captured at low light scenarios.
- Proposed an algorithm for realistic skin smoothing for Portrait Enhancement.
- Programming : C

Jul '13-Dec '13



Supercomputer Education Research Center, Indian Institute of Science, Bangalore, India.

Project Associate with Prof. R. Venkatesh Babu

Crowd Flow Analysis in H.264 Compressed Domain

Sponsored by DRDO

- Proposed an algorithm for crowd flow segmentation by clustering the motion vectors in H.264 compressed domain using the Expectation-Maximization (EM) algorithm.
- Super-pixel-based crowd flow segmentation is proposed using only the motion vectors in H.264 compressed videos devoid of prior knowledge of flow segments.

Automatic Validation of Cheques

Sponsored by Tech Mahindra

- Proposed a general framework for the extraction of salient regions in the cheque for validating the presence or absence of required items.
- Developing template-based algorithms for validating the cheque images based on SIFT features.

Jul'12-May'13



Electronics and Electrical Engineering, Indian Institute of Technology, Guwahati, India.

Associate Project Engineer with [Prof. Roy P Paily](#)

Feasibility Studies of Blind Navigation Assistance System *Sponsored by Deity*

- Investigated and developed a depth estimation technique from a single image based on a local depth hypothesis devoid of any user intervention and its application to assist the visually impaired people is proposed.

Selected Publications ([Google Scholar](#) : 170+ citations with h-index of 8)

- 2023** Weakly Supervised Learning for Facial Behavior Analysis: A Review .
R Gnana Praveen, Patrick Cardinal, and Eric Granger
IEEE Transactions on Affective Computing (**TAFFC**), 2023 (Under Review). [paper](#)
- Recursive Joint Cross-Attention for Audio-Visual Speaker Verification.
R Gnana Praveen, Jahangir Alam
Neural Information Processing Systems (**NeurIPS**) Workshop, 2023.
- Recursive Joint Attention for Audio-Visual Fusion in Regression-based Emotion Recognition (**Oral**).
R Gnana Praveen, Eric Granger and Patrick Cardinal
IEEE International Conference on Acoustics, Speech and Signal Processing (**ICASSP**), 2023. [paper](#)
- 2022** Audio-Visual Fusion for Emotion Recognition in Valence-Arousal Space Using Joint Cross-Attention (**Best of FG2021**) .
R Gnana Praveen, Patrick Cardinal, and Eric Granger
IEEE Transactions on Biometrics, Behavior, and Identity Science (**T-BIOM**) 2022. [paper](#)
- A Joint Cross-Attention Model for Audio-Visual Fusion in Dimensional Emotion Recognition.
R Gnana Praveen, Wheidima Carneiro de Melo, Nasib Ullah, Haseeb Aslam, Osama Zeeshan, Theo Denorme, Marco Pedersoli, Alessandro Koerich, Simon Bacon, Patrick Cardinal, and Eric Granger
Computer Vision and Pattern Recognition (**CVPR**) Workshops, 2022. [paper](#)
- Cross Attentional Audio-Visual Fusion for Dimensional Emotion Recognition (**Oral**).
R Gnana Praveen, Eric Granger and Patrick Cardinal
IEEE International Conference on Face and Gesture Recognition (**FG**), 2021. [paper](#)
- 2021** Holistic Guidance for Occluded Person Re-Identification (**Oral**).
Madhu Kiran, **R Gnana Praveen**, Le Thanh Nguyen-Meidine, Soufiane Belharbi, Louis-Antoine Blais-Morin, Eric Granger
British Machine Vision Conference (**BMVC**), 2021. [paper](#)
- Deep domain adaptation with ordinal regression for pain assessment using weakly-labeled videos.
R Gnana Praveen, Eric Granger and Patrick Cardinal
Image and Vision Computing journal (**IVU**), [Impact Factor: 4.7] 2021. [paper](#)

- 2020** Deep Weakly-Supervised Domain Adaptation for Pain Localization in Videos.
R Gnana Praveen, Eric Granger and Patrick Cardinal
 IEEE International Conference on Face and Gesture Recognition (**FG**), 2020. [i paper](#)
- 2014** Superpixel Based Crowd Flow Segmentation in H.264 Compressed Videos.
 Sovan Biswas, **R Gnana Praveen** and R Venkatesh Babu
 IEEE International Conference on Image Processing (**ICIP**), 2014. [i paper](#)

Achievements

- September 2018 Received **FRQNTS research scholarship** for my Ph.D. program at ETS, Canada
- September 2017 **Spot Award** to develop a system for iris recognition using visible images at Synechron
- March 2016 **Go Extra Mile** Award for developing an end-to-end system for automatic tagging of text queries at Impartus Innovation
- March 2010 Among top 0.12 of 1,05,000 students and secured 98.75 percentile in Gate 2010
 Got 9th rank in 11th grade and 14th rank in 12th grade in my province.

Professional Service

- Reviewer IEEE Transactions on Affective Computing (TAFCC)
 IEEE Winter Conference on Applications of Computer Vision (WACV)- 2021, 2024
 ACM Multimedia (ACM MM 2023)
 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2024

Technical Skills

- Operating Systems Windows, Linux, MacOS
- Programming Languages C, Matlab, Python, PyTorch
- Software Packages L^AT_EX, MS Office

Personal Profile

- Date of Birth 31 - 01 - 1988
- Languages Known English, Tamil and Telugu
- Hobbies Reading Books and Playing rhythm instruments

Declaration

I, R Gnana Praveen do hereby declare that all the particulars given herein are true to the best of my knowledge.

GNANA PRAVEEN R