

Sanchayan Sarkar

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Technical Skills

Programming Languages: Python, MATLAB, Java, C/C++, Javascript, SQL

Tools: PyTorch, Keras, TensorFlow, scikit-learn, Open-Cv, pandas, Caffe, git, Arduino IDE, Android SDK, Unity 3D

Education

Master of Science (MS), University of Pittsburgh, PA, USA Aug 2017-Ongoing

- Computer Science with specialization and research experience in Machine Learning. | *CGPA: 3.55 / 4.0*
- *Courses:* Machine Learning, Deep Learning, Natural Language Processing, Computer Vision, Artificial Intelligence.

Master of Science, (MSc) University of Calcutta, India Jul 2013- Jun2015

- Computer and Information Science. | *First Class, 75 % (in top 5)*
- *Thesis:* Image Enhancement using Cuckoo-Search Optimization.

Bachelor of Science, (BSc), St. Xavier's College, Kolkata, India Jul 2010- Jun 2013

- Computer Science (Honors). | *First Class, 76% (in top 10)*

Work Experience

University of Pittsburgh, Pittsburgh, PA, USA

Graduate Student Researcher

Aug 2018- Ongoing

Research assistant. (Adviser: Dr. Malihe Alikhani and Dr. Jeff Cohn)

Project: Multimodal Turn Taking in Dyadic Conversations

July 2020- Ongoing

- Developed multimodal machine learning models for learning turn-taking strategies (end-of-turns, silence duration) from audio-video-text sequences in dyadic interactions.
- Achieved statistically significant multimodal cues and used multimodal transformers to obtain higher performance.
- Technologies: Python, Pytorch, ELAN

Project: Automatic Emotion Recognition in Dyadic Conversations

May 2020- Ongoing

- Developed context aware multimodal sequential and non-sequential neural models (LSTM, Conv-LSTM, Transformers) for predicting composite emotion constructs from audio-video-text sequences in dyads.
- Technologies: Python, Pytorch, ELAN

Project: Automatic Depression Detection in Mother-Child Dyads

May 2019- Apr 2020

- Developed jointly learned Siamese neural networks for predicting PHQ-9 scores of depressed mothers in from mother-child face to face conversations.
- Technologies: Python, Pytorch, ELAN

Indian Statistical Institute, Kolkata, West Bengal, India.

Project Researcher

Nov 2015- Dec 2016

Research Intern working on developing mathematical and statistical models for human face recognition. (Adviser: Dr. Arindam Kar)

Project: Illumination Variation Problem on Human Face Recognition

- Developed novel local illumination-invariant feature for face recognition beating competitive methods with accuracy of 97.45 on CMU-PIE, 95 on Yale B and 100 CUHK dataset • Technologies: MATLAB.

Project: Dimension Reduction and Noise Reduction for Face Recognition

- Used linear regression to stabilize lower entropy space for dimension reduction in face recognition. • Applied on FRAV-2D, FERET dataset. • Technologies: MATLAB

Selected Publications

- *“Local Centre of Mass Face For Face Recognition under varying Illumination”*, Arindam Kar¹, Sanchayan Sarkar¹, Debotosh Bhattacharjee², Springer: Multimedia Tools and Application, 2017.

Selected Academic Projects

Detecting Deep Fakes (11785 Deep Learning).

Nov 2019- Dec 2019

- Developed Siamese Statistical Recurrent Neural Networks (in pytorch) to detect deep-fake video sequences.
- Achieved 10% higher performance over Statistical Recurrent Networks in FaceForensics++ dataset.

Tiny Google – A parallel word search engine (2510 OS).

Nov 2018- Dec 2018

- Developed a distributed search engine (in python) that searches and retrieves words from multiple worker nodes.

Direct Manipulation in Virtual Reality (2610 HCI).

Nov 2017- Dec 2017

- Used tracked movements from smartwatch to move objects in Virtual Reality.
- Technologies: Android SDK, Unity 3D