

RAMAN DUTT

@ rd650@snu.edu.in

🔗 <https://bit.ly/portfolio-raman>

in <https://bit.ly/linkedin-raman>

🐙 github.com/Raman1121

EXPERIENCE

Research Assistant

Healthcare Innovations and Translational Informatics (HITI) Lab @ Emory University

📅 Jun 2020 - Present

📍 GA, USA

- Working with **Dr. Hari Trivedi** on detection, localization and classification of cervical spine-hardware brand by developing a pipeline that automatically detects hardware in chest X-rays for extracting the ROI. Initial results submitted in AAOS-2021.
- Studying Generalizability of Deep CNNs with **Dr. Imon Banerjee** and **Dr. Judy Gichoya** on Chest Radiographs. Contrast-ing approaches like hierarchical ensembling with traditional classification on a mixture of different open chest radiograph datasets including CheXpert, ChestX-ray14, and MIMIC Chest X-ray JPG datasets.
- Used **GAN augmentation** and **progressive resizing** for identification of Melanoma in lesion images. Secured a rank in the top 10% on the global leaderboard.

Research Intern

TavLab @ IIIT-Delhi

📅 Dec 2019 – June 2020

📍 Delhi, India

- Worked under **Dr. Tavpritesh Sethi** on prediction of Hemodynamic Shock from Thermal Images and Videos in collaboration with AIIMS, Delhi.
- Implemented image and video classification models (2D, 3D CNN and CNN+LSTM) along with interpretability algorithms such as **Grad-CAM** and **Integrated Gradients**.
- Currently under review in **Nature Medicine**.

Summer Research Intern

Computational Biology Lab @ IIIT-Delhi

📅 May 2019 – July 2019

📍 Delhi, India

- Worked on AlgPred webserver for classification of protein sequences into Allergens and Non- Allergens under **Dr. GPS Raghava**.
- Implemented ensemble machine learning models such as Bagging, Boosting, Voting and Cascaded-classifiers.
- Performed dimensionality reduction, single-class classification, out-of-distribution detection and interpreting feature importance scores for genomic sequences. Paper published in [Briefings in Bioinformatics](#).

ACHIEVEMENTS

- Awarded a scholarship of 300 euros from Gesellschaft Deutscher Chemiker (GDCh) for the 15th German Conference on Cheminformatics in Mainz, Germany.
- Winner of Smart India Hackathon 2019 organized by MHRD, Government of India, under the category Traffic Management using Unmanned Aerial Vehicles by MathWorks.
- Dean's List felicitation for being in the top 1 percent in the School of Engineering (SoE) in 3 Semesters.

PUBLICATIONS

1. Medical Imaging

- Early Prediction of Hemodynamic Shock in the ICU with Deep Learning on Thermal Videos [**Nature Medicine, Submitted**] [[Medrxiv](#)]
- A Deep Learning Model for Detection of Cervical Spine Hardware on Radiographs [**AAOS 2021, Submitted**]
- Generalization of Deep Convolutional Neural Network - A Case-study on Open-source Chest Radiographs [[Arxiv](#)]

2. Chemical Informatics

- Drug Activity Prediction using Capsule Networks and Dynamic Routing Algorithm [**15th German Conference on Cheminformatics, Mainz, Germany, Accepted**]
- Application of Capsule Networks and Chemical Space Networks in Cheminformatics [**15th German Conference on Cheminformatics, Mainz, Germany, Accepted**]

3. Patent Analysis

- **Novel Mixed-Encoding for Forecasting Patent Grant Duration** - [World Patent Information, Special Issue: Artificial Intelligence for Intellectual Property, **To Appear**]
- **Forecasting the Grant Duration of a Patent using Predictive Analytics** - [International Journal of Computer Applications (IJCA), September Edition, Published] [[Paper](#)]

POSITIONS HELD

- **President** - Association for Computing Machinery (ACM) Campus chapter
- **Student Lead** - Developer Student Club (DSC), Shiv Nadar University by Google Developers
- **Student Counseling Committee Member**
Led a team of 40 students as their Student Counsellor.