

Rishav MUKHERJI

Mumbai/India

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EDUCATION

BITS-Pilani, K.K. Birla Goa Campus

2020 - Ongoing

B.E. ELECTRONICS & COMMUNICATION

MINOR IN DATA SCIENCE

- Current CGPA - **9.29**
- Top 3% in the institute
- Recipient of 5 consecutive BITS Goa Merit Scholarships

PUBLICATIONS AND PREPRINTS

- Victor Boutin, Thomas Fel, Lakshya Singhal, **Rishav Mukherji**, Akash Nagaraj, Julien Colin, Thomas Serre - "Diffusion Models as Artists: Are we Closing the Gap between Humans and Machines?" ArXiv : <https://arxiv.org/abs/2301.11722>

EXPERIENCE

- **Serre Lab, Brown University** Sep 2022 - Ongoing
RESEARCH INTERN
Exploring and understanding generative modelling, including **VAEs, GANs and diffusion models**, to work towards a detailed analysis of **few-shot / one-shot generation**.
Supervised by **Dr. Victor Boutin**
- **APPCAIR, BITS Goa** Aug 2022 - Ongoing
UNDERGRADUATE STUDENT RESEARCHER
Working on Explainable AI looking to predict Atrial fibrillation from ECG signals along with reasoning with the help of Neurosymbolic learning.
Supervised by **Dr. Lovekesh Vig** and **Dr. Ashwin Srinivasan**
- **CLNet Lab, BITS Goa** Jan 2022 - Aug 2022
UNDERGRADUATE STUDENT RESEARCHER
Developing models for carrying out **Code Search** and **Duplicate Detection** in **Python, Java** and **C/C++** source code
Supervised by **Dr. Swati Agarwal**
- **CSIR - CEERI, Chennai** May 2022 - Jul 2022
RESEARCH INTERN
Working on **Image and Video Enhancement and Scaling** for Remote Photoplethysmography (**r-PPG**) for more accurate long distance inferences
Supervised by **Dr. Madan Kumar Lakshmanan** and **Dr Amalin Prince A.**
- **Wingify** Jun 2022 - Sep 2022
MACHINE LEARNING INTERN
Working on **Image to Image Translation** using **Generative Adversarial Networks** as well as **2D - 3D human pose manipulation** for health and lifestyle applications
Supervised by **Paras Chopra**

PROJECTS

- **Comparative study of Machine Learning techniques in Computer Vision** 2021
INDEPENDENT PROJECT
Built supervised (**ResNet**), semi-supervised (**Vanilla CNN** with **pseudo labelling**) and unsupervised (**SimCLR**) models to carry out classification on STL-10 dataset and compared their functionality and effectiveness based on various parameters.
- **Natural Language Inference and Probing** 2021

INDEPENDENT PROJECT

Trained a **BiLSTM** Classifier on SNLI dataset to carry out inference and then analysed the model by carrying out probing based on **POS tags**

- **VFormer** [GitHub](#) 2021 - Ongoing
CLUB PROJECT, SAIDL
A **PyTorch** library that packages implementations of different kinds of **ViTs** and methods to visualize their attention maps, and provides an **easy-to-use API**.
- **Exploring Deep Learning models for Visual Saliency Prediction** [GitHub](#) 2022 - Ongoing
CLUB PROJECT, SAIDL
Implementing and bench-marking DeepGaze models. Exploring where these models fail and propose possible solutions.
- **Developing ML-DL models for IoT-based applications** Jan 2022 - May 2022
SUPERVISED PROJECT
Setting up a LoRaWAN based IoT network for emergency messaging system and then using various ML-DL techniques to optimise the network and utilise it for wider purposes
- **Development of Light-Weight Time-to-contact Algorithms** Jan 2023 - Ongoing
SUPERVISED PROJECT
Building algorithms capable of achieving performance comparable to the existing state-of-the-art TTC algorithms that use only monocular RGB videos as an input, at a computational budget

AWARDS AND ACHIEVEMENTS

- Recipient of the **DAAD WISE 2023** research scholarship (Germany)
- Recipient of the **MITACS Globalink 2023** research scholarship (Canada)

COURSE WORK

Computer Programming | Linear Algebra | Calculus | Probability & Statistics | Meta Learning * |
Control Systems | Applied Statistical Methods | Foundations of Data Science | Machine Learning
Digital Signal Processing | Artificial Intelligence | Information Theory and Coding |
Foundations of Data Structures and Algorithms

TEACHING EXPERIENCE

- **Introduction and Applications of Machine Learning** Nov 2021 - Jan 2022
INSTRUCTOR, CENTER FOR TECHNICAL EDUCATION, BITS GOA [WEBSITE](#)
- **Natural Language Processing** March 2022 - Jun 2022
MENTOR, CENTER FOR TECHNICAL EDUCATION, BITS GOA [WEBSITE](#)

SKILLS

PROGRAMMING LANGUAGES *Experienced:* Python | C++ *Familiar:* Julia | C | HTML
FRAMEWORKS PyTorch | Keras | Scikit-learn | Tensorflow
LIBRARIES Numpy | Pandas | OpenCV | Matplotlib
TOOLS GIT | Arduino IDE
LANGUAGES English | Hindi | Bengali

COMMITTEES

- **Society for Artificial Intelligence and Deep Learning** [General Secretary] [Website](#)
A non-profit, professional group of motivated individuals based out of BITS Pilani, working on research and application of Artificial Intelligence and Deep Learning.
- **Language Research Group** [Core Member] [Website](#)
Language Research Group (LRG) is a student-run Special Interest Group at BITS Pilani, Goa Campus. The group aims to study the theoretical and practical underpinnings of all things related to language, with a strong focus on inculcating the tools of research and experimentation in its methodologies.