

# AMAN PRIYANSHU

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Exploring Tech through the Lens of AI, Cyber Security and Research. I am deeply passionate about Deep Learning, Cyber Security and the Research bringing together these two vast fields. Exploring opportunities to learn and grow.

**Areas of Interest** Privacy Enabled Machine Learning, Deep Learning, Reinforcement Learning, Spiking Neural Networks and Cyber Security.

## EDUCATION

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**Manipal Institute of Technology, Manipal**  
B.Tech in Information Technology

*July 2019 – Present*  
CGPA: 8.39/10.00

## POSITIONS OF RESPONSIBILITY

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**Manipal Institute of Technology**  
*Research Assistant*

*Nov 2020 – Jan 2021*

- Worked on a research project under professors Nisha P. Shetty and Balachandra Muniyal on privacy enabled machine learning to detect cyber bullying using federated learning.

**Cryptonite Student Project**  
*Technical Head*

*June 2020 – Present*

- Technical Head of the Cyber Security Student Project of Manipal, Cryptonite. Participated in multiple CTF competitions, currently ranked as 25th in India on CTFtimes. Developed and led research projects on Federated Learning and Privacy Preserving Machine Learning.

**The Research Society MIT**  
*AI Subsystem Division Member*

*Feb 2021 – Present*

- A member of the Research Society, an organization that focuses on the research in different fields, both interdisciplinary and otherwise. Aside from working on research projects, we also hold workshops, talks, breakout sessions, etc to spread awareness about research in different technical domains.

**Oniria Pets**  
*Machine Learning and Web Crawling Intern*

*Jan 2020 – Feb 2020*

- Interned at Oniria pets as a Machine Learning and Web Crawling Developer for Data Extraction and Management. Employed BERT for precise feature extraction pertaining to hotel prices, billing systems, locations etc. on data scraped from Hotel Websites. Employed Selenium and Scrapy for extraction.

## RESEARCH EXPERIENCE AND PUBLICATIONS

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**FedPandemic: A Cross-Device Federated Learning Approach Towards Elementary Prognosis of Diseases During a Pandemic**

*May 2021*

- In this paper, we presented FedPandemic, a novel noise implementation algorithm integrated with cross-device Federated learning for Elementary symptom prognosis during a pandemic, taking COVID-19 as a case study. The paper was accepted in *Distributed and Private Machine Learning Workshop at ICLR (2021)* and in *ICLR 2021 Workshop on Machine Learning for Preventing and Combating Pandemics*.

**Continual Distributed Learning for Crisis Management**

*May 2021*

- Presented our paper on continual and distributed learning for Crisis Management, which employed model regularization to alleviate catastrophic forgetting and federated learning for distributed learning. We came runners up in the *Paper Presentation event at IEEE-SBM*,

### **Stance Classification with Improved Elementary Classifiers Using Lemmatization (Grand Challenge)** *Sept 2020*

- Came Runners Up in the *IEEE BigMM Data Challenge*, we came up with a model for accurate classification of sensitive tweets for the #MeToo movement. We worked on a highly biased dataset by introducing concepts of under-sampling and lemmatization to improve performance of elementary classifiers. Allowing the model to operate and train under restricted resources.

## **RELEVANT PROJECTS**

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### **Voix** *Apr 2021*

- A social-media platform for uplifting communities and promoting civic participation. Created and deployed a social media platform, which utilized machine learning and differential privacy to promote civic engagement while protecting user-privacy. We created a contextual-similarity based recommender system to promote positive reinforcement while still promoting healthy debates. The project won under *Community & Civic Engagement for UC Berkeley's CalHacks Hackathon*.

### **FedPAQ** *Dec 2020*

- Created realistic simulations for the FedPAQ paper implementation. The analysis produced by my simulations further supports the research presented within the paper and can act as supplementary implementation for the same.

### **Neural Embedding of Textual Data into Audio** *Jul 2020*

- Created a Deep Learning based Neural Embedding Model for encoding Textual Data (Plain Text) and an Audio File (Method of Transfer) into a single Audio File (Cypher Text). The model is an encoder-decoder based generative model which produces an Audio reconstruction error of 0.12 (MAE) and Textual reconstruction error of 1e-6 with 100% reconstruction accuracy.

## **AWARDS AND HONOURS**

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| • Winner under Community & Civic Engagement for UC Berkeley's CalHacks hackathon | • Intel Edge AI Scholarship Recipient                         |
| • Runner-Up in Paper Presentation at IEEE-SBM                                    | • Qualified for Stanford's TreeHacks 2021                     |
| • IEEE BigMM Data Challenge Runner's Up  | • OpenMined Course Completion - Passed all evaluation metrics |

## **TECHNICAL STRENGTHS**

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<b>Programming Languages/Frameworks</b>	Python, Julia, Java, C++, Go, MongoDB, PyTorch, Tensorflow, keras, Flask, Django, Linux, Windows, Android
<b>Languages</b>	English, French

## **RELEVANT COURSEWORK**

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| • Our Privacy Opportunity by OpenMined            | • TensorFlow in Practice Specialization by deeplearning.ai |
| • Deep Learning Specialization by deeplearning.ai | • Introduction to Cyber Attacks by NYU                     |