Avani Gupta

avani17101.github.io | ᴳavani | ⌂ avani17101 | avani.gupta@research.iiit.ac.in

EDUCATION

IIIT HYDERABAD
B.Tech(Hons.), 2022
CGPA: 8.42
MS by research, 2023
Computer Science

RESEARCH INTERESTS

ML interpretability, Computer Vision, Natural Language Processing, Reinforcement Learning

SKILLS

Programming Languages: Python, C/C++
Libraries: PyTorch, Tensorflow, jax, keras, OpenCV, gym, vowpal-wabbit, RLlib
Applications: Android-Studio, Firebase, Heroku, Git, OpenGL, Matlab, Blender
Environments: Linux, Windows

ACHIEVEMENTS

- **Best Paper Award**, ICVGIP 2022.
- SemEval 2022, 10th rank in Chinese; 15th in English and Spanish NER
- Rank 14: Amazon ML challenge 2021
- Winner, Software edition, Smart India Hackathon, 2020
- Winner, Microsoft's Mars Colonization Program, 2020
- Microsoft Codess, 2020

POSITIONS

AI mentor: TalentSprint, 2022-23
Mentored working professionals in AI/ML.
Teaching Assistant, 2021 TA for course Statistical Methods in AI (SMAI)
AiCrowd Organiser, 2021 Organised ML Battleground at AI Crowd as part of Felicity: Techno-cultural fest of IIIT H. Designed problem statements and generated data.
Workshop Organizer, 2021 ML workshop, took a session on GAN's in Felicity.
Volunteer, NeuRIPS, 2020
Events wing, 2020 Robotics club, IIIT-H

COURSEWORK

Computer Vision, Computer Graphics, Adv. DL, Information Extraction, Adv. NLP, Optimization Methods, Statistical methods in AI, Game Theory, Data Analytics, Data-Visualization, DIP, Robotics, Software Systems, Linear Algebra, Calculus, Distributed Systems, Algorithms, Data-Structures, OS, CN, Probability.

EXPERIENCE

G42 HEALTHCARE | Research Associate (areas: NLP, AI)
March 2023 - Present | Abu Dhabi, UAE
Working on building foundation models on Electronic Health Record (EHR) data.

CVIT, IIIT H | Researcher (Areas: ML Interpretability, CV)
May 2020 – March 2023
Working on **ML interpretability** applied in Computer vision and graphics problems. Also worked on **temporal consistency in 3D human reconstruction.**

IBM RESEARCH | Research Intern (areas: NLP, RL, BPM, AI)
May 2021 - August 2021 | Bangalore, India
Built a novel end-to-end system for Goal-Oriented Next Best Action Prediction in Business Processes using Deep Reinforcement Learning. Preprint and US. patent.

MICROSOFT | Mentee (Areas: AI, Algorithms)
June 2020 - July 2020 | Winner all over India among the internal hackathon
Worked on Automated mars rover web game which uses shortest path heauristic algorithms. (Jquery, HTML, CSS and javascript) view project

SCRAPSHUT | Intern (Areas: NLP, AI)
Jan 2020 – May 2020 | Hyderabad
Developed web-app for real-time fake news detection. Used Online learning models for prediction, wrote custom web-scraper. (Django, Keras) view project

ROBOTICS RESEARCH CENTER | Intern (Areas: RL, Robotics)
Nov 2019 – Jan 2020 | Hyderabad
Implemented Reinforcement Learning algorithms used in Robotics. (Gym) view project

PUBLICATIONS

Concept Distillation: Generalizing Neural Networks by Concept Debiasing | Neurips 2023
Predicting Business Process events in presence of Anomalous IT errors| CODS-COMAD 2024
Goal-Oriented Next Best Activity Recommendation using Reinforcement Learning (under review)
Interpreting Intrinsic Image Decomposition using Concept Activations | ICVGIP, 2022 (oral, Best paper award)
CitRet: A Hybrid Model for Cited Text Span Retrieval | COLING, 2022
Abstract representation of visual stimuli from neural recordings using deep generative models | Poster, ESI Sync, 2020
Fake News Detection using Deep Learning based Natural Language Processing | Poster, HiPC, 2019

PROJECTS

- **Smart Library Management System | SIH 2020 | Winner all over India**
  End to end Library Management app: auto-tagger for books, recommendation engine, QR based issuing of books, admin dashboard, chatbot. (Flutter, Firebase)
- **DataSynth:** Customizable synthetic data generation used for training AI models; integrated webapp. (Unity3D, Flask, SwaggerAPI) Devpost submission
- **NER** | SemEval, 2022. Developed BERT based CRF with BiLSTM models.
- **Wikipedia Search Engine:** Search using advanced queries on Wikipedia corpus.
- **Adversarial Neural Cryptography:** LSTM-based encryption. (Tensorflow)
- **Stereo reconstruction and Non-linear optimization** (Open3D)
- **Pose Graph Optimization for SLAM** (g2o, jax)
- **DHT based DNS:** Domain Name System based on Distributed Hash Table. (python)
- **Among us game:** Maze game based on famous AmongUs. (OpenGL3 and C++)
- **Style Transfer:** Transfer style of images using auto-encoder. (PyTorch)
- **Image Background editing:** using poisson matting. (OpenCV)