Varun Ghat Ravikumar

varungr2540@gmail.com | linkedin.com/in/varungr | +41 766878170
github.com/varunghat | Luegislandstrasse 51, 8051 Zürich | 19 Jan 1999

Profile

Data scientist with passion for deep learning, image processing, linguistics and simulations. With experience of 5+ programming languages in both corporate as well as research-oriented work.

Education

Masters in Informatics (Major: Artificial Intelligence, Minor: Data Science),
University of Zürich
Sep 2023 – present

B.E in Computer Science & Engineering,
JSS Science and Technology University (Formerly SJCE), Mysuru
2017 – 2021
9.01 CGPA

Work Experience

University of Zurich - Research Assistant (DDIS group), *(Python, Knowledge graphs, LLM)*
Apr 2024 – Dec 2024 | Zurich, Schweiz
- Worked on end-to-end pipeline for knowledge graph dataset generation and augmentation
- Worked on generative AI based data augmentation in text and images

Amagi Media Labs - Associate Data Scientist, *(Python, Video processing, NLP, Pytorch)*
Apr 2023 – Aug 2023
- Worked on sports highlight detection in football using pytorch
- Performed in-depth research in action recognition and built a proof of concept AI model
- Worked on genre classification using multi-modal features

Amagi Media Labs - Internship, *(Python ,Pytorch)*
Jan 2023 – Apr 2023
- Worked with the data science team in video processing (automated shot and scene detection)
- Worked on metrics to detect model drift in shot detection
- Started project on activity recognition in sports

Kernel Insights - Internship, *(Stable diffusion (GenAI), Pytorch)*
Nov 2022 – Jan 2023
- Project on AI driven image generation using stable diffusion
- Fine-tuning stable diffusion to generate consistent compositions, subjects and poses
- Understanding transformers and diffusion models to perform semantic segmentation

Indian Institute of Astrophysics - Internship, *(C++, C, MPI, PLUTO code)*
Sep 2021 – May 2022
- Project on data-driven magnetohydrodynamics simulations in solar active regions.
- Studied CME and flare formation under Dr. Vemareddy Panditi.
- Migrated modules from PENCIL code to PLUTO. Wrote and modified several modules in C, C++ (MPI) and python to expedite simulation setup time and follow current research.

Skills

ML & AI Frameworks
PyTorch • Scikit-learn • OpenCV • HuggingFace • Spacy

GenAI
Stable Diffusion • Diffusion Models • Transformers • LLMs

Familiar / Basic Knowledge
Docker • SQL • Node.js • REST APIs

Specialized Tools & Platforms
MPI • PLUTO code • Unity3D • Arduino

Programming Languages

- Python (Intermediate)
- C++ (Intermediate)
- C (Intermediate)
- C# (Beginner)
- Javascript (Beginner)
- Fortran (Basic)

Languages

English — Native/Bilingual

German — Conversational
B1.1 certified

French — Basic

Kannada — Native/Bilingual

Hindi — Proficient

Interests

- Linguistics
- Astrophysics & Quantum physics
- Guitar | Piano | Beatboxing | Music production
- CG Art in Blender

Projects

AI chatbot to answer natural language queries on movie knowledge graph,
(Python, Spacy, Transformers)
Based on a wikidata knowledge graph on movies, the chatbot was built to answer natural language queries on movies, cast, actors, genre and provide recommendations based on genre as well as similar movies.

Kannada Text Recognition in Scene Images using Two-Stage Convolutional Neural Networks, *(OpenCV, Tensorflow, Python) - Bachelor Thesis*
Using OpenCV, Kannada language text from scene images was detected, corrected for perspective, and analysis of various classifier algorithms was performed, resulting in the development of a two stage CNN model to recognize the text. Published paper on effectiveness of different models in kannada scene text recognition.

Automated turret system using face recognition, *(OpenCV, Tensorflow, Arduino)*
Arduino and OpenCV security system which authorizes based on faces in the database. If intruder detected, automated turret tracks face using camera and can fire non lethal deterrent

Courses

Deep Learning Specialization(5 courses), *(DeepLearning.AI, Coursera)*

Natural Language Processing, *(IIT Kharagpur, NPTEL)*

Simulation and modeling of Natural Processes, *(University of Geneva, Coursera)*

Game theory, *(University of Tokyo, Coursera)*

Introduction to Quantum Computing, *(IIT Madras & IBM, NPTEL)*

Quantum Mechanics 1, *(IIT Bombay, NPTEL)*

GPU Architectures and Programming, *(IIT Kharagpur, NPTEL)*

Achievements

Winner - Best Visualization, *AI + Environment EcoHackathon*
ETH BioDivx, GainForest, ETH AI Center, 2024

Organized Tech quiz, *Linux Campus Club , JSS Science & Technology University*

Foss Camp 2017 & 2018, *(Programming events)*
1st and 2nd place in various competitive coding and problem solving events at JSS Science & Technology University

Computer Science Association President, *(2016-2017) NPSI, Mysuru*
Led the computer science association and helped organize school level competitions

Awarded ‘Academic excellence’ for ranking 1st in the batch for multiple years,
St. Joseph’s Central School, Yelwal

Volunteered in ‘Let’s do it Mysore’ NGO
Helped clean the streets of Mysuru and paint old dilapidated bus stops

Organized Science quizzes, *NPSI, Mysuru*