

SIDDHARTH GANDHI

✉ ssg2@cs.cmu.edu 📞 (412) 589-4194 🌐 ssgandhi.com 📄 ssgandhi1 🗣️ Siddharth-Gandhi

Education

Carnegie Mellon University - School of Computer Science

Expected Dec. 2024

Master's of Science in Intelligent Information Systems (ML & NLP)

Pittsburgh, PA

- Ongoing Coursework: Machine Learning, Advanced NLP, Search Engines.

Vellore Institute of Technology - School of Computer Science & Engineering

July 2023

Bachelor's of Technology in Computer Science & Engineering

Vellore, India

- Department Rank #3 out of 1500+ students, with a CGPA of 9.69/10.

Research Experience

Technical University of Munich

June 2022 – Aug. 2022

Research Intern (Advisor: Dr. Felix Dietrich) | [talk](#), [report](#)

Munich, Germany

- Investigated if neural nets can learn Stochastic Differential Equations (SDEs) modelling the growth of aerosol clouds.
- Developed Blender simulations of cloud dispersion & a pipeline to learn the underlying SDE for the same by segmenting the simulated images with U-Net (PyTorch), extracting cloud size from the segmented image & using a Tensorflow-based neural net with a custom loss function based on the Euler Maruyama method to model the cloud trajectories (baseline).
- Finetuned neural net hyperparameters, & used Kernel Density Estimator (KDE) to compensate for the class imbalance in the dataset, finally leading to a 80% lower MSE compared to baseline.

Projects

Refpred - A Literature Recommender (*Bachelor's Thesis*) | [github](#), [report](#)

July 2023

- Engineered a research paper recommender which utilizes both semantics & citation history to enhance literature search.
- Developed an asynchronous crawler to create dense citation graph dataset by parsing Semantic Scholar starting with a small list of initial seed papers & utilized SPECTER - a citation-informed transformer model for generating embeddings from a paper's title & abstract, which were used to create baseline recommendations with KNN.
- Implemented neural net-based reranking on the KNN candidates (based on Learning to Rank) to add additional citation graph context, which improved F1 Score @ 20 by 70% compared to the baseline on the test set.

GradeAid - A Short Answer Grader | [github](#)

June 2022

- Developed a smart grading assistant to automatically evaluate short essay responses from images using NLP & OCR.
- Collaboratively designed a Flask app to grade answers by assessing grammar (LSTM), semantics (transformers), & optional solution key comparison (cosine similarity), ultimately presenting scores & highlighting missing key points.

PharmaVIT - A Pharmacy Management System | [github](#)

Dec. 2021

- Developed a responsive web app to enhance a pharmacy's efficiency & operations by automating day-to-day tasks.
- Collaboratively implemented features like inventory management, cart functionality, expiry alerts, new medicine request, billing, invoice, & AuthN/Z with login/signup, from scratch, adhering to an incremental SDLC model.

PyBot - A Simple & Adaptable Chatbot | [github](#)

Dec. 2021

- Built a Tkinter app + CLI for training a chatbot which can be adapted contextually by swapping the intents dataset.
- Co-developed the bot using fundamental NLP techniques (stemming, bag of words) for preprocessing, Feed Forward neural nets for finding intent to return corresponding response (also via voice through Google Text-to-Speech API.)

Technical Skills

Languages: Python, Java, C/C++, Javascript, SQL | **Databases:** MySQL, MongoDB

Frameworks: PyTorch, SKLearn, NLTK, Tensorflow, AsyncIO, Pandas, Numpy, Matplotlib, Flask, ExpressJS, Git, Optuna

Leadership

Student Welfare Department

Oct. 2020 – July 2023

Programme Representative

VIT, Vellore

- Acted as a key liaison between students & administration, effectively addressing student grievances, like by spearheading curriculum reforms to consolidate semester projects, or helping suggest viable COVID-19 relief measures.

Awards & Achievements

(2019-23) Merit Scholarship & Award: For being consistently ranked in the top 5 of VIT Computer Science Department securing Rank #1, #5, #3 & #3 respectively for all 4 years out of 1500+ students.

(2022) DAAD WISE Scholarship: Honored as one of 130 selected nationwide to pursue a fully-funded internship (by the German Government) at the Technical University of Munich, the top-ranked CS institute in Germany.

(2019) GVSDP Scholarship: Received 25% tuition waiver for being in the 99th percentile of candidates in VITEEE.