

# Sudhanva Manjunath Athreya

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## RESEARCH INTERESTS

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NLP (Natural Language Processing) , CVPR (Computer Vision & Pattern Recognition) , Cognitive Computing & Deep Learning.

## SUMMARY

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A CS Student who's interested in technology and mathematics. Organized and dependable candidate successful at managing multiple priorities with a positive attitude. Willingness to take on added responsibilities to meet team goals. Ready to tackle strenuous projects by coming up with esoteric and abstruse ideas.

## EDUCATION

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2020 - 2024 Bachelor's in Computer Science at **Reva University** (GPA: 9/10)

## WORK EXPERIENCE

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**Siemens - Computer Vision Research Intern** Jun 2023 - Present

- AI4Safety - Working on a project that makes use of surveillance cameras to guarantee the safety of people being monitored.
- Domains : Computer Vision , Software development
- Technologies : OpenCV , Nvidia Deepstream , Docker , CVAT , Tensorflow

**Tata Elxsi - NLP Intern** Jul 2022 - Oct 2022

- LMS Recommendation System - Built a recommendation system for Tata Elxsi LMS platform. The recommendations are made using NLP algorithms using user watch history data from a database and displayed in the form of ReactJS cards.
- VideoPeek - Software which mimics Google SERP by providing timestamps for LMS courses as per the queried topic using semantic search.
- Domains : NLP , Software development
- Technologies : Tensorflow , Haystack , Pytorch , ReactJS , MongoDB

**Reva University - Junior Research Fellow @ NLP Lab** Dec 2022 - Present

- Revival of Sharada script (funded by DST under SHRI) - OCR , Transliteration , Translation of scriptures , Creation of web portal to learn Sharada.
- Domains : Computer Vision , NLP , Deep Learning
- Technologies : OpenCV , Tesseract , YOLO , Pinecone , Tensorflow , Pytorch , Pillow , CNNs , CRNNs

## PROJECTS

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### Hestia

Domain : NLP , Software Development

Hestia is an extension for your browser which allows you to search your bookmarks and bookmark folders. The extension can be downloaded from the firefox add-on store. The extension performs a semantic search on the bookmarks to return the results

### Kailāsaḥ

Domain : NLP , Deep Learning , Web Development

Kailāsaḥ is a website which performs Sanskrit Sandhi split. It is one of the projects done for DST , Govt. of India. It makes use of a LSTM model to perform word splitting. The model can be accessed via a streamlit interface.

### DS-Checker

Domain : NLP , Software Development

Created as a Year-End Project (1st year Bachelors). It calculates the similarity between documents and displays it. It was mainly created to check the plagiarism among the project papers submitted by the students. Initially, the documents were embedded using TF-IDF values and then passed through a cosine similarity function to determine their similarity. The system allowed users to upload documents through a PHP-based website. Later, the project was migrated to utilize Word2Vec embeddings, and the user interface was revamped using Streamlit.

### Big Lens

Domain : CVPR , Deep Learning , Web Development

Created as a Year-End Project (2nd year Bachelors). This open-source reverse-image search engine was designed to emulate popular services like Google, Yandex, Bing, and TinEye. Initially, it made use of APIs of previously mentioned services. Eventually, the project was transitioned to employ Content-Based Image Retrieval (CBIR), similar to the approach used by Yandex. A VGG19 model was for feature extraction and streamlit interface could be used to interact with the model.

### Sharada

Domain : CVPR , Deep Learning , NLP , Web Development

Ongoing project which is funded by the DST. The project aims to revive the ancient Sharada scripture which was used in the Kashmir region by the Kashmiri Pandits to write Sanskrit and Kashmiri Manuscripts. As of June '23 , the OCR accuracy on the scriptures is around 80%. Models used for OCR are ResNet50 & MobileNet\_v3. OpenCV is employed for the initial image processing parts. The annotated dataset is created using the LabelMe tool.

## PUBLICATIONS

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“Using Deep Learning Techniques to Evaluate Lung Cancer Using CT Images” (Jan. 2022). In: *SN Computer Science*. URL: <https://doi.org/10.1007/s42979-022-01587-y>.

“Machine Learning Techniques to Detect DDoS Attacks in IoT's, SDN's: A Comprehensive Overview” (June 2023). In: *International Journal of Human Computations and Intelligence*. URL: <https://doi.org/10.5281/zenodo.8027034>.

## EVENTS

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Paninian Grammar and its Applications	Demonstrated Kailāsaḥ tool (14th Feb 2023)
SIEMENS Shift healthcare hackathon finalist (Nov 2022)	Built a disease predicting , hospital room allocation & queuing model.
ICACI Conference 2022 (17th Dec 2022)	Presented the paper "Using Deep Learning Techniques to Evaluate Lung Cancer Using CT Images"
Generative AI and Cybersecurity FDP Seminar (Jul 2023)	Gave a talk on Zero-shot learning in Computer Vision Applications during the 5-day Faculty Development Program.

## HONORS & GRANTS

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### **DST SHRI 2022**

- DSP/TDT/SHRI-14/2021
- Date: 13 December 2021
- An Artificial Intelligence based system for the preservation,restoration and translation of the prominent Sharda literature of Jammu and Kashmir
- Working under Dr. Nimrita Koul on the project funded by the Govt. Of India , Department of Science and Technology(DST) - Science and Heritage Research Initiative (SHRI)