Shivasankaran V P

IIT Gandhinagar

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Education

Indian Institute of Technology Gandhinagar
Gandhinagar, India

BTech(Hons) in Computer Science and Engineering
2019 - Current

- **Current CPI:** 8.74
- **Courses:** Deep learning, Transformers and GNNs, Natural Language Processing, Data Science, Compilers, Computer networks, Computer network security

Chennai Public School
Chennai, India

High School
Apr 2017 - Apr 2019

- Specialised in Physics, Chemistry, and Maths with Computer Science
- Top 5 percentile among 2.8 million students

Research Experience

Undergraduate Researcher - IITGN LINGO lab
Gandhinagar, India

LineEX: Data Extraction from Scientific Line Charts
Dec 2021 - Aug 2022

- Adapted existing vision transformers and human-pose estimation methods to Data extraction.
- Proposed a novel loss function for data extraction from line charts and proved its effectiveness.
- Developed a new metric to more accurately describes the quality of the extracted data points.
- Created the largest synthetic line chart dataset comprising 430K images.
- Accepted in WACV 2023
- **Supervisior:** Professor Mayank Singh

Undergraduate Researcher - IITGN CVIG Lab
Gandhinagar, India

Multi-Modal Generation and Retrieval
Aug 2022 - Apr 2023

- 3D styled shape generation from text inputs. Secured 4th position at IITGN undergraduate research showcase
- Implemented and open-sourced the SOTA text-sketch based zero-shot image retrieval, where no prior code was available
- Explored novel approaches to text-sketch based zero-shot 3D-object retrieval
- Presented all the above works at undergraduate research showcase of IIT Gandhinagar
- **Supervisior:** Professor Shanmuganathan Raman

Undergraduate Researcher - IITGN HCR Lab
Gandhinagar, India

A Visionary Approach to Intelligent Gait Assistance
Dec 2022 - Ongoing

- Implemented and trained a CNN network for terrain classfication on Raspberry pi.
- Optimized the CNN network by using Quantization methods
- Designed a system equipped with the optimized CNN network for real time inference and gait assistance
- **Supervisior:** Professor Vineet Vashita

Undergraduate Researcher
Gandhinagar, India

A Benchmark for Sanskrit Word Segmentation Based on Word Difficulties
Dec 2022 - Ongoing

- Curated the largest annotated sanskrit word segmentation data of 630K sentences
- Designed a committee of models to estimated word difficulties
- Evaluated the current SOTA models performance on the benchmark
- **Supervisior:** Professor Mayannk Singh & Dr. Amrith Krishna

Internships

Strand Life Sciences Pvt. Ltd
Bangalore, India

Software Intern, Research Informatics
May 2022 - Jul 2022

- Quantification and Identification of Tumor-infiltrating lymphocytes from WSIs.
- Evaluated various models proposed in the scientific literature for Industrial use.
- Implemented changes in certain models and evaluated their performance.
- Adopted various methods to bridge the lack of big datasets available for the task
- Created a pipeline based on the current State of the art model for the problem.

Projects

'Sufficient' Attention is All You Need *Gandhinagar, India*
IIT Gandhinagar *Aug 2022 - Oct 2022*
- Extended the annotation tool for multilingual sentiment analysis.
- Implemented features for sentence-level and word-level sentiment suggestions.
- Notable features include an uploadable custom model for sentence-level suggestions.

COMMENTATOR: A Code-mixed Multilingual Text Annotation Framework *Gandhinagar, India*
IIT Gandhinagar *Aug 2022 - Oct 2022*
- Extended the annotation tool for multilingual sentiment analysis.
- Implemented features for sentence-level and word-level sentiment suggestions.
- Notable features include an uploadable custom model for sentence-level suggestions.

Movie recommendation system using Neural collaborative model *Gandhinagar, India*
IIT Gandhinagar *Feb 2021 - Apr 2021*
- Implemented and trained a neural collaborative filtering model.
- Implemented content-based method and matrix factorization method.
- Achieved **SOTA** RMSE of 0.84 for the Neural collaborative model.

Information extraction of devices behind NAT using WebRTC *Gandhinagar, India*
IIT Gandhinagar *Aug 2021 - Nov 2021*
- Extracted private IP and other sensitive information about a client behind a NAT.
- Exploited a technical flaw in WebRTC.
- Evaluated the vulnerability on major browsers and discussed the prevention mechanisms.

Sign Language Translator In Verilog Using Convolutional Neural Networks *Gandhinagar, India*
IIT Gandhinagar *Sep 2020 - Nov 2020*
- Implemented a convolutional neural network in Verilog.
- Optimized the network to work with Verilog floating point precision system.
- Attained an accuracy of 85%.
- Designed the final system to be synthesizable on a FPGA board.

Publications

- **Shivasankaran V P**, Muhammad Yusuf Hassan, Mayank Singh. LineEX: Data Extraction from Scientific Line Charts. WACV 2023.
- **Shivasankaran V P**, Amrith Krishna, Ashim Gupta, Mayank Singh. A new Benchmark for Sanskrit Word Segmentation. *Under work*
- **Shivasankaran V P**, Yogesh Singh, Vineet Vashista. A Visual Approach to Gait Assistance. Using Artificial Vision to Enhance Mobility. *Under work*

Teaching Experience

Teaching Assistant: ES 413 Deep Learning *Gandhinagar, India*
IIT Gandhinagar *Jan 2023 - Ongoing*
- Creating and teaching tutorials for graduate students

Skills

Programming Python, PyTorch, Tensorflow , C/C++, Flask, HTML/CSS, JavaScript, SQL, .
Miscellaneous Linux, Shell (Bash), Git.

Achievements

2022 **Dean's list**, Semester 1 and 6 *India*
2022 **Selection**, Google Research Week *India*
2022 **Selection**, Amazon ML summer school *India*
2019 **All India rank 1319**, JEE Advanced 2019; 1.6 lakh students *India*
2019 **All India rank 1916**, JEE Main 2019; 1.2 million students *India*

References available upon request.