Srihari Vemuru

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26/C IIIT Bangalore, Electronic City, Bangalore, India

Interested Research Areas

Computer Vision, AI, Robotics, Machine Learning

Education

International Institute of Information Technology Bangalore — Bangalore, India
Integrated Master of Technology in Computer Science and Engineering; CGPA: 3.35/4.0 — *Expected July 2022*

Mentorship

Teaching Assistant for Machine Learning at IIIT Bangalore — Bangalore, India
under Prof. Dinesh B Jayagopi — *Aug 2021-Present*

- Taking doubt sessions on machine learning concepts and training students in visualizing data and implementing ML models.

Research Experience

Internship at Polytechnique University, Montreal, Canada — May 2021 - Aug 2021
Mitacs Globalink Research Internship — *Prof. Nicolas Saunier*

- Analyzed safety standards of autonomous vehicles using object detection and tracking.
- Trained DeepSORT and YOLO models on traffic datasets and compiled HOTA and MOTA tracking results.

Internship at LightMetrics — June 2020 - Aug 2020
Start-up in Video Analytics for Road and Driver Safety

- Devised novel methods for road signs and vehicle detection.
- Participated in the integration of successful models in company's proprietary applications.

Internship at Indian Institute of Technology, Delhi — Oct 2020 - May 2021
I-Hub Foundation for Cobotics (IHFC), IIT Delhi — *Prof. Bodhditya Santra*

- Examined quantum computing algorithms to solve Maximum Clique Problem.
- Developed a quantum annealing algorithm to solve Travelling Salesman Problem on a rydberg atom quantum computer.

Projects

Understanding Social Behavior in Dyadic and Small Group Interactions — Aug 2021-Present
ICCV Challenge — *Multimodal Perception Lab*

- Using blink retrieval algorithms to recognise the personality of a person from multimodal input.
- Built a model with facial landmark predictor, video feature extractor, VGGish and visual transformer for respective modalities of inputs.

Handling Complex Queries Using Query Trees Aug 2020-Dec 2020

Information Retrieval Journal *Prof. Shrisha Rao*

- Created a search engine middleware tool called PTGQ. PTGQ parses a complex search query into simpler queries, progressively queries them and outputs the final result.
- Performance of PTGQ tops the SoTA by more than 30% on a metric specifically formulated for the task.

Precision Learning for Enterprise Aug 2020-Dec 2020

Web Sciences Lab

- Contributed in the navigated learning project of Web Sciences Lab. Navigated learning implements precision learning, by computing a variety of semantic embeddings.
- Built a model which creates a competency map given a input corpus of learning resources.

Inferring Student Engagement Using Unsupervised Domain Adaptation Nov 2019-Dec 2019

Multimodal Perception Lab

- Devised a model for predicting the engagement levels of students in a classroom using visual recognition and unsupervised domain adaptation.
- Used unsupervised domain adaptation models for training like Joint Adaptation Network (JAN) and Wasserstein Generative Adversarial Networks (WGAN).

ASMCBot Apr 2020-May 2020

Smart India Hackathon

- Built a chatbot, *ASMCBot* (Affect Sensitive Medical ChatBot), and a medical portal with hospital location finding functionalities for helping people during COVID-19.
- Developed an model which uses BERT to represent a query and compares it with a question bank using cosine similarity.

Skills

- **Languages**: Python, C, C++, Java, SQL, JavaScript, CSS, HTML, Verilog(Hardware)
- **Frameworks**: PyTorch, TensorFlow, Keras, FastAPI, Django, Node.js, React.js, OpenCV, Darknet, dlib, Scikit-Learn, Matplotlib, Seaborn

Additional Experience and Achievements

- **ACM ICPC**: Qualified for ACM ICPC regionals level in 2021.
- **IBM 2022 Intern**: Secured a six month intern position at IBM CIO in Cloud and AI.
- **ACM India Summer School**: Volunteered to organise a workshop on algorithmic and theoretical aspects of machine learning during the summer of 2019.
- **Quadcopter Project under Robotics Club**: Worked in a team to build a drone intended to guide people during fire hazards.
- **WinDrop**: Worked in a team to build a web platform to share files amongst trusted devices of the same user.
- **Certificate from Ministry of Human Resource Development, Government of India**: For 10/10 CGPA in Central Board of Secondary Education(CBSE) 10^{th} grade (High school).