K VINEET VENKATESH RAO

Graduate Student at University of Michigan, Ann Arbor, MI, USA

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OBJECTIVE

Seeking Full time opportunities to work in the field of Machine Learning, Computer Vision and Deep Learning. Specifically keen to work in Self-Supervised Learning, using Language Pre-trained models to solve downstream vision tasks of Classification and Detection.

EDUCATION

University of Michigan Ann-Arbor   MI,USA

Graduate Student in EECS Dept, Signal, Image Processing and Machine Learning specialisation.Aug. 2021 – Apr. 2023 (expected)

Fall-21 Courses: EECS 551-Matrix methods for signal Processing and Machine Learning, **EECS 501**-Probability and Random Processes, **EECS 598-001**-VLSI for Communication and Machine Learning.
Winter-22 Courses:EECS 545-Machine Learning by **Prof. Honglak Lee**, **EECS 598**-Deep Learning for Computer Vision by **Prof. Justin Johnson**.
Fall-22 Courses:EECS 598-Science of Deep Learning, **EECS 595**-Natural Language Processing.

PES University   Bangalore, India

*Bachelors of Technology (B.Tech) with Distinction   **GPA:9.24/10***   *Aug. 2016 – Nov. 2020*
Major:Electronics and Communications Engineering
Minor: Computer Science and Engineering

TECHNICAL SKILLS

Machine Learning Platforms : Tensorflow, Pytorch, Numpy, Keras,OpenCV,Tensorflow-Lite,Tensorflow-Micro.
Programming Languages:Python, C, C++, Verilog.
Development Tools:GitHub, Amazon Web Services(AWS), Miscrosoft Azure.

EXPERIENCE

Applied Scientist Intern   May. 2022 – ongoing

Amazon,**Supervisor: Sai Prashant Chinapalli**   *Sunnyvale , CA*

- I would be working with Device Connectivity Team,I would be working on researching/implementing ML/DL models to solve complex problems.

RESPONSIBILITIES

Grader for EECS 452-Digital Signal Processing Lab   Jan. 2022 – May. 2022

University of Michigan,**Supervisor: Prof.Alfred Hero**   *Ann Arbor , MI*

- Responsibilities of grading assignments and lab of Digital Signal Procssing Lab, which includes quantization, inferfacing Rsapberri pi, and tinyML techniques.

SELECTED PROJECTS

Self-Supervised Object Detection with Multimodal Image Captioning   Jan. 2022 – Apr. 2022

- Implemented a novel method that reduces the need of human supervision required for training an Object Detector.
- We leverage a **Language Supervised Pre-trained model** that is trained to output diverse captions and perform a clever **Zero-Shot transfer** using various NLP processing methods to **localize** an object given an image and draw a bounding box around it.
- Further, we use a FCOS object detector with a new small modified version of GioU loss to account for the noise in the generated bounding boxes to train an object detector.

Language Supervised Vision Pre-Training for Fine-grained Food Classification.   Jan. 2022 – Apr. 2022

- Project aimed to show that Pre-trained Language Supervision works well for fine grained downstream classification of food vision task using **Food-101 dataset.**
- We use a captioning model *VirTex-v2* trained on *RedCaps dataset*. Further, Using Prompt Engineering and prompt ensembling we perform evaluate Zero-shot performance.
- Given the limited time and hardware resources, our best model achieved **20%** zero shot accuracy on the test-set.