VIKAS DESAI

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SUMMARY

A Senior Software Engineer with a strong background in applied ML research.

EDUCATION

Indian Institute of Technology (IIT), Hyderabad *Aug 2017 - Jul 2020*
Master of Technology CGPA: 9.52
Department of Computer Science and Engineering *Supervisor: Vineeth N Balasubramanian*

Sreenidhi Institute of Science and Technology *Jun 2013 - Jun 2017*
Bachelor of Technology Overall Percentage: 82.6%
Department of Electronics and Communication Engineering

WORK EXPERIENCE

Senior ML Engineer, Qualcomm *Aug 2020 - Current*
I'm currently working on automating deep learning quantization and inference pipelines on multiple Qualcomm chipsets for Android phones. Experienced in implementing evaluation metrics and continuous monitoring tools for state-of-the-art Vision and NLP models in Python.

Research Assistant, IIT Hyderabad *Aug 2017 - Aug 2020*
I worked under the guidance of Dr. Vineeth N Balasubramanian on using active learning to minimize labeled data requirements for object detection on agricultural datasets. Published **12 papers** [214 citations as of Jan. 2023].

Research Intern, GeoScience Research Team, AIST Tokyo *Jun 2019 - Jul 2019*
I worked with Dr. Ryosuke Nakamura and Dr. Nevrez Imamoglu on the application of deep learning networks for RGB and LIDAR based tree detection and segmentation from street view images of Tokyo.

Intern, Field Phenomics Lab, University of Tokyo *May 2018 - Jun 2018*
I worked with Dr Wei Guo on the application of deep learning in high throughput plant phenotyping, specifically on the estimation of rice heading date from time series crop images.

SKILLS

ML Frameworks	PyTorch, Tensorflow, Scikit-learn
Data Analysis Tools	Numpy, OpenCV, Matplotlib, Pandas
Languages	Python, C++, Java, BASH scripting
Web Technologies	HTML, CSS, Javascript, Flask
Developer Tools	Git, LaTeX, Jenkins, Docker, Kubernetes
Expertise	CNNs, Active Learning, Image Classification, Object Detection, Transformers, Semantic Segmentation, Pose Estimation

RELEVANT COURSES TAKEN

Applied Machine Learning, Deep Learning, Statistical Learning Theory, Convex Optimization Theory, Bayesian Data Analysis, Computational Complexity, Advanced Data Structures and Algorithms

PROJECTS

Adaptive Supervision for Object Detection *Jan 2019 - Apr 2019*
In collaboration with University of Tokyo

Developed an adaptive supervision framework for active learning and demonstrate its effectiveness on the task of object detection. A combination of weak and strong supervision is used to obtain 30% savings in annotation cost to attain a target performance level. Accepted to **BMVC 2019**.

Rice Heading Stage Estimation using Deep Learning *Aug 2017 - Jul 2019*
In collaboration with University of Tokyo

Proposed a simple pipeline to detect regions containing flowering panicles from ground level RGB images of paddy rice. Used the flowering panicle region counts to estimate the heading date of the crop with a mean absolute error of less than 1 day. Published in **BMC Plant Methods 2019**.

Edge Computing Toolkit for Real-Time Plant Phenotyping *Jun 2020 - Aug 2020*

Developed EasyRFP, a software toolkit which can be interfaced with any commercial GPU enabled micro computer (such as NVIDIA Jetson) and a digital camera. This toolkit is used to automatically perform deep learning inference on field images and periodically email the results. Accepted to **ECCV 2020 Workshops**.

PUBLICATIONS

1. B. Dittakavi, D. Bavikadi, **S. V. Desai**, S. Chakraborty, N. Reddy, V. Balasubramanian, B. Callepalli, A. Sharma, Pose Tutor: An Explainable System for Pose Correction in the Wild, CVSports, **CVPR 2022 Workshops**.
2. S. Rawat, Akshay L. Chandra, **S. V. Desai**, V. Balasubramanian, S. Ninomiya, W. Guo, How Useful Is Image-Based Active Learning for Plant Organ Segmentation?, **Plant Phenomics, 2022**.
3. **S. V. Desai**, Akshay L. Chandra, V. Balasubramanian, An Adaptive Supervision Framework for Active Learning in Object Detection, British Machine Vision Conference, **BMVC 2019**, Cardiff, UK.
4. **S. V. Desai**, V. Balasubramanian, T. Fukatsu, S. Ninomiya, W. Guo, Automatic estimation of heading date of paddy rice using deep learning. **Plant Methods 15, 76 (2019).**

(to view the complete list of publications, visit my Google Scholar page)

SERVICE

- Reviewer for ACML 2022, ICVGIP 2021, CVPPP 2021, VL3 Workshop in CVPR 2020 and ICVGIP 2018. Journals: Frontiers in Plant Science, Pattern Recognition.
- Teaching Assistant (Content Preparation) for NPTEL course on Deep Learning for Computer Vision (Fall 2020).

ACHIEVEMENTS

- Received the ORION award in 2021 for excellent contributions to Qualcomm's Neural Engine.
- Received Certificate of Appreciation in Research for the years 2018 and 2020 in IIT-Hyderabad.
- Part of the winning team in "Quest 2k15 Hackathon" in JNTU Hyderabad in 2015.

REFERENCES

1. Dr. Vineeth N Balasubramanian, Associate Professor, Department of Computer Science Engineering, IIT Hyderabad, Sangareddy, Telangana - 502285, India. E-mail: vineethnb@iith.ac.in