Vikas Desai

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EXPERIENCE

Qualcomm   Hyderabad, India
Machine Learning Engineer   *Jul 2020 - Current*
- Automating deep learning quantization and inference pipelines on Qualcomm android chipsets. Experienced in onboarding state of the art NLP and Computer Vision models.

Indian Institute of Technology, Hyderabad   Hyderabad, India
Graduate Research Assistant   *Aug 2017 - Jul 2020*
- I worked under the guidance of Dr. Vineeth N Balasubramanian on using active learning to minimize labeled data requirements for object detection. Published **12 papers** [174 citations as of Sept. 2022].
  Internships at: AIST Tokyo, University of Tokyo

SKILLS

Frameworks: PyTorch, Keras, Flask
Libraries: Scikit-learn, Numpy, OpenCV, Matplotlib, Pandas
Languages: Python, C++, Java, Bash Scripting
Web Technologies: HTML, CSS, JavaScript
Developer Tools: Git, LaTeX, Jenkins, Jira, Confluence
Expertise: CNNs, Active Learning, Image Classification, Object Detection, Transformers, Semantic Segmentation, Pose Estimation

EDUCATION

Indian Institute of Technology Hyderabad   Hyderabad, India
Masters in Computer Science; CGPA: 9.52   *Aug 2017 - Jul 2020*
Sreenidhi Institute of Science and Technology   Hyderabad, India
Bachelor of Electronics and Communication Engineering; Percentage: 82.6%   *Jun 2013 - Jun 2017*

ACADEMIC PROJECTS

- **Adaptive Supervision for Object Detection**: Developed a novel adaptive supervision framework for active learning in object detection. A combination of weak and strong supervision is used to obtain 30% savings in annotation cost to attain a target mean average precision performance level. *In collaboration with University of Tokyo*
- **Edge Computing Toolkit for Real-time Plant Phenotyping**: Created EasyRFP, a software toolkit which can be interfaced with any commercial GPU enabled micro computer (such as NVIDIA Jetson) and a digital camera. It automatically performs deep learning inference on field images and periodically emails the results.
- **Rice Heading Stage Estimation using Deep Learning**: 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. *In collaboration with University of Tokyo*
- **Point Supervision for Cost Effective Object Detection:**: Proposed a cost-effective point supervision based active learning approach for panicle detection in cereal crops. We show promising results on two publicly available cereal crop datasets - Sorghum and Wheat with 55% reduction in labeling costs.

SELECTED PUBLICATIONS

1. **S. V. Desai**, V. Balasubramanian, Towards Fine-Grained Sampling for Active Learning in Object Detection, Visual Learning with Limited Labels, **CVPR 2020 Workshops**, Seattle, USA.

2. Akshay L. Chandra, **S.V. Desai**, C. Devaguptapu, V. Balasubramanian, On Initial Pools for Deep Active Learning. Pre-registration Workshop, **NeurIPS 2020 Workshops**, Online.

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. Akshay L. Chandra, **S. V. Desai**, V. Balasubramanian, S. Ninomiya, W. Guo, Active learning with point supervision for cost-effective panicle detection in cereal crops. **Plant Methods 16, 34 (2020).**

ACHIEVEMENTS

- 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.