

# AKSHITA GUPTA

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## PUBLICATIONS

1. **Generative Multi-Label Zero-Shot Learning** [paper, code, webpage]  
**Akshita Gupta\***, Sanath Narayan\*, Salman Khan, Fahad Shahbaz Khan, Ling Shao, Joost van de Weijer  
(\* denotes equal contribution) *Under Submission TPAMI 2021*
2. **Discriminative Region-based Multi-Label Zero-Shot Learning**  
Sanath Narayan\*, **Akshita Gupta\***, Salman Khan, Fahad Shahbaz Khan, Ling Shao, Mubarak Shah  
(\* denotes equal contribution) **ICCV 2021**
3. **Latent Embedding Feedback and Discriminative Features for Zero-Shot Classification** [paper, code, webpage]  
Sanath Narayan\*, **Akshita Gupta\***, Fahad Shahbaz Khan, Cees G.M. Snoek, Ling Shao  
(\* denotes equal contribution) **ECCV 2020**
4. **iSAID: A Large-scale Dataset for Instance Segmentation in Aerial Images** [paper, webpage, code]  
Syed Waqas Zamir\*, Aditya Arora\*, **Akshita Gupta**, Salman Khan, Guolei Sun, Fahad Shahbaz Khan, Fan Zhu, Ling Shao, Gui-Song Xia, Xiang Bai  
**CVPR-W Oral 2019**
5. **Acoustic features fusion using attentive multi-channel deep architecture** [paper, ppt, code]  
Gaurav Bhatt, **Akshita Gupta**, Aditya Arora, Balasubramanian Raman  
**InterSpeech-W 2018**

## PROFESSIONAL ACTIVITIES

- Served as a reviewer for ICCV-2021, ML reproducibility challenge-2020
- Invited Speaker at ComputerVision talks - 2021
- Selected for Bertelsmann Data Science Scholarship. (*Awarded to only 1500 students*)
- Undergraduate Teaching Assistant, TCS821: Cloud Computing Graphic Era University, Dehradun 2018

## EDUCATION

**DIT University**, Dehradun

Bachelor of Technology, Computer Science

Aug. 2014 – Dec. 2018

**Indian Institute of Technology**, Roorkee

Semester Exchange & Advised by Prof R Balasubramanian

Jan. 2018 – Dec. 2018

## RESEARCH EXPERIENCE

**Research Engineer**, Inception Institute of Artificial Intelligence

Abu Dhabi, UAE

Supervisors: Dr Sanath Narayan, Dr Fahad Shahbaz Khan

Dec. 2018 – Present

- Worked on rock & texture classification problem with **ADNOC** (largest oil & gas company).
  1. In this project, I refined the classification algorithm specifically for the task of rock and texture classification and achieved state of the art results on their collected data.
  2. Also worked on a maintaining and deploying the GUI Interface for deploying the algorithm with real-time results.
- Developed deep learning models with the satellite imagery team for the task of object detection and counting.
  1. **Lead and maintained** the main deployment codes.
  2. Object detection: Improved the state of the art (MS-COCO AND PASCAL) object detector trained for their collected satellite images.
  3. Counting: Implemented and combined different counting algorithms like LCFCN and LPNs.
- Build instance segmentation and object detection models for aerial and satellite imagery. Explored and combined different deep learning models like PAnet and mask-RCNN.  
Published at **CVPR-W Oral 2019**.
- Worked on zero-shot image classification problem using generative adversarial networks.  
Paper accepted in **ECCV 2020**.

- Worked on generative models for improving the recognition of unseen concepts in few and zero shot domains.
- Currently working on going through the literature's on low shot detection papers

## Research & Development Intern, Mozilla

Supervisor: Emma Irwin

Outreachy  
May. 2018 – Aug. 2018

- Developed an open source analytics dashboard prototype with the metrics to evaluate diversity and inclusion across different communities.

## Research Intern, Indian Institute of Technology

Supervisor: Dr R Balasubramanian

Roorkee, India  
May. 2017 – Jul. 2017

- Worked on acoustic scene recognition and audio tagging using attention networks. Paper accepted in **Interspeech-W 2018**.

## ACHIEVEMENTS

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- Travel Scholarship for ALL-Hands Mozilla, San Francisco. (*Awarded to only 12/2000*)
- [Outreachy](#) Travel Scholarship recipient (2018- 2019). (*Awarded to only 40/2000*)
- Selected for Bertelsmann Data Science Scholarship. (*Awarded to only 1500 students*)
- Accepted for StartHack hackathon 2019, 2020 organized by University of St Gallens , Switzerland *out of 1000 candidates*.
- [Scored](#) among top 150 globally at Cognizant Mastercode Hackathon
- Invited Speaker at Mozilla, Diversity and Inclusion in Open Source - Community [Call](#).

## OPEN SOURCE MAINTAINER

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### Speech & Audio Processing

#### Audio-Vision

- Introduced an *open source library* with research paper implementations and documentation.
- **Audio:** Papers dealing with specific task like audio classification and tagging. The frameworks include attention, recurrent encoder-decoder, CNN + LSTM, ensemble, and multi-feature.
- **Vision:** Papers tackling with Visual Question Answering problem including frameworks like deeper LSTM, stacked attention.

#### Keras\_aud

- Audio library build on top of Keras framework which includes build-in architectures including preprocessing data, feature extraction, and feature maps calculation.

#### Others

#### Diversity Metrics Prototype

- A Prototype for Diversity & Inclusion Metrics Based on our D&I recommendations and CHAOSS WG goal-metrics.
- Proposed and led quantitative analysis using self made demo gender dataset and performed NLP(Sentiment Analysis and Topic Modeling) for generating the visualization results.
- Worked on *Kibana*, *Logstash* and *Elastic Search* for data extraction and visualization during the internship.

## OPEN SOURCE CONTRIBUTIONS

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- [Mozilla-Diversity](#), Helped with the visualization (using Python, Matplotlib), Code of Conduct & Wiki page.
- [Taskcluster](#), Modified the GUI for easier GIT access and submission options.
- [Systers](#), Online community for women founded by Anita Borg.
- [DeepLearn-Lab](#), Open source research collaboration Lab.

## PROGRAMMING SKILLS

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- **Languages:** Python, C, C++, SQL
- **DevOps:** Docker, Heroku, FloydHub
- **Frameworks:** Flask, OpenCV
- **Machine Learning Frameworks:** Pytorch, Keras, NumPy, Scikit-Learn
- **Frontend:** HTML, CSS, JQuery, Bootstrap, Javascript, ReactJS