

# AKASH ABDU JYOTHI

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## EDUCATION

Program	Institution	CGPA	Year
PhD in Computing Science <i>Advisor: Prof. Greg Mori</i>	Simon Fraser University, Burnaby	3.83/4.33	2018- present
MSc in Computing Science	Simon Fraser University, Burnaby	4.13/4.33	2016-2018
B.Tech & M.Tech in Engg. Design	IIT Madras, Chennai	8.36/10	2008-2013

## PUBLICATIONS

- **A. A. Jyothi**, T. Durand, J. He, L. Sigal, and G. Mori, "LayoutVAE: Stochastic Scene Layout Generation From a Label Set", *IEEE/CVF International Conference on Computer Vision (ICCV)*, 2019.
- N. Mehrasa, **A. A. Jyothi**, T. Durand, J. He, L. Sigal, and G. Mori, "A Variational Auto-Encoder Model for Stochastic Point Processes", *IEEE/CVF Computer Vision and Pattern Recognition (CVPR)*, 2019.

## WORK EXPERIENCE

**Part-Time Internship at Borealis AI, Vancouver** (Sep 2018 – present)

- Implemented models for temporal action prediction (CVPR 2019) and created a novel algorithm for generating diverse scene layouts from a set of labels (ICCV 2019). Currently conducting research on multi-agent tracking.

**Project Officer at Computer Vision Lab, IIT Madras** (Jan 2015 – Dec 2015)

- Participated in development and real-world testing of an intelligent surveillance system that detects and tracks pedestrians in crowded scenes.
- Implemented a pedestrian tracking algorithm with Kernelized Correlation Filter (KCF) using C++.

**Engineer at Eaton Technologies Pvt. Ltd., Pune** (Aug 2013 – Dec 2014)

- Performed product design and analysis of rigid joints used in aerospace ducting systems. Filed 3 disclosures.

## OTHER RESEARCH EXPERIENCE

**MSc Thesis - Generating natural language summary for image sets (Advisor: Prof. Greg Mori)** (June 2017 – May 2018)

- Defined a specific instance for the problem of image set summarization and created a dataset (PlacesCap) for the same.
- Created novel models for summarizing sets of images with a natural language description and showed competitive performance on PlacesCap.

**Natural Language based Image Generation (supporting role)** (Feb 2017 – May 2017)

- Implemented multiple variants of Variational Autoencoder based image generation models using Torch library. Conducted experiments with different types of spatial attention models.

**Paraphrase Extraction using Neural Machine Translation (NMT) (course project)** (Oct 2016 – Nov 2017)

- Rare word problem in NMT can be addressed by using paraphrases. Implemented a method to extract paraphrases from a corpus by bilingual pivoting process across source language and its translation obtained by NMT.

**Material Deformation Measurement using computer vision (M. Tech Thesis)** (Aug 2012 - July 2013)

- Feature based image matching techniques were evaluated (using C++, MATLAB, R) as efficient alternative to replace Digital Image Correlation for strain measurements. Accurate feature tracking across successive images of a deforming material was used for strain calculation.
- SIFT and ORB with localization refined by Lukas-Kanade optical flow were evaluated for feature tracking accuracy across images, and the latter was found to provide more reliable tracking.

## TEACHING

- CMPT 726 Machine Learning – Teaching Assistant (Fall 2018, Fall 2019)  
*Lecture (Fall 2018): Gradient Descent, Stochastic Gradient Descent, Regularization*

## SKILLS

- Languages – Python, C, C++, Lua, MATLAB, Mathematica
- Libraries – PyTorch, Torch, OpevCV

## SERVICE

- Reviewer – CVPR 2020, ACCV 2018

## SCHOLASTIC ACHIEVEMENTS

- Received Computing Science Graduate Fellowship in Fall 2016, Spring 2019 at SFU.
- Secured all India rank - **2307**(top 1%) in IIT-JEE 2008 amongst **3,20,000** students.
- Secured all India rank - **924**(top 0.5%) in AIEEE 2008 amongst **6,00,000** students (State rank - **21**).
- Secured **5<sup>th</sup> rank in Kerala** for Common Entrance Examination 2008.
- Represented the state of Kerala in **Indian National Mathematical Olympiad, 2008**, secured **3<sup>rd</sup> rank** in the **Regional Mathematical Olympiad** (sponsored by National Board of Higher Mathematics, Govt. of India) in the state of Kerala.