AKASH ABDU JYOTHI

Ph: +1-(604) 767 6054 **Website**: https://ajakash.github.io/ **Email**: aabdujyo@sfu.ca, ajakash91@gmail.com

EDUCATION

Simon Fraser University, Burnaby
Ph.D. in Computing Science (Advisor: Prof. Greg Mori) **2018 – present**
M.Sc. in Computing Science **2016 – 2018**

Indian Institute of Technology Madras, Chennai, India
B.Tech. & M.Tech. in Engineering Design **2008 – 2013**

PUBLICATIONS

- M. Nawhal, **A. A. Jyothi**, G. Mori, "Rethinking Learning Approaches for Long Term Action Anticipation", *European Conference on Computer Vision (ECCV),* 2022.
- **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 / RESEARCH EXPERIENCE

Research Assistant, SFU **Sep 2023 – present**
- Introduced and executed an original idea for pre-training video transformers for activity recognition, achieving an absolute improvement of 15%-20% accuracy in parameter-efficient fine-tuning performance.

Research Intern, Facebook AI Research, Montreal **Jun 2020 – Nov 2020**
- Designed and implemented an image editing approach based on optimization-based methods for adding an object to a scene with no additional training data.

Research Intern, Borealis AI, Vancouver **Sep 2018 – Nov 2019**
- Proposed a cutting-edge approach for generating scene layouts, achieving an 11% improvement in bounding box generation accuracy while boosting prediction diversity. This work was featured in ICCV 2019.
- Developed a model for temporal action prediction, improving action class prediction accuracy by 10% and inter-arrival time prediction by 18%. This work was published at CVPR 2019.

Project Officer, Computer Vision Lab, IIT Madras **Jan 2015 – Dec 2015**
- Spearheaded the deployment of tracking module in an intelligent surveillance system.
- Delivered an efficient implementation of Kernelized Correlation Filter (KCF)-based pedestrian tracking algorithm in C++ reducing the runtime by 40%.

Engineer, Eaton Technologies, Pune **Aug 2013 – Dec 2014**
- Designed and analyzed rigid joints for aerospace ducting systems, optimizing performance and reliability.
- Submitted three intellectual property disclosures showcasing innovative approaches in joint design.

OTHER RESEARCH EXPERIENCE

MSc Thesis - Generating natural language summary for image sets (Advisor: Prof. Greg Mori) **Jun 2017 – May 2018**
- Formulated a new instance of the image set summarization problem and created the PlacesCap dataset with 11,661 image sets and corresponding captions.
- Developed models using two novel averaging techniques towards captioning of image sets, achieving competitive results on the PlacesCap benchmark.

Natural Language based Image Generation **Feb 2017 – May 2017**
- Evaluated variants of Variational Autoencoder (VAE)-based image generation models, experimenting on spatial attention to enhance image quality.

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

- Addressed the rare word problem in NMT by extracting paraphrases through a bilingual pivoting process across source and translated languages.
- Devised and tested methods for paraphrase extraction to improve translation robustness.

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

- Evaluated feature-based image matching techniques (SIFT, ORB) as an alternative to Digital Image Correlation for strain measurements.
- Demonstrated reliable feature tracking (errors less than 0.05 pixels) using ORB with localization refined by Lukas-Kanade optical flow.

TEACHING ASSISTANT

- CMPT 726 Machine Learning
  (Fall 2024, Fall 2019, Fall 2018)
  Lecture (Fall 2018): Gradient Descent, Stochastic Gradient Descent, Regularization

- CMPT 307 Data Structures and Algorithms
  (Spring 2024, Fall 2023)

- CMPT 125 Introduction to Computing Science and Programming II
  (Summer 2023, Summer 2021)

SKILLS

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

SERVICE

- Reviewer – ECCV 2024; NeurIPS 2023; ICLR 2022; CVPR 2022, 2021, 2020; ICCV 2021; ACCV 2018

SELECTED AWARDS / SCHOLASTIC ACHIEVEMENTS

- Helmut and Hugo Eppich Family Graduate Scholarship - Spring 2023, Spring 2020.
- Computing Science Graduate Fellowship at SFU - Spring 2023, Fall 2021, Spring 2020, Spring 2019, Fall 2016.
- Achieved an all-India rank of 2307 (top 1%) in IIT-JEE 2008 out of 320,000 candidates.
- Achieved an all-India rank of 924(top 0.5%) in AIEEE 2008 out of 6,00,000 students (State rank - 21).
- Achieved 5th rank in Kerala for Common Entrance Examination 2008.
- Represented the state of Kerala in Indian National Mathematical Olympiad, 2008. Achieved 3rd rank in the Regional Mathematical Olympiad in the state of Kerala, India.