

Akrit Mohapatra

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OBJECTIVE

Rapid prototyping and development of cutting edge new product that has wide spread impact & generates value


Research interests - Computer Vision, Natural Language Processing, Machine Learning, Deep Learning, Robotics

WORK EXPERIENCE

AUGUST 2020 - PRESENT

Senior Machine Learning Engineer, 

JULY 2018 - AUGUST 2020

Research Scientist, CoreAI, 

Developed large-scale practical applications for eBay's Core business using machine learning and computer vision for buyer experience, seller experience, structured data and risk management applications. Tech lead for visual object recognition for product categories and attributes. Tech lead for research on multi-task learning for recognition and similarity. Key player in development of NSFW model and strategy using computer vision that is a primary feature for recommendation systems, marketing feeds and home page view items. Key collaborator in enabling the first large-scale distributed training for computer vision at eBay. Developed proofs-of-concept for Counterfeit detection using visual brand detection. Investigated and proposed the best deployment solution for model compression (including pruning, continued research on distillation). Member of the organization committee for [eBay ML Challenge](#). Designed and created the data preparation and training pipeline for the team. Volunteered to be the Google Cloud Platform admin for the team. Top performer in the team.

EDUCATION

AUG 2016 - May 2018

M.S. in COMPUTER ENGINEERING

Virginia Tech, Blacksburg, VA

Specialization: Machine Learning, Computer Vision, Natural Language Processing

Advisor: [Prof. Dhruv Batra](#)

AUG 2012 - May 2016

B.S. in COMPUTER ENGINEERING

Virginia Tech, Blacksburg, VA

Dean's List - Spring 2013, Fall 2014, Fall 2015, Spring 2016

PUBLICATIONS

The Promise of Premise: Harnessing Question Premises in Visual Question Answering

Aroma Mahendru*, Viraj Prabhu*, Akrit Mohapatra*, Dhruv Batra, Stefan Lee

(* Equal contribution)

Conference on Empirical Methods in Natural Language Processing (EMNLP), 2017

Towards Transparent AI Systems: Interpreting Visual Question Answering Models

Yash Goyal, Akrit Mohapatra, Devi Parikh, Dhruv Batra

Best Student Paper at International Conference on Machine Learning (ICML) Workshop on Visualization for Deep Learning, 2016

CloudCV: Large-Scale Distributed Computer Vision as a Cloud Service

Harsh Agrawal, Clint Solomon Mathialagan, Yash Goyal, Neelima Chavali, Prakriti Banik, Akrit Mohapatra, Ahmed Osman, Dhruv Batra

Book Chapter, Mobile Cloud Visual Media Computing

Editors: Gang Hua, Xian-Sheng Hua. Springer, 2015

SKILLS





- *Frameworks* - Tensorflow, PyTorch, Caffe, TensorRT
- *Languages* - Python, C++
- *Data* - Hadoop, Hive, Spark

- Other - Docker, D3.js, HTML

AWARDS

2019	<i>eBay EXPO Visionary Award</i>
2019	<i>eBay SPOT Award - eBay Machine Learning Challenge</i>
2019	<i>eBay SPOT Award, MindShopping</i>

RESEARCH EXPERIENCE

SUMMER 2017	Research Intern at CREATIVE TECHNOLOGIES LAB,  Adobe Research Developed a framework that enables users to perform fine-grained image edits in the form of open-ended natural language commands. This introduces an abstraction layer by processing the language into sequential executable commands allowing users to potentially supervise the edits through an interface. The actual edit(s) can be executed by task specific computer vision models to achieve accurate intended results.
SUMMER 2016	Research Intern at MACHINE LEARNING & PERCEPTION LAB,  Worked on interpretability of Visual Question Answering (VQA) models. Mentored students on the CloudCV project for Google Summer of Code 2016.
SUMMER 2015	Research Intern at MACHINE LEARNING & PERCEPTION LAB,  Worked on set-up and launch of Visual Question Answering (VQA) website. Created interactive D3 visualizations for the VQA dataset. Also mentored students on the CloudCV project for Google Summer of Code 2015.
SUMMER 2014	Research Intern at MACHINE LEARNING & PERCEPTION LAB,  Worked on creating and tuning models for object detection using the R-CNN algorithm. Also participated in the ImageNet Large Scale Visual Recognition Challenge (ILSVRC) .

SELECTED PROJECTS

FALL 2016	Exploring performance on CIFAR-10 Explored performance of then commonly used machine learning algorithms such as Nearest-Neighbor, Naive Bayes and Support Vector Machines (SVM) using different feature sets such as histogram of oriented gradients (HOG) and convolution (CNN) features.
FALL 2015, SPRING 2016	Qualcomm Real-time Mosaicking with Snapdragon Developed an application that stitches incoming video streams from an aerial survey drone into a mosaicked image in real-time. The application involved configuring and integrating various hardware and software components to enable processing on a Snapdragon DragonBoard 410c.
SPRING 2016	Marco-Polo - Embedded Rover Project Embedded systems project consisting of two rovers made by integrating PIC32s and Zumo motors and operated using a real time operating system. One rover is completely autonomous and is tasked with detection of the second rover using IR sensors mounted on a servo. The second rover is user controlled using a PyQT interface and is used to pursue the first rover. The goal of the second rover is to “catch” the first rover while it avoids being caught thereby creating the famous Marco-Polo gaming experience. (https://www.youtube.com/watch?v=d65eue3KGOw)
FALL 2015	Exploring Nearest-Neighbor Approach on VQA Analyzing performance of the nearest-neighbor algorithm (with & without consensus) on the Visual Question Answering (VQA) dataset. https://filebox.ece.vt.edu/~akrit/Exploring_NN
FALL 2015	Content-Aware Image Resizing Implemented a version of the content-aware image resizing technique described in Shai Avidan and Ariel Shamir’s paper, “Seam Carving for Content-Aware Image Resizing”. This method involves computing the energy of an image using gradients which generates seams to achieve content-aware resizing. (Matlab)
FALL 2015	Image Stitching Implemented an image stitching algorithm which utilizes homography matrices to warp multiple overlapping similar images into a single panoramic image.

SELECTED COURSEWORK

GRADUATE	Advanced Machine Learning , Advanced Computer Vision , Deep Learning, Bayesian Statistics, Convex Optimization, Data Analytics
UNDERGRADUATE	Computer Vision , Artificial Intelligence, Embedded Systems, Network Applications, Digital Design, Applied Software Design, Data Structures & Algorithms

VOLUNTEER

- Contributor to TensorFlow - Collaboration w/ Google Brain & Google Cloud TPU team
- Reviewer for eBay Amplify Conference
- Designed & Developed [VQA Website](#) & [VQA Workshop](#) pages (Past)

TEACHING EXPERIENCE

FALL 2016	Intro to Computer Vision Instructor - <i>Jia-Bin Huang</i>
SPRING 2017	Microcontroller Programming and Interfacing Instructor - <i>Jason Thweatt</i>
FALL 2017	Fundamentals of Information Security Instructor - <i>Jung-Min (Jerry) Park</i>

LEADERSHIP & ACTIVITIES

2020	<i>Top-5 Ranked</i> , Tennis, San Francisco Bay Area Men's Flex Singles 4.0
2016	<i>President</i> , Indian Students' Association
2014-2016	<i>Corporate Relations</i> , IEEE , Virginia Tech Chapter
2016	<i>Vice-President</i> , Council of International Students Organizations
2016	<i>Team Coordinator</i> , Virginia Tech Cricket Club