

# Akrit Mohapatra

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## EDUCATION

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AUG 2016 - Present M.S. in COMPUTER ENGINEERING  
**Virginia Tech**, Blacksburg  
Specialization: Machine Learning, Computer Vision, Natural Language Processing  
Advisor: [Prof. Dhruv Batra](#)

AUG 2012 - May 2016 B.S. in COMPUTER ENGINEERING  
**Virginia Tech**, Blacksburg  
GPA: 3.31/4.0 (In-Major: 3.44/4.0)  
Dean's List - Spring 2013, Fall 2014, Fall 2015, Spring 2016

## PUBLICATIONS

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### 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*

## RESEARCH EXPERIENCE

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| SUMMER 2017 | <b>Research Intern</b> at CREATIVE TECHNOLOGIES LAB,  <b>Adobe Research</b><br>Developed a framework that enables users to be able to perform fine-grained image edits in the form of open-ended natural language commands. This introduces a layer of processing the language into sequential executable commands, adding interpretability to the framework which allows users to supervise the edits possibly through an interface that are then be executed by state of the art deep models to achieve accurate intended results. |
| SUMMER 2016 | <b>Research Intern</b> at MACHINE LEARNING & PERCEPTION LAB, <br>Worked on interpretability of <a href="#">Visual Question Answering (VQA)</a> models. Mentored students on the <a href="#">CloudCV</a> project for Google Summer of Code 2016.   |
| SUMMER 2015 | <b>Research Intern</b> at MACHINE LEARNING & PERCEPTION LAB, <br>Worked on set-up and launch of <a href="#">Visual Question Answering (VQA)</a> website. Created interactive D3 visualizations for the VQA dataset. Also mentored students on the <a href="#">CloudCV</a> project for Google Summer of Code 2015.   |
| SUMMER 2014 | <b>Research Intern</b> at MACHINE LEARNING & PERCEPTION LAB, <br>Worked on creating and tuning models for object detection using the <a href="#">R-CNN</a> algorithm. Also participated in the <a href="#">ImageNet Large Scale Visual Recognition Challenge (ILSVRC)</a> .   |

## SKILLS

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Torch, TensorFlow, PyTorch, Caffe, Python, C++, MongoDB, HTML, D3.js, Linux

## SELECTED PROJECTS

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FALL 2016	<b>Exploring performance on CIFAR-10</b> Explored performance of common ML algorithms such as Nearest-Neighbor, Naive Bayes and SVMs using different feature sets such as HOG and CNN features.
FALL 2015, SPRING 2016	<b>Qualcomm Real-time Mosaicking with Snapdragon</b> Developed an application that stitches incoming video streams from an aerial survey drone into a mosaicked image in real-time. The application required configuring various hardware and software integrations and all processing was done on a Snapdragon DragonBoard 410c.
SPRING 2016	<b>Marco-Polo - Embedded Rover Project</b> 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. ( <a href="https://www.youtube.com/watch?v=d65eue3KGOw">https://www.youtube.com/watch?v=d65eue3KGOw</a> )
FALL 2015	<b>Exploring Nearest-Neighbor Approach on VQA</b> Analyzing performance of the nearest-neighbor algorithm along with a consensus approach on the Visual Question Answering (VQA) dataset. <a href="https://filebox.ece.vt.edu/~akrit/Exploring_NN">https://filebox.ece.vt.edu/~akrit/Exploring_NN</a>
FALL 2015	<b>Content-Aware Image Resizing</b> 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	<b>Image Stitching</b> Implemented an image sticher algorithm that computes a homography matrix and uses it to warp multiple overlapping similar images to create a single panoramic image.

## SELECTED COURSEWORK

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GRADUATE	<a href="#">Advanced Machine Learning</a> , <a href="#">Advanced Computer Vision</a> , Deep Learning, Bayesian Statistics, Convex Optimization, Data Analytics
UNDERGRADUATE	<a href="#">Computer Vision</a> , Artificial Intelligence, Embedded Systems, Network Applications, Digital Design, Applied Software Design, Data Structures & Algorithms

## TEACHING EXPERIENCE

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

## LEADERSHIP EXPERIENCE

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2016	<i>President, Indian Students' Association</i>
2014-2016	<i>Corporate Relations, IEEE, Virginia Tech Chapter</i>
2016	<i>Vice-President, Council of International Students Organizations</i>
2016	<i>Team Coordinator, Virginia Tech Cricket Club</i>