

# Ayush Chopra

Senior Member of Technical Staff  
Media and Data Science Research Lab, Adobe

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<http://ayushchopra.me>

## Education

**Delhi Technological University, Delhi, India**  
(Formerly Delhi College of Engineering)  
B.Tech in Computer Science and Engineering  
CGPA: 9.23/10.0

2014 - 2018

**Delhi Public School, Rohini, Delhi, India**  
All India Senior Secondary Certificate Examination  
Percentage: 96%

2014

## Publications

Siddharth Gairola, **Ayush Chopra**, Mayur Hemani, Balaji Krishnamurthy. "Improved Similarity Propagation for One-Shot Semantic Segmentation." ([preprint](#))

**Ayush Chopra**, Surgan Jandial, Mausoom Sarkar, Balaji Krishnamurthy, Vineet Balasubramanian. "Retrospection: Leveraging the Past for Efficient Training of Deep Neural Networks." *Under Review at International Conference on Learning Representations (ICLR) 2020.* ([openreview](#))

**Ayush Chopra\***, Kumar Ayush\*, Anirudh Singhal, Utkarsh Patel, Balaji Krishnamurthy. "Towards a Unified Framework for Visual Compatibility Prediction." *Accepted at IEEE Winter on Applications of Computer Vision (WACV) 2020.* ([pdf](#))

**Ayush Chopra\***, Surgan Jandial\*, Kumar Ayush\*, Mayur Hemani, Balaji Krishnamurthy. "SieveNet: A Unified Framework for Robust Image-Based Virtual Try-on." *Accepted at IEEE Winter on Applications of Computer Vision (WACV) 2020.* ([pdf](#))

**Ayush Chopra\***, Abhishek Sinha\*, Hires Gupta\*, Mausoom Sarkar, Balaji Krishnamurthy. "Powering Robust Fashion Retrieval With Information Rich Feature Embeddings." *Accepted at IEEE Computer Vision and Pattern Recognition Workshops (CVPR) 2019.* (Oral, **Best Paper Award**, [pdf](#), [media](#), [slides](#), [poster](#))

Kumar Ayush\*, Surgan Jandial\*, **Ayush Chopra\***, Balaji Krishnamurthy. "Robust Cloth Warping via Multi-Scale Patch Adversarial Loss for Virtual Try-On Framework." *Accepted at IEEE International Conference on Computer Vision Workshops (ICCV) 2019.* (Poster, [pdf](#))

Kumar Ayush\*, Surgan Jandial\*, **Ayush Chopra\***, Balaji Krishnamurthy. "Powering Virtual Try-On via Auxiliary Human Segmentation Learning." *Accepted at IEEE International Conference on Computer Vision Workshops (ICCV) 2019.* (Poster, [pdf](#))

Kushagra Mahajan\*, Tarasha Khurana\*, **Ayush Chopra\***, Isha Gupta, Chetan Arora. "Pose Aware Fine-Grained Visual Classification Using Pose Experts." *Accepted at 25th IEEE International Conference on Image Processing (ICIP) 2018.* (Poster, [pdf](#), [poster](#))

Shubham Dokania, **Ayush Chopra**, Feroz Ahmad, Anil Singh Parihar. "Hierarchy Influenced Differential Evolution: A Motor Operation Inspired Approach." *Accepted at 9th International Joint Conference on Computational Intelligence (IJCCI) 2017.* (Poster, [pdf](#))

## Patents

**Ayush Chopra**, Mausoom Sarkar, Surgan Jandial, Balaji Krishnamurthy. "Retrospection: An Online Mining Technique for Efficient Training of Deep Neural Networks." (In filing)

Kumar Ayush, **Ayush Chopra**, Surgan Jandial, Mayur Hemani, Balaji Krishnamurthy. "Accurately Generating Virtual Try-on Images Utilizing A Unified Neural Network Framework." *US 16/679,165.* (Filed)

Kumar Ayush, **Ayush Chopra**, Surgan Jandial, Mayur Hemani, Balaji Krishnamurthy. "Cloth Warping Using Multi-Scale Patch Adversarial Loss." *US 16/673,574.* (Filed)

Pinkesh Badjatiya, Nikaash Puri, **Ayush Chopra**, Anubha Kabra. "Entropy Based Synthetic Data Generation For Augmenting Classification System Training Data." *US 16/659,147.* (Filed)

**Ayush Chopra**, Nikaash Puri, Balaji Krishnamurthy. "Generating Combined Feature Embeddings For Minority

Class Upsampling In Training Machine Learning Models With Imbalanced Samples.” *US 16/564,531*. (Filed)

**Ayush Chopra**, Kumar Ayush, Abhishek Sinha, Hires Gupta, Mausoom Sarkar, Balaji Krishnamurthy. ”Improving Performance of Neural Networks Using Learned Specialized Transformation Functions.” *US 16/534,856*. (Filed)

**Ayush Chopra**, Jonas Dahl, Mausoom Sarkar, Abhishek Sinha, Hires Gupta, Balaji Krishnamurthy. ”Identifying Digital Attributes from Multiple Attribute Groups Within Target Digital Images Utilizing Deep Cognitive Attribution.” *US 16/564,831*. (Filed)

Jonas Dahl, Mausoom Sarkar, **Ayush Chopra**, Abhishek Sinha, Hires Gupta, Balaji Krishnamurthy. ”Methods for Exploring and Recommending Matching Products Across Categories.” *US 16/417,373*. (Filed)

## Work Experience

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### Media and Data Science Research Lab, Adobe Inc

*Senior Member of Technical Staff*

June 2019 - Present

*Member of Technical Staff*

August 2018 - May 2019

*Intern*

June 2017 - January 2018

- Fundamental and Applied Research in Machine Learning (Deep Learning, Generative Models) with focus on applications in Computer Vision and Large Scale Data Mining.
- Developed solutions for Adobe Exp. Manager, Adobe Target and Adobe Data Platform

### Mythical Labs Inc.

*Technical Advisor*

March 2017 - Present

- Building [RemoteHQ](#) to help distributed teams work better.
- Launched on Product Hunt where RemoteHQ was voted [#1 product of the day](#).

### MIT Media Labs

*Research Collaborator*

October 2018 - February 2019

- Worked with the Camera Culture group on data-driven non-line-of-sight (NLOS) imaging. 🔍

### Google Summer of Code

*Mentor*

April 2018 - August 2018

- Supervised computer vision and data science projects for [OpenFoodFacts](#) (OFF).
- Shipped text detection and document parsing services used by over **100,000** users on the OFF mobile-app. 🔍

### Coding Blocks

*Instructor*

October 2017 - July 2018

- Taught 12-week long boot-camps on introductory machine learning over the weekends.
- Interacted with over 400 students across eclectic backgrounds ranging from college freshman to big-4 consultants to cardiologists. 🔍

### Computer Vision Lab, IIIT-Delhi

*Research Assistant*

October 2016 - June 2017

- Proposed an ensemble network to leverage pose structure for classification on datasets characterized by high intra-class and low inter-class variance.
- Published the work at 25th IEEE ICIP 2018. 🔍

### Optimization Lab, DTU

*Research Assistant*

April 2016 - September 2016

- Proposed a hierarchical variant of differential evolution to optimize high dimensional, multi-modal and composite objective functions.
- Published the work at 9th IEEE IJCCI 2017. 🔍

### Soft Materials Division, National Physical Laboratory

*Research Intern*

July 2013 - March 2014

- Studied anti-static and biocidal properties of conducting polymeric substrates.
- Published the work at CEES 2014. 🔍

## Achievements and Awards

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### Best Paper Award - CVPR 2019 Workshop

Won the best paper award at [\(FFSS-USAD\)](#) held at CVPR 2019 [[Details](#)].

### #1 Product of the Day - Product Hunt

RemoteHQ voted the best product on launch day (24 October 2019). [[Details](#)]

#### **Early Promotion - Adobe**

Promoted to Senior Member of Technical Staff within 9 months of joining Adobe. (Usual time is 1.5 year)

#### **INSPIRE Scholarship - Govt of India.**

Awarded by the Ministry of Human Resource Development for being in top 1% students in the country in AISSEE 2014.

#### **All India Rank - 3442 JEE (Joint Entrance Examination) - Mains**

Secured an All-India-Rank of 3442 out of 14,00,000 candidates (99.86 percentile).

#### **Principal's Award - Delhi Public School**

Awarded gold medal upon graduation for being a scholar for 7 consecutive years.

### **Talks**

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**Powering Robust Fashion Retrieval With Information Rich Feature Embeddings** [[Slides](#)] July 2019  
Workshop on Fashion and Subjective Search (FFSS), CVPR, Long Beach, CA

**Panoptic Shopping: The Future of Visual Search** [[Slides](#)] February 2019  
Adobe Tech Summit, San Francisco, CA

**Computer Vision at Open Food Facts : Building the Nutrition Wikipedia** October 2018  
GSoC Mentor's Summit 2018, Sunnyvale, CA

**A Practitioner's Introduction to Machine Learning** [[Code](#), [Slides](#)] October 2017 - July 2018  
Coding Blocks, India

### **Positions of Responsibility**

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#### **Reviewer - WACV**

Peer-reviewer for both rounds of IEEE Winter on Applications of Computer Vision 2020.

#### **Mentor - Adobe MDSR Research Internship**

Supervised intern projects in spring 2019 and fall 2019. Corresponding publications are currently under review

#### **Mentor - GSoC** [[Details](#)]

Recruited students and supervised projects with OpenFoodFacts at GSoC 2018.

### **Technical Skills**

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**Languages:** Python, Java, Javascript, PHP

**Libraries:** Pytorch, Tensorflow, Caffe, NumPy, OpenCV, Flask, scikit-learn

**Others:** *LaTeX*