AYUSH CHOPRA

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EDUCATION

Delhi Technological University *Aug 2014 - May 2018*
Department of Computer Engineering GPA: 9.23/10

TECHNICAL SKILLS

Programming Languages	Python, Java
Libraries and Frameworks	OpenCV, Flask, Scikit-Learn, MySQL, Pandas, Latex
Deep Learning	Caffe, Tensorflow, Keras, Pytorch
Development	Spring, JavaScript, CSS, HTML5

EXPERIENCE

Adobe Systems Aug 2018 - Present
Member Technical Staff

· Working with **Media and Data Science Research Group** in Imaging Sciences.
· Building intelligent applications to tackle challenging problems in marketing and customer experience.

Google Summer of Code March 2018 - Aug 2018
Mentor

· Mentor with Open Food Facts for Computer Vision and Data Science projects. Details of the Organisation and Projects: [Open Food Facts](#)
· Project integrated to the OFF app with over 100k users

Adobe Systems June 2017 - March 2018
Research Intern

· Worked with the **Media and Data Science Research Group**. Offered **full-time position** starting Fall 2018.
· Computer Vision and Deep Learning for Image within Image search in the wild.
· Proposed novel siamese network based pipeline for generation of robust feature vectors. **Arxiv preprint** to be released soon.
· **US Patent** pending and service incorporated into Adobe Sensei. Demo at **Adobe Marketing Summit 2018**.

Coding Blocks October 2017 - April 2018
Instructor and Mentor

· Nagarro backed ed-tech startup.
· Taught the Data Science and Machine Learning course.
· Lay special emphasis to mathematical fundamentals as well as the tricks of data engineering apart from the state of the art work in Deep Learning and Machine Learning.
· Reference to code - [Click Here](#)

Mythical Labs May 2017 - Present
Technical Advisor

· Computer Vision and Deep Learning for video conferencing platform www.cyclops.io

- Designed module for real time hand gesture detection and tracking to aid gesture driven interactions during a video call.
- Designed module for scene parsing and analysis to provide relevant metadata about call participant and their environment to aid intelligent decisions.
- Built and curated inhouse hand gesture dataset of over 35k images from diverse scenes with gesture class and bounding box annotations.

CVML, IIIT-Delhi
August 2016 - May 2017
Research Intern

- Worked on Fine Grained Visual Classification
- Proposed approach based on applicability of shallow pose experts for solving FGVC tasks, particularly in the fashion domain. Paper accepted at **ICIP 2018**.
- Demonstrated significant improvement over state of the art methods on benchmark datasets.
- Contributed a pose aware footwear dataset, to be released with paper, of over 15k images with product class (10 classes) and pose(4 poses) annotations

National Physical Laboratory
May 2014 - December 2014
Research Intern

- Worked on Computational Chemistry and System Design with the Soft Material Division.
- Studied effects of electromagnetic interference and antistatic properties of conducting polymeric substrates for improving efficiency of computer internals.

ACADEMIC ACHIEVEMENTS

Ranked **3442 out of 1.5 million candidates** (99.78% percentile) in JEE Mains 2014.

Recipient of **Inspire Scholarship** by Ministry of Human Resource Development (HRD), Government of India for being in top 1% students in All India Senior Secondary Examination.

RELEVANT COURSES

Core Courses
Database Management Systems
Operating Systems
Object Oriented Programming
Computer Networks
Theory of Computation
Algorithm Design and Analysis

Other Courses
Artificial Intelligence
Information Theory
Data Mining
Discrete Mathematics
Neural Networks
Introduction to Cryptography

PUBLICATIONS

POSE AWARE FINE GRAINED VISUAL CLASSIFICATION FOR FASHION
Accepted
Athens, Greece

- A. Chopra*, K. Mahajan*, T. Khurana, C. Arora
- 25th IEEE International Conference on Image Processing (ICIP), 2018

HIERARCHY INFLUENCED DIFFERENTIAL EVOLUTION:A MOTOR OPERATION INSPIRED APPROACH
Accepted
Funchal, Portugal

- A. Chopra, S. Dokania, F. Ahmad, A. Parihar
- 9th International Joint Conference on Computational Intelligence, 2017

**UNSUPERVISED FEATURE DESCRIPTORS BASED FACIAL TRACKING OVER
DISTRIBUTED SUBSPACES**

Accepted *Kolkata, India*

· *S.Dokania*, A. Chopra*, F. Ahmad*, S. Indu*
· 7th International Conference on Pattern Recognition and Machine Intelligence, 2017

COURSE PROJECTS

TOPOLOGIZE

· Metric for sequence independent protein structural topology comparison based entirely on the representation in vector space.
· Parallelized the code to obtain subsecond performance.
· Competitive precision against current methods was obtained on RCSB and SCOP benchmarks.
· Code can be found at www.github.com/ayushchopra96/topologize.

RASP ME-HOME AUTOMATOR

· Developed a prototype to facilitate wireless mobile enabled control of appliances in domestic setting.
· Employed a multi-server architecture, where a global control server interacted with local servers hosted on a raspian system
· Code can be found at https://github.com/ayushchopra96/PiController

HIERARCHY INFLUENCED DIFFERENTIAL EVOLUTION

· Tweaked Differential Evolution by incorporating a hierarchical crossover operation.
· Tested exhaustively on the objective functions of CISS 2017.
· Obtained appreciable improvement against DE, PSO, PSO-DE. Later formalised the work as a publication.
· Arxiv print: https://arxiv.org/abs/1702.05308

MATHEMATICAL MOZART

· Worked on algorithmic music generation.
· Used a character level LSTM model to generate jazz music.
· Audio sample can be found at www.ayushchopra.me

CONTENT-BASED IMAGE RETRIEVAL

· Implemented **Deep Learning of Binary Hash Codes for Fast Image Retrieval** from CVRPW 2015 in Caffe.
· Trained on PASCAL VOC 2007 dataset. Obtained 72.8 mAP
· Indexed hashed vectors of latent layer and used them to simulate image retrieval.