

# Vandit Gajjar

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## Education

Bachelor of Engineering - Electronics and Communication Engineering 2014 – 2018

**L. D. College of Engineering**

C.G.P.A: 8.22/100

Undergraduate Research: Description Based Person Identification in Unconstrained Surveillance

Advisor: Dr. Prof. Mehul S. Raval and Dr. Prof. Arun Nandurbarkar

## Interests

Computer Vision, Deep Learning, Machine Intelligence

## Research Experience

**Research Assistant** July 2018 - Dec 2018

School of Engineering and Applied Science, Ahmedabad University

- Supervision under Dr. Prof. Mehul S. Raval, working on “Person Retrieval in Surveillance Video using Semantic Descriptions”

**Computer Vision Research Project Student** August 2017 – June 2018

School of Engineering and Applied Science, Ahmedabad University

- Research Project under Dr. Prof. Mehul S. Raval, worked on “Description Based Person Identification in Unconstrained Surveillance: Using Person’s Age, Gender, Facial Expression, Height, Cloth type and Color”

**Meditab AI Research** November 2017 – April 2018

Dosepack LLC, Meditab Software Inc.

- Internship with Meditab AI Research Team, worked on Medical Pill Detection and Segmentation

**Undergraduate Student Researcher** May 2017 - Present

Computer Vision Group – L. D. C. E.

- Undergraduate Research Projects: “Using Visual Saliency to Improve Human Detection and Tracking with CNNs”, “How to use Human Vision System to Improve Object Detection/Segmentation”

**Summer Research Intern** June 2017 – August 2017

Department of Electrical Engineering, Kansas State University

- Summer intern under Dr. Prof. Dwight Day and Dr. Prof. Kim Fowler, worked on “Hand Gesture Real Time Paint Tool-Box”

**Robotics Intern** November 2015 – September 2016

GTU Robocon Team, Gujarat Technological University

- Internship under Prof. Raj Hakani and with GTU Robocon Robotics Team, working on Line Follower using PID Controller and Image Processing

## Publications

[1] Ayesha Gurnani\*, Kenil Shah\*, **Vandit Gajjar\***, Viraj Mavani\*, Yash Khandhediya\*. *SAF- BAGE: Salient Approach for Facial Soft-Biometric Classification - Age, Gender, and Facial Expression*, in IEEE Winter Conference on Applications of Computer Vision (WACV), 2019. **(Oral Presentation)** and Invited talk at Workshop on Demographic Variations in Performance of Biometric Algorithms in conjunction with IEEE WACV 2019. **(Long Oral Presentation)**

\*Authors listed alphabetically and have contributed equally.

[2] Hiren Galiyawala, Kenil Shah, **Vandit Gajjar**, Mehul S. Raval. *Person Retrieval in Surveillance Video using Height, Color and Gender*, in Semantic Person Retrieval in Surveillance using Soft Biometrics Challenge in Conjunction with IEEE International Conference on Advanced Video and Signal-based Surveillance (AVSS), 2018. **(Oral Presentation) (Third in Semantic Person Retrieval Challenge)**

[3] **Vandit Gajjar\***, Yash Khandhediya\*, Ayesha Gurnani, Viraj Mavani, Mehul S. Raval. *ViS-Hud: Using Visual Saliency to Improve Human Detection with Convolutional Neural Networks*, in IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRw), 2018 **(Poster Presentation)**

\*Authors contributed equally.

[4] **Vandit Gajjar**. *2<sup>B</sup>3<sup>C</sup>: 2 Box 3 Crop of Facial Image for Gender Classification with Convolutional Networks*, in ArXiv Pre-Print, 2018

[5] **Vandit Gajjar**, Ayesha Gurnani, Yash Khandhediya. *Human Detection and Tracking for Video Surveillance: A Cognitive Science Approach*, in IEEE/CVF International Conference on Computer Vision Workshops (ICCVw), 2017 **(Poster Presentation)**

[6] Ayesha Gurnani, Viraj Mavani, **Vandit Gajjar**, Yash Khandhediya. *Flower Categorization using Deep Convolutional Neural Networks*, in ArXiv Pre-Print, 2017

[7] **Vandit Gajjar**, Viraj Mavani, Ayesha Gurnani. *Hand Gesture Real Time Paint Tool-Box*, in IEEE International Conference on Power, Control, Signal and Instrumentation Engineering (ICPCSI), 2017 **(Spotlight Presentation)**

[8] Yash Khandhediya, Karishma Sav, Vandit Gajjar. *Human Detection for Night Surveillance using Adaptive Background Subtracted Image*, in National Conference on Advances in Computer Science Engineering and Technology (NCACSET), 2017 **(Oral Presentation)**

(WACV, CVPRw and ICCVw are recognized as peer-reviewed conference and conference workshops; typically have acceptance-rate below 35 % and according to Google Scholar metrics WACV, CVPRw and ICCVw have h5-index of 38, 47 and 24 respectively.)

## Coursework

### Mathematics

Linear Algebra, Probability and Statistics, Ordinary/Partial Differential Equations

### Signal Processing

Signals and Systems, Digital Signal Processing, Digital Communication

### Computer Vision/Machine Learning

Image Processing, Deep Learning, and Machine Learning for Computer vision (Independent Coursework)

## Teaching Experience

### MAT502: Advanced Statistics

Teachings Assistant with Dr. Prof. Srikrishnan Divakaran

School of Engineering and Applied Science, Ahmedabad University Winter 2019

Topics: Introduction to Probability Theory, Random Variables, Joint Distributions,

Central Limit Theorem, Mathematical Statistics with Applications, Parameter Estimation, The Method of Maximum Likelihood, and Bayesian Inference

**CSC105: Introduction to Computation and Programming Lab**

Teaching Assistant with Dr. Prof. Keyur Joshi and Dr. Prof. N. Padmanabhan

School of Engineering and Applied Science, Ahmedabad University Winter 2019

Topics: Variables, Operators, Conditional Execution, Loops, Function usage, Objects, Lists, and Handling Exceptions

**CSC523: Machine Learning**

Teaching Assistant with Dr. Prof. Mehul S. Raval

School of Engineering and Applied Science, Ahmedabad University Winter 2019

Topics: Learning Algorithms, Outfitting and Under fitting, Bias and Variance, Maximum Likelihood Estimation, Supervised and Unsupervised Learning, Artificial Neural Networks, Back-propagation Stochastic Gradient Descent, Regularization, Optimization, and Introduction to Deep Learning and its Applications

**MAT202: Probability and Random Processes**

Teaching Assistant with Dr. Prof. Dhaval Patel

School of Engineering and Applied Science, Ahmedabad University Winter 2019

Topics: Probability Theory, Random Variables and Distributions, Operations on Random Variables, Random Process - Stationary Random Process, Ergodic Random Process, Markov Process, Continuous Time Markov Processes

**CSP 502: Computer Vision**

Teaching Assistant with Dr. Prof. Mehul S. Raval

School of Engineering and Applied Science, Ahmedabad University Fall 2018

Topics: Histogram Equalization, Human Visual System Model, Feature Extraction, Object Detection & Segmentation, Convolutional Neural Networks, Recurrent Neural Networks, Deep Learning in Computer Vision and it's Applications

**CSP 200: Signals and Systems**

Teaching Assistant with Dr. Prof. Mehul S. Raval

School of Engineering and Applied Science, Ahmedabad University Fall 2018

Topics: Continuous & Discrete-time, Exponential, Sinusoidal Signals, Linear Time-invariant Systems, Fourier Series, Fourier Transform, Laplace Transform, Z-transform

**CSC 331: Computer Networks Lab**

Teaching Assistant with Prof. Siddhi Shah

School of Engineering and Applied Science, Ahmedabad University Fall 2018

Topics: Network Topology, Network Nodes, Network Structures, Communication Protocols, PAN, LAN, HAN, SAN, CAN, MAN, WAN, and VPN, Routing, Network Surveillance, End-to-End Encryption

**Professional Activities**

Reviewer Service: ICCV 2019, CVPR 2018 Workshops

**Technical Skills**

*Languages:* Python, C

*Tools / Libraries:* Keras, TensorFlow, OpenCV, Git

*Platforms:* Windows, Linux

*Editing Tools:* Adobe Photoshop, Adobe Lightroom, Adobe After Effects, Adobe Premier Pro

## Honors & Awards

Travel Award, Mutual Benefits of Cognitive and Computer Vision Workshop, CVPR	2018
Travel Award, IEEE International Conference on Power, Control, Signal and Instrumentation Engineering (ICPCSI)	2017
Design and Technology Manager Award by GTU for excellent managerial performance for GTU Central Techfest	2017
Scholarship granted by Ministry of Electronics and Information Technology, Govt. of India for excellent academic performance (84.3%)	2013-14
Sheth C. N. Best Student Award for achieving high GPA score (91.4%) in my high school	2011-12

## Language Skills

**English**, International English Language Testing System  
**Hindi**, National Language  
**Gujarati**, Native

## Extra-Curricular Activities

<b>Central Coordinator</b> , GTU Central Techfest, Gujarat Technological University	2015 & 2017
<b>Executive Committee Member</b> , IETE Student Branch, L.D.C.E	2016-2017
<b>Photographer</b> , Vox Populi Magazine, L.D.C.E	2016-2018
<b>Designer and Student Volunteer</b> , IEEE Student Branch, L.D.C.E	2015-2017
<b>Student Coordinator</b> , XITIJ GTU Cultural Festival, Gujarat Technological University	2015 & 2016

## References

<b>Mehul S. Raval</b> ,	Associate Professor, School of Engineering and Applied Science, Ahmedabad University
<b>Arun Nandurbarkar</b>	Associate Professor, L. D. College of Engineering
<b>Raj Hakani</b>	Assistant Professor and GTU Robocon Team Head, CiC3, Gujarat Technological University