Sarthak Ahuja

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RESEARCH INTERESTS

Artificial Intelligence, Computer Vision, Machine Learning, Image Processing, Computer Graphics

EDUCATION

Indraprastha Institute of Information Technology, Delhi

Bachelor of Technology, Computer Science, *Expected:* Summer 2016   CGPA: 9.0

- Thesis Topic: *SLAM in Egocentric Videos*
- Advisors: Dr. Saket Anand and Dr. Chetan Arora

Apeejay School, Pitampura, New Delhi

Senior School, Science, CBSE, May 2012   93.2%

- *Courses: Physics, Chemistry, Mathematics, Computer Science and English*
- *A1 Grade in all courses*

High School CBSE, May 2010   95.0%

- *Courses: General Science, Social Studies, Mathematics, Hindi and English*
- *A1 Grade in all courses.*
- *Perfect GPA 10/10.*

TECHNICAL ELECTIVES

1. Theory of Computation	5. Data Mining	9. Machine Learning*
2. Image Analysis	6. Mobile Computing	10. Artificial Intelligence*
3. Software Engineering	7. Computer Vision	11. Computer Graphics*
4. Practice of Programming	8. Pattern Recognition	12. Linear Optimization*

*ongoing courses

WORK EXPERIENCE

Project Lead, Swarath - Autonomous Car Project   May 2015 to present
Supervisors: Dr. Saket Anand, Dr. Sanjit Kaul, Dr. Rahul Purandre   IIIT-Delhi
Member of IIIT-Delhis core team in the Driverless Car Challenge by Mahindra. Conducted workshop sessions on Git, ROS and OpenCV. Led a team of 2 and designed the test suite and perception module in ROS/C++.

Head, Product(Web), Meri Awaaz   September 2014 to present
Supervisor: Aditya Kumar Nayak   Mutiny Labs
Product Head at a one year old start up aimed at bridging the gap between politicians and citizens by developing the perfect complaint redressal system - meriawaazapp.com

Research Intern, Computer Vision and Machine Learning   December 2014 to January 2015
Supervisor: Dr. Saket Anand   IIIT-Delhi
Worked on image segmentation based on semi-supervised metric learning. Work involved performing literature survey on superpixel and graph based approaches for image segmentation and writing code for superpixel based graph cuts to perform the figure/ground segmentation.

SDE Intern, Lava International   June 2014 to August 2014
Supervisor: Mr. Mayank Kumar   Lava Intl., Noida
Co-op at the IT Department of Lava International working on designing and handling Tertiary Systems. Worked as a SAP ABAP Trainee in the Technical Team. Part of the team designing the call center system for XOLO services.

SDE Intern, MoMagic Technologies   June 2014 to August 2014
Supervisor: Mr. Pushkar Sharma   MoMagic., Noida
Worked as a Co-op Android Application Developer and trainee. Developed a commercial application HandsFree, a driver assistance application. Got exposed to application testing.

Department Lead, CIM, AIESEC   August 2013 to April 2014
Supervisor: Vineet Arora   Delhi University
Worked as Team Leader in the Communication and Information Management Department. Organized youth conferences and events. Developed and handled their websites, wikis, business intelligence reports and creatives.

Selected Projects	**SLAM in Egocentric Videos**	March 2015 onwards

SLAM in Egocentric Videos — March 2015 onwards
Advisors: Dr. Saket Anand and Dr. Chetan Arora — B.Tech. Project
Project aimed at finding a novel way to deal with the challenges of visual odometry computation in egocentric videos like frequent head movements and moving objects.

Distress Detection — August 2014 to July 2015
Advisor: Dr. Sanjit Kaul — Independent Project
An android application which uses audio data and machine learning algorithms to collect and analyze nearby data to detect distress activity in the surroundings.

Multi-Sensor Data Fusion for Human Activity Recognition — August 2015 to November 2015
Advisor: Dr. Richa Singh — Course Project (Team Size: 2)
Performing data fusion between two architectures for human activity detection namely wearable sensors and egocentric cameras in an attempt to improve the overall performance of the system.

Multi-Agent Path Planning for Warehouse Butlers — August 2015 to November 2015
Advisor: Dr. Sandeep Aine — Course Project (Team Size: 2)
Implementing the MAPP Algorithm by Ko-Hsin Cindy Wang and Adi Botea in a warehouse simulation to identify potential points of failure and factors affecting the quality of the solution.

Kinect Driven 2D Mesh Animation with OpenGL — August 2015 onwards)
Advisor: Dr. Ojaswa Sharma — Course Project (Individual)
Project on animating a 2D mesh character in QT and driving its actions through the skeleton obtained from kinect kinect. Currently working on automatic rigging to map skeletons automatically.

Image Colorization using Chrominance Blending — August 2014 to November 2014)
Advisor: Dr. Mayank Vatsa — Course Project (Team Size: 2)
Implementing and Analyzing the performance of Chrominance Blending Technique proposed by Liron Yatziv and Guillermo Sapiro in their paper on the same as compared to other conventional Algorithms.

Detection of Prolonged Narcotic Users using Face Images — January 2015 to May 2015)
Advisor: Dr. Richa Singh — Course Project (Team Size: 2)
The project involved the evaluation of prevalent pattern recognition techniques to perform binary classification on a in-the-wild dataset of Mugshot Images of drug addicts.

CoDrive: Crowd Sourced Memory Sharing — January 2015 to May 2015)
Advisor: Dr. Rahul Purandre — Course Project (Team Size: 4)
A crowd-sourcing based android application to allow temporary sharing of phone memory space among peers easily and securely. Introduction to Static Code Analysis and Design Patterns.

ReWise: In-Class Quizzing Application — August 2014 to November 2014
Advisor: Dr. Vinayak Naik — Course Project (Team Size: 5)
An android application to hold quick in-class quizzes. Intuitive UI, Ever Growing Question Bank, Statistical Analysis of Quizzes as well as Individual Performances and Gamification using Badges.

Extra-Curricular Activities

- Elected Member of the Student Council. — April 2015 onwards
- Disciplinary Action Committee Student Representative. — April 2015 onwards
- Member of the Core Organizing Committee Esya 14 — May 2014 to September 2014
- Member of the Placement Committee IIIT-Delhi — January 2015 onwards
- Organizing Team IIIT-Delhi Research Showcase 14 and 15 — February 2014 and February 2015
- Organizing Team IIIT-Delhi Freshers Induction 13 and 15 — August 2013 and August 2015
- Founder and Club Administrator Ink. (Design Club) — August 2014 onwards
- Founder and Club Administrator IIIT-Delhi Media Panel — January 2015 onwards
- Club Administrator Foobar (Programming Club) — January 2015 onwards
- Club Administrator MadToes (Dance Club) — September 2013 to April 2014

Selected Awards

- Won First Prize in the Project Showcase Event at IIIT-Delhi Research Showcase 2015 for Distress Detection. The presentation poster is available here.
- Secured a position in the top 10 of Androidathon held on 20th July 2014 at 91springboard for developing and pitching "Sticky Agent", a group messaging service for customer complaint redressal. The presentation pitch is available here.
- 3rd position in Intra-IIIT-Delhi programming contests ProSort[19] and ProSort[22].
- Merit Certificate in the National Mathematics Olympiad (2009) from DAMT.
- Inspire Internship Program (2010) - Department of Science and Technology, Govt. of India.
- Distinction in the Educational Assessment conducted by University of New South Wales, Australia (2008) top 2% of Participants in Delhi in Mathematics.

TEACHING EXPERIENCE	**Online Course Instructor**	Summer 2013

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TEACHING
EXPERIENCE

Online Course Instructor   Summer 2013
CSE131 - System Management, IIIT-Delhi
Instructor: Dr. Amarjeet Singh
Designed content for locally hosted edX course used by a batch of approx. 170 freshmen.

Teaching Assistant   Monsoon 2014
CSE101 - Introduction to Programming, IIIT-Delhi
Instructor: Dr. H. B. Acharya
Core programming course offered to a batch of approx. 170 freshmen.

Teaching Assistant   Winter 2014-15
CSE102 - Data Structures and Algorithms, IIIT-Delhi
Instructor: Dr. Sandeep Aine
Core programming course offered to a batch of approx. 170 freshmen.

Workshop Assistant   Summer 2015
Swarath - Autonomous Car Project, IIIT-Delhi
Instructor: Dr. Saket Anand and Dr. Sanjit Kaul
Gave sessions on Git and programming in ROS/C++ to a batch of 40 interns.

Teaching Assistant   Monsoon 2015
CSE201 - Advanced Programming, IIIT-Delhi
Core programming course offered to a batch of approx. 120 freshmen.

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SKILLS

Programming Languages
- Matlab, C, C(Basics), C++, Python, Java SE, Android Java, HTML, CSS, PHP, ABAP for SAP, Ruby, Javascript, R(Basics), SQL

Tools and Technologies
- Visual Studio, Ruby on Rails, Django, PHP, Android SDK, Eclipse, Jekyll, ROS, NetBeans, Latex, photoshop, illustrator, InDesign, git, SVN, QT

HOBBIES

Graphic Designing
I am a freelance graphic and web designer having completed quite a few projects over the past three years. A glimpse of my work can be seen at behance.net/sarthakahuja. My interest and passion towards designing also led me to starting a design club in my institute Ink. in 2014.

3D-Modelling
During my first year, as part of a self-learning project I got introduced to 3D-modelling in Maya. Out of interest I took a design internship under Dr. Saket Anand in my second year which involved making a 3D-model of my Institute in Google Sketch-Up. This project is now being taken forward as "The Virtual Campus" project by a team on campus. One of my designs can be seen here.

REFERENCES

Dr. Saket Anand
Assistant Professor, IIIT-Delhi   Phone: 011-26907425
Computer Vision   E-mail: anands@iiitd.ac.in

Dr. Sanjit Kaul
Assistant Professor, IIIT-Delhi   Phone: 011-26907457
Wireless Networks   E-mail: skkaul@iiitd.ac.in

Dr. Chetan Arora
Assistant Professor, IIIT-Delhi   Phone: 011-26907475
Computer Vision   E-mail: chetan@iiitd.ac.in

*For more details on projects(source code, relevant links) and other activities please visit sarthakahuja.org