Sarthak Ahuja

Contact Information

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Research Interests

Artificial Intelligence, Computer Vision, Machine Learning, Data Science, Affective Computing

Education

Indraprastha Institute of Information Technology, Delhi

Bachelor of Technology (Honors), Computer Science, August 2016 — CGPA: 9.1

- Recipient of the All Round Performance Medal

Apeejay School, Pitampura, New Delhi

Senior School, Science, CBSE, May 2012 — 93.2%

High School CBSE, May 2010 — 95.0%

Research Experience

Software Engineer (Research), IBM Research — July 2016 to present
Manager: Dr. Gyana Parija — IBM India Research Lab
Member of the Collaborative Cognition group (earlier known as Analytics and Optimization) working under the Smarter Workforce Agenda in the IBM Watson Recruitment(IWR) team.

Research Associate, PreCog - Social Media Analytics Group — May 2016 to July 2016
Supervisor: Dr. Ponnurangam Kumaraguru — IIIT-Delhi
Worked on identifying visualizing summarization of events on social media in the form of image patches. Also, worked on adding multi-network support on Project-O, a production level social media analytics platform.

Research Intern, Computer Vision and Machine Learning — December 2014 to May 2016
Supervisor: Dr. Saket Anand, Dr. Chetan Arora — IIIT-Delhi
Worked on graph based image segmentation based on semi-supervised metric learning; Explored applications of Modern SLAM Systems and implemented algorithms to make them work in different scenarios such as on wearable cameras and vehicle dashboard cameras.

Development Experience

Project Lead, Swarath - Autonomous Car Project — May 2015 to May 2016
Supervisors: Dr. Saket Anand, Dr. Sanjit Kaul — IIIT-Delhi
Member of IIIT-Delhi's core team in the Driverless Car Challenge by Mahindra. Led the software development team to develop the perception module and test suite. Integrated LIDAR based SLAM on the car.

Head, Product(Web), Meri Awaaz — September 2014 to August 2016
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

SDE Intern, Lava International — June 2014 to August 2014
Supervisor: 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.

Workshops

International Institute of Information Technology, Hyderabad — July 2016
Summer School, Deep Learning in Computer Vision
Attended a week-long workshop on applications on deep learning in the field of computer vision organized by the IIIT-Hyderabad's CVIT group.

Volunteer Experience

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

Cogniculture - Exploratory Research Jan 2017 onwards
Supervisor: Dr. Gyana Parija
We are defining Cogniculture as the art, science, technology and business involved in the cultivation and breeding of cognitive agents living in a complex adaptive ecosystem and collaborating on human computation for producing essential ingredients necessary for enhancing [humanity-centric] social goods while promoting sustenance, survival, and evolution (growth) of the agents lifecycle.

IBM Watson Recruitment July 2016 onwards
Supervisor: Dr. Sudhanshu Shekhar Singh
IBM Watson Recruitment is a cognitive talent management solution that increases recruiter efficiency to allow HR to improve and accelerate peoples impact on the business. The IBM Research team works on the machine learning and algorithmic component of the system for matching requisitions to candidates.

Dynamic Skill Taxonomy Generation July 2016 onwards
Supervisor: Rakesh Pimplikar
A deep learning based system to generate hierarchical taxonomies from a given skill data set. The system is based on a novel LSTM architecture and wordnet based encoding of skills.

#VisualHashtags May 2016 to May 2017
Advisors: Dr. Ponnurangam Kumaraguru
A novel system and method for visual summarization of social media events in the form of images patches. The algorithm incorporates a multi-stage filtering process and social popularity based ranking to discover these visual elements.

Applications of Modern SLAM Systems March 2015 to May 2016
Advisors: Dr. Saket Anand and Dr. Chetan Arora B.Tech. Project
Project aimed at applying SLAM systems to egocentric videos to track head motion of the subject. Also building a driver assistance system by using SLAM as a local GPS system.

Distress Detection August 2014 to July 2015
Advisor: Dr. Sanjit Kaul Independent Project
An wireless system 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.

Publications

- Joydeep Mondal, Sudhanshu Shekhar Singh, **Sarthak Ahuja**, Kushal Mukherjee; Application of semantic similarity using POS tagging for Job Similarity Computation, *submitted to SIAM SDM 2018*
- Rakesh Pimplikar, Kushal Mukherjee, Gyana Parija, Ramasuri Narayanam, Harit Vishwakarma , Rohith Vallam, Ritwik Chaudhur, **Sarthak Ahuja**; Cogniculture: Towards a better Human-Machine Co-evolution, *submitted to AAAI 2018*
- **Sarthak Ahuja**, Joydeep Mondal, Sudhanshu Shekhar Singh, David Glenn George; Similarity computation exploiting the semantic and syntactic inherent structure among job titles, *accepted at ICSOC 2017*
- Sonal Goel, **Sarthak Ahuja**, A V Subramanyam, Ponnurangam Kumaraguru; #VisualHashtags: Visual Summarization of Social Media Events Using Mid-Level Visual Elements, *accepted at ACM MM 2017*
- Sudhanshu Shekhar Singh, Ritwik Chaudhuri, Manu Kuchhal, **Sarthak Ahuja**, Gyana Parija; Multi level clustering technique leveraging expert insight, *presented at JSM 2017*

Patents

- SIdeal: System and Method for Attribute Weight Induction in a Multiple Recruiter Setting Exploiting Public Goods Games Framework, *awaiting file*; Inventors: Sudhanshu Singh, Gyana Ranjan Parija, Ritwik Chaudhuri, Manu Kuchhal, Manish Kataria, **Sarthak Ahuja**
- System and Method To produce Generalized Representation of Job Description Documents and Calculate Similarity using the Representation in Recruitment Domain, *awaiting file*; Inventors: Sudhanshu Shekhar Singh, Joydeep Mondal, **Sarthak Ahuja**, David Glenn George, John Medicke, Amanda Klabzuba
- Cogniculture based Eco-System for Multi-Viewer Smart TVs, *under submission*; Inventors: **Sarthak Ahuja**, Kushal Mukherjee, Joydeep Mondal, Sudhanshu Shekhar Singh
- App-lause: VR based Audience Simulation for Immersive Rehearsals, *under submission*; Inventors: **Sarthak Ahuja**, Kushal Mukherjee, Joydeep Mondal, Sudhanshu Shekhar Singh

External Certificates

- Fundamentals of Graphic Design, California Institute of Technology — **Coursera**
- Machine Learning, Stanford University — **Coursera**
- Psychology, University of Toronto — **Coursera**
- Game Theory, Stanford University — **Coursera**
- Big Data Analysis with Scala and Spark — **Coursera**
- Deep Reinforcement Learning — **Udemy**
- Mobile Web Application Development — **ACM**

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, Storm, MongoDB, MySQL, SQLite3, Cloudant, Spark, DashDB

Selected Honors and Awards

- Awarded the All Round Performance medal for the overall performance in curricular and extra-curricular activities in the B.Tech. (CSE) program.
- Awarded the Honors degree in the B.Tech programme for an exceptional academic record. 11 students out of a batch of 180 students were given this honor.
- Best Delegation award at IIIT-Delhi's first Model United Nations.
- First Prize in the Technical Paper Presentation event at Cogenesis 2016, Delhi Technological University for "Multi-Sensor Data Fusion for Human Activity Recognition".
- First Prize in the Project Showcase Event at IIIT-Delhi Research Showcase 2015 for "Distress Detection".
- Merit Certificate in the National Mathematics Olympiad (2009) from DAMT.
- Selected for Inspire Internship Program (2010) - Department of Science and Technology, Govt. of India based on outstanding high school academic record.

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 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
Instructor: Dr. Chetan Arora
Core programming course offered to a batch of approx. 120 sophomores.

Teaching Assistant Winter 2016
CSE344/544 - Computer Vision, IIIT-Delhi
Instructor: Dr. Saket Anand

Elective course offered to a mixed batch of approx. 40 students (both graduate and undergraduate).

Hobbies

Designing

I developed an interest towards designing during my undergrad and went on to start a design club at my institute Ink. in 2014. Some of my work from then can be seen on my behance page - behance.net/thecoldviews. I continue to maintain a design blog as a hobby - tcv.sarthakahuja.org.

Development

I actively seek participation in hackathons, single-day coding events and month-long challenges as a designer/developer. A few hackathons I have qualified for in the past are Androidathon(2015), Code-For-India(2016), InOut 3.0(2016), InOut 4.0(2017). I also enjoy taking jabs at data challenges at various conferences and problems on kaggle.

References

available upon request