

SAMRIDDDHI JAIN

+91-9816923561 \diamond j.samriddhi13@gmail.com

<https://github.com/SamriddhiJain> \diamond <https://samriddhijain.github.io/>

<https://in.linkedin.com/pub/samriddhi-jain/b1/170/4b9>

EDUCATION

Indian Institute of Technology Mandi *August 2013-2017*
B.Tech. (Honors) in Computer Science and Engineering CGPA: 9.34/10
(Batch Topper and President's Gold Medal Recipient)

D. N. Model Sr. Sec. School, Moga *2013*
XII Standard, Central Board of Secondary Education Percentage: 93.4

D. N. Model Sr. Sec. School, Moga *2011*
X Standard, Central Board of Secondary Education CGPA: 10/10

EXPERIENCE

Microsoft India Development Center (Software Developer Engineer) August 2017 - present

As a part of Microsoft Azure Infrastructure working on Azure Backup and Disaster Recovery Service.

Outreachy-FOSS Round 14 (Internship) May - July 2017

Worked with **OpenStack** on their authentication and authorization module Keystone, identifying and rectifying the inconsistencies between their APIs and documentation. One of the 39 participants selected all over the world.

Microsoft India Development Center (Internship) June - July 2016

Software Developer Internship with Business Continuity and Disaster Recovery (BCDR) team of Azure.

PUBLICATIONS

- Shikha Gupta, **Samriddhi Jain**, A D Dileep, Veena T; **Semantic Multinomial Representation for Scene Images Using Dynamic Kernel based SVMs.** *Accepted at SUNw at CVPR'16*
- Samriddhi Jain**, Renu M R, Aditya Nigam; **Object Triggered Egocentric Video Summarization.** *Accepted at CAIP'17*

RESEARCH WORK

Object triggered egocentric video summarization (Major Technical Project)
Presented at WiCVw at CVPR'17

Guide: Dr. Renu M. Rameshan (IIT Mandi), Dr. Aditya Nigam (IIT Mandi) *June 2016-May 2017*

Given a picture of fine object, summarizing all the frames in which it is present, in near real time. Currently supporting both semantic and exact object matching. Built a multi-stage pipeline to extract the frames in a computationally efficient way.

Anomalous Activity Localisation in prison videos (Major Technical Project)

Guide: Dr. Renu M. Rameshan (IIT Mandi), Dr. Aditya Nigam (IIT Mandi) *March - June 2017*

Automatic Detection and localisation of the fight instances occurring in prison videos. Using deep learning techniques like 3DConvNets and LSTMs to flag the instances as fight scenes.

Visual and Textual automatic story board creation for a video

Guide: Dr. Renu M. Rameshan (IIT Mandi), Dr. Aditya Nigam (IIT Mandi) *Nov 2016-Feb 2017*

Automatically selecting important events, creating a story-board representation and a short textual summary of the video in rich natural language. Explored graph based matching techniques for content determination and LSTMs for text generation.

Brain Fiber tractography segmentation using deep learning

Guide: Dr. Aditya Nigam (IIT Mandi)

May - June 2017

Performing two levels of brain fiber classification using 3D ConvNets, Bi-directional LSTMs and their ensembles. At macro level, learning the structure of fiber and identifying whether the fiber belongs to gray matter or white matter. At micro level, performing fine grained classification of the white matter fibers into 8 sub classes.

PROJECTS

Natural Language Processing for News-Tweets integration

January 2016

- Integrating Social Channels with Traditional News Media for holistic news browsing.
- Given a news headline extract the key entities, discover tweets which talk about these entities and perform a temporal analysis to integrate news and tweets. Attach real time tweets with different sections of news by matching the context.
- Analysing social behaviour using forced directed graphs, zipfian distribution and sentiment analysis.

Collaborative Real-Time Text Editor

October-November 2015

- Text editing tool collaborative over multiple systems built on server client model using Express Node.js.
- Involved techniques and libraries like Operational Transformation, diff-match-patch library for data synchronisation.

Implementation of Resolution Refutation strategies in first order logic

December 2016

- Involves extension of FOL to clause form and using the unification algorithm to implement and experiment various resolution refutation strategies in terms of their soundness and time complexity.
- Will be combined with different domain representations and other modules to create a domain specific bot.

Implementation and visualisation of Generalised Lookahead search algorithms for solving constraint satisfaction problems

May 2017

- Implemented Forward Checking, Partial Lookahead, Full Lookahead and Full AC algorithms over the basic backtracking algorithm in python. Did a comparative study of the time and space complexities of these algorithms.
- Implemented step by step visualisation of the pruning using different color codings to highlight progress in the search.

Analytical and Qualitative assessment of SciDb data store

April-May 2016

- Understanding the use of SciDb in multidimensional data storage and analytics in the scientific community
- Studied the key difference between SciDB and RDBMS, and also evaluated the performance of clustering algorithms on MapReduce and SciDB.

Digits Recognising GUI using supervised learning

Summer 2015

- Detected digits written on a canvas, uses CART, Random Forests and neural networks for recognition.
- Implemented using opencv 2.0, tkinter, tensorflow and sklearn library in Python.

Case Study: Apache Spark Cluster Computing Framework

May-June 2016

- Understanding the key characteristics of Apache Spark framework and Resilient Distributed Datasets, their applications in industry and features like fault tolerance, scalability that make them superior to their traditional counterparts. Implemented movie recommendation system using Spark MLlib Library.

3D reconstruction and depth estimation from multiple images

March 2016

- Studied stereo calibration and image rectification with the help of Bouguet's Toolbox.
- Used these techniques to estimate relative depth of objects, created a depth map and generated a 3D point cloud.

ColorIt Android Application

March 2015

Aptitude'15 organised by Google Developers Group, Jalandhar

- Colorblind Assist Application which allows users to capture an image and process it in such a way that the features are then easily differentiable by a colorblind person.

Other projects like **AI bot for games "Battle of Kings"**, **Othello**, IIT Mandi Room Reservation System, Mean-shift tracking in videos, High Altitude Ballooning Probe, Sudo-ku Solver.

TECHNICAL STRENGTHS

C, C++, Java, C#, Python, PHP, JavaScript, Scheme(Lisp), MySQL, JQuery, CSS, Android, Linux environment, Java EE-Eclipse, Android Studio, MATLAB, Data Parallelism using MPI, TensorFlow, Keras, UI Designing and Adobe Photoshop

COURSE WORK

Mathematical Foundation for Computer Science, Artificial Intelligence, Pattern Recognition and Machine Learning, AI: Knowledge Representation and Reasoning, Operations Research, Computer Vision, AI: Constraint Satisfaction Problems, Deep Learning and applications, Special Topics of Machine learning in Computer Vision, Paradigms of Programming, System Practicum, Formal Language and Automata Theory, Data Mining for Decision Making, Communicating and Distributed Systems, Large Applications Practicum, Information and Database Systems, Design of Concurrent Systems, Special Topics in Data Visualisations, Advanced Data Structures and Algorithms, Probability and Random Processes, Linear Algebra

AWARDS AND ACHIEVEMENTS

President's Gold Medal for overall academic excellence in graduating batch of IIT Mandi 2017.

Institute Silver Medal for holding the first position in batch CSE 2017, IIT Mandi.

Full scholarship to attend Women in Computer Vision workshop at CVPR'17.

Runner-Up at **Inter IIT Tech Meet'16** in event **Social Media Analysis**

Consistently branch topper in all the semesters, awarded **Academic Excellence Award, IIT Mandi thrice**, for the sessions 2013-14, 2014-15 and 2015-16

2nd prize in Aptitude'15, mobile app development contest organised by GDG, Jalandhar

Student Scholarship'15 for Grace Hopper Conference for Women, India

CONFERENCES ATTENDED

Computer Vision and Pattern Recognition 2017, Hawaii.

OpenStack Summit 2017, Sydney

Grace Hopper Conference for Women 2015, India

POSITION OF RESPONSIBILITY

Active member of **Women in Science and Engineering (WISE) group**, IIT Mandi

Co-ordinator **Mobile Application Development Group**, IIT Mandi

Co-ordinator **Hackers Hangout**, IIT Mandi

Member, Anti-ragging Committee, IIT Mandi

Design Co-ordinator Rann-neeti'14 (Sports Fest IIT Mandi)

EXTRA CO-CURRICULAR ACTIVITIES

Hiking and Trekking

Active Member of Choreo and Dramatics Society

Represented IIT Mandi at Inter IIT Sports Meet in Volleyball in the year 2013 and 2014

Active Member of Program Management Group and organised many events successfully in college.