

Summary:

A Data Scientist at Perpule, with a keen interest in the field of **Artificial Intelligence and Robotics**, and specific interests in **Human-computer Interaction from a robotics perspective** and **Emotional Computing**, hoping to acquire skills in the fields of **Machine Learning, Cognitive Science** and related topics to work on an artificial consciousness in the future.

Education:

2015-present	Christ (Deemed to be University) - B.Tech in Computer Science and Engineering	8.73 (CGPA out of 10)
2015	12 th (Senior Secondary Examination) ISC (Indian School Certificate)	82.75%
2013	10 th ICSE (Indian Certificate of Secondary Education)	80%

Technical Skills:

Programming languages	Years of Use
Java	From 10 th -present
C	From 1 st year – present
Python	From 2 nd year – present
Linux command line and shell scripting	From 2 nd year – present

Github Repository:

<https://github.com/Deetanshu>

Experience:

Data Scientist, Perpule (Delvit Solutions): (September '19 – present)

Worked as a Data Scientist at Perpule, on Point-of-Sales data where my responsibilities included the design and implementation of data pipelines, management of existing data, visualization and deriving of insights from the data. In addition to this, I was exposed to various facets of product design and development – from both a technical and managerial perspective. I've also automated many reporting processes, from the data loading/transformation to the visualization. The technologies used are the Google Cloud Platform stack, Python (Scikit & Tensorflow), SQL, Google Analytics, Metabase.

Internships:

Machine Learning Intern, Suprath Technologies: (4 months: Dec '18 – Mar '19)

I completed my project – “**A Percept-Affect Model of Empathy in Conversational Artificial Intelligence**”, partially in completion of my Bachelor of Technology degree, at Suprath Technologies. This project entailed knowledge of Natural Language Techniques, Machine Learning and Deep Learning models and modelling language as a probabilistic problem. This internship was primarily research driven rather than application driven, consisting of an extensive literature survey of 39 papers and forays into the concept of AI-driven Natural Language Generation. At the company, this project was worked on as a solo special project which was later integrated into the existing system.

Full stack development, DAnovus Solutions: (1 month: Apr '17 – May '17)

Worked on Server-side components of the Enterprise Resource Product – Connectpedia; wrote Project Object Model files for individual project modules and created & configured a subversion server for the organization. Also worked on framework of the project in order to discern the various dependencies for individual modules.

Thesis:

A Percept Affect Model of Empathy in Conversational AI:

My Bachelors thesis which involved the design and creation

Major Academic projects: (The source-code has been hyperlinked in sub-heading)

Reinforced shallow learning using Augmented Random Search:

Solved OpenAI's locomotion tasks using the method suggested by UC Berkeley's Horia Mania and Aurelia guy. It trained the Cheetah model using OpenAI Gym, PyBullet Physics library and python in just 12 hours on a laptop GPU.

Real Time Object Detection using Artificial Neural Networks Systems Project:

The implementation of various Deep Neural Networks with performance analysis, application of MobileNets and more accurate DNNs in Real Time Object detection using Tensorflow on the GPU was done, showing a minimal drop of frames per second. The datasets used were CIFAR-10, MS-COCO. Tools used were Python, Tensorflow, MS-COCO tools, etc.

Partially self-driving model (SAE Level 2 [only assistive]):

A model that detects and extracts street lights, counts vehicles through cameras as well as estimates distance to objects and detects lanes in real time. Requires Tensorflow and OpenCV, designed to function on a Drive PX2 board with Linux. Code completely written in Python 3.6. Created as an experiment to see if a golf cart could be made autonomous. This is still a work in progress.

Recurrent Neural Networks for NLP-related applications:

Various experiments with RNNs and Long Short-Term Memory Neural Networks done to see the performance of RNNs in capturing the style of an author's writing. JK Rowling's Harry Potter series was used as a training set for the network. The project was implemented in Python, using Keras and Tensorflow.

Self-Driving RC Car using Computer Vision, Neural Networks & Internet of Things Engineer's day 2017 project:

A raspberry pi with camera module was used to transmit images to laptop running Tensorflow Neural Network on Linux using the GPU; once trained it sent commands back to an Arduino wired into the motor system. I was responsible for the design and implementation of the Neural network utilizing the Tensorflow backend. We created a convolutional neural network for object detection as well, which was not utilized in the final product. Concepts used were Python, Tensorflow, OpenCV, TCP byte streaming.

Minor Projects:

Implementation of a basic Neural Network

Constructed a simple & densely connected neural network from scratch without the use of any framework. The Network was built in python, & was implemented on the basis of concept, without using external code.

Basic App integrating messaging and location, weather app

Built for a Hackathon, android studio was used to build an app that uses Google's maps API to place messages on the map, from user to user. The weather app was built separately as a way to understand the ionic framework, and it involved fetching data from a weather API and displaying it.

Self-Driving RC Car utilizing Ultrasonic sensors and an Arduino board

In first year of engineering, an RC car was fitted with two ultrasonic sensors at a 90 degree angle that discerned the size of the obstacle and hence moved in the optimal direction. The entire RC car was automated.

App controlled Bluetooth bot using an Arduino:

As part of the Internet of Things course project in the 3rd semester, we (a team of 2) built a cylinder shaped bot that accepted commands sent from the Blynk app on a phone running bluetooth 4.0 (BLE).

Analysis of Time complexities of Heap Sort vs Merge Sort

Made for the Data structures course, the time complexities when practically implemented were compared between heap sort and merge sort, with the same array of over a million elements sorted by both the algorithms. The data was mapped and graphically displayed.

Software Implementation of the Definite Finite Automaton Concept

The DFA concept was implemented in Java during the 5th semester using objects to create individual states and then interlinking these objects to have transitions properly implemented.

Minor Non-Academic projects:

- 1. Single player Tic-Tac-Toe:** Created in 'C' language (in about 120 lines) a simple tic-tac-toe program that **plays against the user** where the computer utilized the win-detection algorithm to choose its move.
- 2. Sudoku Generator:** Created in Java to understand the concept of objects in depth, utilizing multiple methods across classes to create a Sudoku board and then hide certain cells on the basis of difficulty.
- 3. Maze game with enemies:** Created the maze game in school in Java, with the barebones of a GUI (utilizing symbols): a maze, increasing in size for each level using backtracking to create viable and interesting paths with "rooms". Enemies with a pathfinding algorithm running existed that would "hunt" the user.

Technical Activities:

Code crunch – Coding contest: Won 1st prize out of a total of 400 participants in the intra-college competition. (2017)

Code Crunch – Magnovite edition: Won 1st prize for the inter-college edition of the competition in 2018.

Conducted an Internet of Things Workshop: As a part of department activities, took charge and conducted an internet of things workshop on Arduino, for students of all 4 years of Engineering. A total of 82 participated.

IEEE Conference: Sat through the proceedings of an IEEE conference held at Christ University – in the Data Science track.

Robotics Process Automation (RPA) Certification by Automation Anywhere: In a certification course conducted over the course of several weeks, obtained RPA bot developer certification from Automation Anywhere.

Workshops Attended:

Design Thinking Workshop: Participated in a Design Thinking workshop organized by the Computer Society of India – Student Chapter. Was awarded a Certificate of Appreciation for most enthusiastic participation as well.

IEEE workshop: Attended a two days' workshop on Image Processing and Imaging Techniques organized by the IEEE and the Institution of Electronics and Telecommunication Engineers.

Azure workshop conducted by Microsoft: Attended a workshop on Microsoft's Azure platform conducted at Christ University.

IEEE Scrum workshop: Attended a workshop on Scrum methodology of Software Development conducted under the activities of IEEE Christ University Student Branch.

IBM Data Analytics workshop: Attended a workshop conducted by IBM on Data Analytics, organized by the Centre for Digital Innovation at Christ University.

Non-technical activities:

Model United Nations (MUN)

Attended 7 conferences, all in the Bangalore Circuit. It vastly improved communicational skills at a professional level, as all participants are expected to follow the actual UN protocol. Participated in committees (twice each): Crisis committee, Human Rights Council, UN High Commissioner for Refugees, Economic & Social Council.

Right-click startup pitch battle by 1crowd

Stood second out of 28 teams, presenting a startup concept called "Express". It was an extension of the hackathon idea, with a full-fledged pitch deck. It was a very good exposure to understand investor's mindset.

President of IEEE for CSE department at Christ University

Was the president of IEEE for the Computer Science and Engineering department for a year.