Satyajit Ghana

Software Engineer, Deep Learning Enthusiast

+91 7892137665 | satyajitghana7@gmail.com | satyajitghana | satyajitghana

"If it doesn't challenge you, it won't change you."

Education

RUAS (Ramaiah University of Applied Sciences) — *Bangalore*

B.Tech. in Computer Science and Engineering — *Aug. 2017 - PRESENT*

- Persuing B.Tech at MSRUAS in CSE
- Completed Second Year of Engineering with 91.00%

Kendriya Vidyalaya, Hebbal — *Bangalore*

XII (Senior Secondary) — *2017*

- PCM - with CS
- Studied C++ (OOP) with Basic Data Structures & Oracle SQL as the DataBase Language
- Percentage : 89.80%

Skills

Programming	C (Advanced), C++ (Advanced), Python, R, MATLAB, Node.js, Dart, Haskell, LaTeX, Java
DevOps	Docker, Kubernetes, Github
ML	PyTorch, Tensorflow, TFLite, Scikit-Learn, MLFlow
Mobile	Android, Flutter
Front-end	HTML5, Angular, SASS
Back-end	Express, REST API, gRPC
Tools	Linux (Manjaro + i3 + polybar + zsh), VIM, VSCode, git

Publications

Adaptive Visual Learning using Augmented Reality and Machine Learning Techniques — *ICRITCSA ISSN:1546-1955 (Print) EISSN: 1546-1963A*

Authors: Satyajit Ghana, Shikhar Singh, Aryan Jalali, Vivek Badani, Sahana P Shankar — *Oct 2019*

Our educational model aims to diminish this intellectual barrier by incorporating Augmented Reality (AR) and Machine Learning (ML) techniques together and create an Adaptive Visual Learning experience for students.

Courses

Extensive Vision AI 4.0 — *TSAI - The School of AI*

using Python and PyTorch — *Jan 2020 - Ongoing*

Deep Learning Vision and Deep Neural Networks using PyTorch, this is probably the best choice i made for doing a course, when they said its going to be difficult 30 weeks of the year it was, PS: i want this internship :P

Medical Image Analysis — *NPTEL*

using Lua and PyTorch — *Feb 2020 - Ongoing*

A course on NPTEL, wanted to do this because it'll be helpful in creating DNNs for medical tools

`https://github.com/satyajitghana/Medical-Image-Analysis`

PadhAI — *One-Fourth Labs*

Deep Learning using PyTorch — *Aug 2019 - Jan 2020*

A deeplearning course from OneFourthLabs where i learnt about Perceptron, CNN, RNN (LSTM, GRU) from scratch using PyTorch, and some architectures like Resnet, Inception, LeNet All the notebooks and assignments are documented here

`https://github.com/satyajitghana/PadhAI-Course`

Data Science for Engineers — *NPTEL*

Consolidated score: 87% Roll no: NPTEL19CS60S11120766191014636 NPTEL SILVER, Top 5% — *Dec 2019*

This was DataScience using R, always wanted to see why some data scientists prefer to use R, i found i used R because of its syntax and the RStudio environment, and most most importantly, its because of ggplot2, damn those plots look good

Python for DataScience

NPTEL

Consolidated score: 93% Roll no: NPTEL19CS59S31140279191014636 NPTEL GOLD, Top 1% — Dec 2019

Since i already was doing a course on DS, i did this too, didn't read for exam much, but i got pretty good marks in this, since my concepts were strong and python was something i knew

Introduction to Machine Learning - IIT Kgp

NPTEL

Consolidated score: 85% Roll no: NPTEL19CS52S21120663191014636 NPTEL SILVER, Top 5% — Oct 2019

I learnt the basics on a higher level of ML, this was the starting point

Core and Advanced Java

Bangalore

Subhash Programming Classes — June. 2017

Learnt Java from a renowned Java Developer and an awesome teacher, Subhash K.U.

Internships

ML Intern

New Delhi

EI Systems — Jun 2019 - Jul 2019

- First Contact with ML Code in Python
- Learnt Data visualizations (my fav. part) and the complete ML Pipeline
- Did a Project on India's GDP Analysis and Prediction of GDP using simple Neural Network Model

1LearnApp Android Intern

IIM Bangalore

IIM-B Incubated — Aug 2018 - Oct 2018

- Worked on core modules of the 1Learn Android App in Java
- Realised i hate Java and Android
- Learnt UI/UX Design in Adobe XD
- Since the Company was a Startup all the work was distributed, we learnt Marketing as well
- A total of 2 interns worked on the app, so there was intense workload on us for doing the modules and deploying it.

Projects

PlagiarismCheck - TF-IDF in C

Built from Scratch in C

Motivation : To finish my assignment as well as learn heck out of C — Apr. 2019

- This was a part of the Assignment given in Semester 03 - Data Structure and Algorithms, which demanded to create an algorithm to check if two given documents were plagiarised, the way the question was intended was to used string matching to check for exactness of the documents, but the time complexity for this is very bad and this is a very bad way of checking.
- In this we i've used the Term Frequency - Inverse Document Frequency to create vectors out of the documents, and using Cosine Similarity it was checked if they are same
- `https://github.com/satyajitghana/PlagiarismCheck-TF-IDF`

India GDP Prediction

Python, Scikit-Learn

Motivation : GDP represents the progress of a Country, so we Predict GDP — July 2019

- Predict the Indian GDP StateWise using Simple MLP Neural Network and Time Series Analysis
- The statistical data was taken from NITI Aayog
- `https://github.com/satyajitghana/IndiaGDPPrediction`

Android Real-Time Chat Application

Built from Scratch

Motivation : To create a unified chat platform for the University — May. 2018 - June. 2018

- Built an Android Chat application that uses technologies such as NodeJS and MongoDB
- The App uses Java 8 with Lambda Expressions
- Uses ECMAScript 8, with Promises, Async-Await and Arrow Expressions
- Socket.IO connection was used for Real-Time Communication

A Cross-Platform Flutter App for University

Flutter Framework

Motivation : To create a generic University Students Portal — July 2019 - Ongoing

- This is an ongoing Project that uses Dart as the Programming Language and aims to build a cross-platform app
- The app will serve as a central portal for students, providing a platform to chat with anyone in the university
- Will provide students with notes and study material of various semesters
- With help in easier access of University Results

Elemental Projekts

ProjektAstatine: Containerised Media, Cloud and Torrent Server

Docker, Kubernetes, Plex, Samba, Ubuntu, Transmission

Motivation: Need for a Local Network Media Centre for the entire house — *Apr. 2020*

I always wanted easy share of files between laptops in my house and a storage space where i can dump my movies and watch in on Smart TV. Also wanted a Torrent Download Server where in can simply dump my .torrent files and it'll download and save it for me.

`https://github.com/satyajitghana/ProjektAstatine`

ProjektCerium: A CLI Interface to OpenCV Operations in C++

C++, OpenCV, Linux, GitHub CI/CD

Motivation : I want this internship — *Mar. 2020*

Something i made for C++ Software Engineering Internship in Bangalore at Inkers Private Limited, The goal was to make a Cross Platform CLI tool to do various operations like recording video from webcam, applying filters on it, saving the video and then listing the video, while having a authentication feature. `https://github.com/satyajitghana/ProjektCerium`

ProjektBarium: A Compiler for my Barium Language

C++, Linux, Flex, Bison

Motivation : Wanted to learn C++ and Compiler Design — *Dec. 2019 - March. 2020*

It's a toy compiler i made using Flex as parser, Bison as scanner and LLVM to generate IR Code and the binary executable. It can do simple function calls, variables, assignments, math ops, etc. The code is written in C++, both the parser and scanner as well. CMake is used to compile and run the program. see the GitHub repo for more details.

`https://github.com/satyajitghana/ProjektBarium`

ProjektStrontium: A Neural Network from Scratch

C++

Motivation : To create neural network from scratch in C++ — *Aug 2019*

I implemented a simple feed forward Neural Network from scratch in C++, further work would include adding faster operations using Eigen and support for different activation functions and different backprop algorithms.

`https://github.com/satyajitghana/ProjektStrontium`

ProjektIodine: A Marks Predcitor using ML on Browser

Node.js, Tensorflow.js, Bootstrap, SASS, HTML5

Motivation: CYNERGY (Coding Club) EndGame Hackathon Submisison — *April 2019*

I used simple Linear Regression to predict the SEE Marks of the student given previous Term Tests Marks.

`https://github.com/satyajitghana/ProjektIodine`

Participations

HACKXRUAS

CYNERGY RUAS, AADHYA 2020

Hackathon — *Mar. 2020*

Won the HACKXRUAS 24hr Hackathon where we built KrishiAI, a app for farmers for plant disease diagnosis (using Flutter, TFLite), and used drones for automating large scale process (Raspberry Pi and TFLite).

Hacktoberfest

Digital Ocean

OpenSource — *Oct. 2018, 2019*

- 2018: Contributed to Competitive Programming, Data Structures and Algorithms Open Source Code
- 2019: Contributed to Litmus Chao, Open EBS MayaData

VIT - DevSpace & CodeSpace

Vellore, Tamil Nadu

Hackathon — *March. 2018, 2019*

- Participated in VIT DevSpace and CodeSpace
- 2018: Built an Android App with ReactVR in the 24-hour Hackathon
- 2019: Built an Android AR App that reads text from book and gives an AR Model
- Wrote a Paper based on the 2019 Hackathon

Miscellaneous

Lambda Calculus

Haskell

Contributed to MALC - Make a Lambda Calculus, this was quite interesting

`https://github.com/satyajitghana/LambdaCalculus`

Sketches and Particle Simulations

Java, JavaScript

This is more of a hobby, which includes Physics Simulations and creating beautiful looking patterns, uses Java which has some really good performance benefits. All inspired from TheCodingTrain. Processing: `https://satyajitghana.github.io/ProcessingJS/` P5JS: `https://satyajitghana.github.io/p5-js/`