Roy Akash | CS22M007

M.Tech CS | Indian Institute of technology, Madras

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Education

Program	Institution	%/CGPA	Year
M.Tech in CS	Indian Institute of Technology, Madras	8.25/10	2022-2024
B.Tech in CS	Government College of Engineering and Ceramic technology	8.94/10	2018-2022
HS (Class 12)	Barasat Mahatma Gandhi Memorial High School	78.60%	2018
Class 10	Barasat Mahatma Gandhi Memorial High School	88.71%	2016

Work Experience

SDE intern at Amazon India　　　　　　　　　　　　　　　　　　　　　　**May 2023 - July 2023**

Got internship offer within one months of joining IIT Madras

- Internship with the Registration and Core Services Team at Amazon Bangalore.

Teaching Assistant at Department of Computer Science, IIT Madras　　　　**August 2022 - July 2024**

Introduction to programming CS1100, Object Oriented Programming CS2810

- Taught and managed total of 15 students from Mechanical, Metallurgy and Naval Architecture department students at IIT Madras for the course CS1100 Introduction to Programming from November 2022 to February 2023.
- Taught and managed second year CS B.Tech students at IIT Madras for the course CS2810 Object Oriented design Lab from January 2023 to May 2023. Responsibilities include Question Design, Automated testcase generation, verification of student submitted code.

Publications

Python basics to get started book　　　　　　　　　　　　　　　　　　　　**Spring 2020**

Over 400+ five star ratings, Available on Google Play

- Python basics to get started is a introductory python book for first year freshman students to get started with programming with python. With over 20,000 copies sold in last 3 years, my python introduction book is widely used by my juniors from B.Tech college and received over 400+ five star ratings.

Technical Skills

- **Languages**: C, C++, Python, Java, GoLang
- **Web**: Python-Flask, Springboot
- **Database Systems**: MySQL PostgreSQL, NoSQL
- **Systems**: Docker, Redis
- **Computer Science Fundamentals**: Operating Systems, Computer Networks, Database Management Systems, Theory of Computation, Randomized algorithms, Design and analysis of algorithms, Probabilistic and Smoothed analysis of algorithms.

Key Projects

Password Manager　　　　　　　　　　　　　　　　　　　　**March 2022 to July 2022**

Bootstrap CSS, Python, Flask, Sessions, SQLite3　　　　　　　*Indian Institute of Technology, Madras*

- Web-based locally-runnable password manager, that stores unlimited passwords in a local SQLite3 database,
- Users are supposed to create a local account with a master password to manage and store passwords under that account. Data is stored in the user's personal computer so there is no chance of data leak, users also have the option to self-host on any PaaS platform.
- Users have the options to create multiple local profiles and store separate login information in separate profiles and users also have the option to generate really long hard to guess, random passwords that they can use in any services they want.

algorithms.theroyakash.com　　　　　　　　　　　　　　　　　　**Feb 2022 to Aug 2022**

Free interview preparation platform　　　　　　　　　　　　*Indian Institute of Technology, Madras*

- Used by 400+ monthly active users, these are materials for FAANG and top startup coding interviews,
- Has over 130+ interview questions with detailed explanations on several data structures and algorithm concepts. It is used as a starting point for bachelor and master in computer science students to start their interview preparations.

AKDSFramework
Python Package with PIP
<div align="right">

Nov 2020 - Sep 2021
</div>

- Pure pythonic, efficient implementations for all popular data-structures and algorithms. AKDSFramework provides one line benchmarking tools, easy to use, one of a kind Big O analyzer, and also a caching decorator.
- AKDSFramework has API to draw graphs from a AKDSFramework graph object (using mermaid-js API in Python which is contributed to the mermaid project by me). All run-able functions, modules are tested with python unit tests using github actions on three different major operating systems.
- See open source on github and docs.

Multipurpose discord bot
Python
<div align="right">

April 2021 - Currently
Indian Institute of Technology, Madras
</div>

- This Python-based discord bot is a multipurpose discord bot consisting of many fun features including getting memes from subreddits, getting a random non-existent AI-generated image (calling APIs), searching music on YouTube (using Google APIs), resizing, black and white, and bluring images right from the chat,
- Bot also has a feature, to call Google News to find new news happening across India. It has a built-in XML parser that parses the RSS contents from Google News. All the Google News links are shortened using TinyURL API and then sent to the chat.

Other Projects

AKHCRNet
Independent Research
<div align="right">

April 2020 - October 2020
Government College of Engineering and Ceramic technology
</div>

- `AKHCRNet` is a state of the art deep neural architectural solution for handwritten character recognition for Bengali alphabets.
- Gained total of 6 citations across India.

@sosleafy News Bot
Python, GitHub Actions Cron Jobs, RestAPI
<div align="right">

Jun 2021
Indian Institute of Technology, Madras
</div>

- **@sosleafy** is a twitter account and a telegram group where every 3 hours a bot posts fresh news contents run via github actions.
- Using Github actions and cron jobs the script takes new news contents from the web and puts it in a GitHub repository. Then once every three hours a cron job is scheduled to post new news content on Twitter and telegram.
- In it's operation **@sosleafy** posted over **11K** tweets on twitter and currently shut down.

tinyds
Language: C++
<div align="right">

May 2022 to July 2022
Indian Institute of Technology, Madras
</div>

- `tinyds` is a small and simple C++ implementation library for most of data structures and algorithms that are asked in SDE I or II interviews at FAANGs that one can implement in an exam setting if asked.

placeholderfile
Python installable package with Pip
<div align="right">

October 2020
Indian Institute of Technology, Madras
</div>

- `placeholderfile` is a random filename and UUID generator installable via pip.

Course Work

Key Courses in M.Tech
(Core and electives)
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July 2022-May 2024
Indian Institute of Technology Madras
</div>

- *Courses*: Advanced data structures and algorithms, Randomized Algorithms, Computability and Complexity theory, Advanced Programming Lab, Probabilistic and Smoothed Analysis of Algorithms, Security in Cyber Physical Systems, Digital System testing and testable design, Theory and application of Ontologies.

Key Courses in B.Tech
(Core and electives)
<div align="right">

August 2018-April 2022
Government College of Engineering and Ceramic technology
</div>

- *Courses*: Theory of computation, Discrete Maths, Computer Networks, Compiler Design, Design and analysis of Algorithms, Data Structures, Object Oriented design, Digital Logic, Computer Organizations, Operating Systems, Database management systems, Machine learning, Deep learning.

Positions of Responsibility

- *Teaching Assistant* for Computer Science Department, Indian Institute of Technology, Madras (2022-2024).

Achievements

- Successfully qualified *GATE CS (2022) with over 98.5* percentile,
- Became Course topper and Elite + Silver Medal in NPTEL Cloud computing course conducted by IIT Kharagpur,
- Topped in Theory of computation NPTEL Course conducted by IIT Kanpur.

Declaration

I do hereby declare that all the details furnished above are true to the best of my knowledge and belief.

Last updated: 2023 March

(Akash Roy)