Brahmajit Das

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Education

• **Gurudas College**   Kolkata, India
B.Sc. with Honors – Computer Science; last SGPA: 9.01   *2018 – 2021 Exp.*
Courses: *Operating Systems, Data Structures, Algorithms Design and Analysis, Databases, Networking, IT Security, Machine Learning*

Skills Summary

Programming Languages:	C, C++, Python, JAVA, Bash, SQL, PHP
Tools:	Git, Docker, MySQL, SSH, PlatformIO, LaTeX, FreeRTOS
Frameworks:	OpenCV, Tensorflow, Keras, NumPy
Platforms:	Linux, BSDs, Windows, Arduino, STM32 Cube, Google Colaboratory
Micro Processors:	Atmega328p, ARM STM32 (Cortex M3)

Personal Projects

• **Interfacing with sonar module using Atmega328p:** Using *AVR C* and **Atmega328p** to interface with **HC-SR04** (sonar module). Every functionality is written from scratch and 8-bit fast PWM configuration is used and **UART** for communication. The interfacing was done in the *form of a library* to make code *reusable*, PlatformIO was used as the generation toolset. Link to project.

• **FreeRTOS on ARM STM32F103:** Ported the FreeRTOS to ARM STM32F103C8T6 (Cortex M3) also known as **Bluepill**. Then used to generate a PWM with Timer 2, on the Channel 2 (PA0). *This project is currently under development, i.e. I'm currently working on it.* Link to project

• **My Compiler Writing Journey:** Following the great **acwj** while improving and implementing sections I liked. This is **C Compiler** written from ground up, each stage of is divided into a **git branch** for better understanding and follow along. (Currently in Progress, only completed till operator precedence) Link to project.

• **Brain Tumor Detection:** Using image classification algorithms like **CNN**, **VGG 16** and **ResNet 50** to classify MRI scans of brain to determine if there is presence of tumorous cells or not. Achieved up to **98%** accuracy. (*link to project paper*)

• **Python Path Visualizer:** A *path visualizer* program written in **Pygame**. Upon opening the user can set start and endpoints, and draw wall; and the program will show the process of finding the path and then tracing it back (*all of which is color codes, thus giving nice visual feedback*). **BFS** and **DFS** algorithms were used for finding the paths. Link to project.

Open Source Contributions

• **Gitlab Shell** Changed the default logging format to **JSON** from plain text, was part of the **14.1 release**. GitLab Shell handles git **SSH sessions for GitLab** and modifies the list of authorized keys. Merge Request 467.

• **Gitlab Runner** Updated test case names for `TestBuildJobStatusEnvVars`. GitLab Runner is the open source project that is used to run CI/CD jobs and send the results back to GitLab. Merge Request 2907

• **DevOps Guide** Contributed to **several chapters** of this popular DevOps guide (**3.8k stars**), including chapters for Virtual Machines, Linux commands and tools for DevOps and Firewall. *Link to all my contributions.*

Achievements

• **HacktoberFest 2020:** Was among 70,000 participants. Mostly contributed to the DevOps Guide, plus some other projects. Was awarded a t-shirt, some stickers and $100 DigitalOcean coupon.

• **College Seminar:** First position in college seminar. Demonstrated the use of Arduino and HC-SR04 (sonar module) and have the output displayed using a GUI feedback made in processing.