<

SAYAK BRAHMACHARI

SOFTWARE ENGINEER

/ ALL ABOUT ME

I am a senior full-stack developer and a self-taught programmer with a strong eye for innovative design and an innate desire to learn to do more.

/ COMPETENCIES

★★★★★ Python
★★★★★ Javascript
★★★★★ App Developement (React Native)
★★★★★ Web Development (React, Node, HTML5)
★★★★★ Linux
★★★★★ Git
★★★★★ CI/CD
★★★★★ Network Administration
★★★★☆ UI/UX Designing
★★★★☆ Automation/Scripting
★★★★☆ C, C++, Embedded-C
★★★★☆ Docker
★★★★☆ Internet of Things, Embedded Systems
★★★☆☆ Java

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/ CONTACT DETAILS

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/ WORK EXPERIENCE

>> Senior Software Engineer

November 2022 - Present | Entiovi Technologies Pvt. Ltd.

Worked as a full-stack web developer for multiple web applications using React and NodeJS for developing Logistics Planning and Operations Management Dashboard software for a large transportation company in North America, and helped in the implementation of multiple features in the front-end of a leading US-based live-selling e-commerce company. Also helped in the recruitment process of potential candidates by taking technical interviews.

Tech stack: ReactJS, NodeJS, VueJS, PostgreSQL.

>> Research Analyst and Software Developer

September 2021 - October 2022 | Algo One AI Pvt. Ltd.

Developed Algorithmic Trading Frameworks and Backtesting tools for options trading in US Markets using Python, and created a framework to parse and generate quantifiable statistical data from unstructured earnings call transcripts using NLP.

Tech stack: Python3, NLP, Data Science, Qt, Cloud Computing.

>> Freelance App/Web Developer

June 2020 - September 2020

I worked as a freelance e-commerce website developer in 2020, where I designed and implemented multiple responsive progressive web apps with a cart-based shopping system and support for handling online payments.

/ PATENTS

>> An Unmanned Aerial Vehicle based method and system for Patrolling over Search and Rescue Area

Filed Sep 23, 2020 Patent Number 202031041280

The system discloses an Unmanned Aerial Vehicles (UAVs) equipped with a radio communication module (SDR) to emulate a cellular base station and has a persistent connection to a ground control unit which directs and navigates said UAVs. The radio communication equipment acts as an IMSI catcher, resulting in nearby cellular devices to latch onto it as cellular devices poll all base stations in the vicinity. The cellular handset provides the base station with basic identification information such as the IMEI and IMSI numbers, which the UAV can retransmit to the base station along with its coordinates and the signal level of connected handsets. The ground control unit then uses true-range multilateration techniques, using the data (signal strength of handset and coordinates of UAV) from multiple UAVs, thus enabling the operator to pinpoint the position of individual handsets.

/ SEMINARS/CONFERENCES ATTENDED

>> International Symposium for Crisis Forecasting (2022)

Center for Crisis Early Warning | University of the Federal Armed Forces, Munich, Germany | Federal Ministry of Defense, Germany | Federal Foreign Office, Germany

Presented a research paper on "Forecasting Terrorist attacks through Artificial Intelligence: In search of a Predictive Panacea" on November 07, 2022, to members of the academia, as well as the security and military/intelligence community from around the world after being selected as the only panelist from Asia. The paper explored the usage of a machine-learning (ML) based approach to analyze Open Source Intelligence (OSINT) to determine patterns in a person's behavior and then compare it to baselines established by the person's past behavior or behavior exhibited by users in a similar demographic.

>> The International Colloquium on Modern Technologies, Political Philosophy, Social, Political and Economic Rights (2021)

The International Colloquium on Modern Technologies, Political Philosophy, Social, Political and Economic Rights | The Interdisciplinary Laboratory for Black Sea and Mediterranean Studies (ILBSEM) | Aristotle University of Thessaloniki, Greece

Presented a joint paper with Dr. Sumit Mukerji on "COVID-19: The Catalyst of Cybercrime Among Children And Youth In India And Bangladesh: A Comparative Study" on December 11, 2021, exploring the correlation between the rise of cybercrime in South Asia with more people being affected by the pandemic caused by the COVID-19 virus while going into further detail regarding the statistics around this correlation and providing hypotheses for its cause.

>> International Seminar on Clean Water and Sanitation (2017)

United Nations & UNICEF | WEBFUNA & UN Information Centre, New Delhi | Institute of Foreign Policy Studies, Calcutta University

Attended the International Seminar on Clean Water and Sanitation organized by West Bengal Federation of United Nation Association at Calcutta University.

/ EDUCATION HISTORY

>> Kalinga Institute of Industrial Technology, Bhubaneswar

BTech. in Electronics and Instrumentation Engineering
Class of 2022

Member of multiple student societies for being passionate about robotics, music production, photography, and motion graphics.

>> Sri Sri Academy, Kolkata

ISC | Class of 2018

Obtained a perfect score (100%) in ISC Computer Science. Represented the school in multiple competitions such as The Frank Anthony Memorial All-India Inter-School Debate organized by the CICSE School Board. Was a Gold Medalist in the English Olympiad and had an International Rank of 90 in the Cyber Olympiad, both organized by SOF.

>> St. Joseph's School (North Point), Darjeeling

ICSE | Class of 2016

Attended a Robotics workshop at Kennedy Space Center, NASA (The National Aeronautics and Space Administration of USA). Represented the school in multiple debate and elocution competitions. Was awarded trophies for outstanding performance in English and Science ASSET Olympiads. Was a school topper for 3 consecutive years and was awarded the Rector's Meritorious Award.

/ PERSONAL PROJECTS

>> LiDAR-based Vehicle with Autonomous Navigation, SLAM & Obstacle Avoidance (University Major Project)

July 2021 - November 2021

Developed an autonomous navigation solution using computer vision and artificial intelligence to navigate from one location to another using Sensor Fusion, Localization, Path Planning, and Computer Vision knowledge. The navigation was implemented using a modified version of the A-star algorithm like segmented calculation, incremental cost back-off, minimum improvement repropagation, backtrack cost favoring, and backtrack detection and pausing.

Tech stack: Machine-Learning, Python3, Embedded Systems, Robotics, SLAM Algorithms.

>> Home Automation and Security System (University Minor Project)

Feb 2021 - April 2021

Designed a home automation and security system for a smart home environment. The project involved the use of embedded systems, IoT, various sensors, and the Blynk cloud platform for the management and integration of the various components.

Tech stack: Internet of Things (IoT), Embedded Systems, Cloud Computing, Electronics.

>> IoT based Remote Controlled Terrestrial Robot

November 2019 - April 2020

Precursor project to LiDAR-based Vehicle with Remote Navigation, Obstacle Avoidance, Feature Recognition, and Mapping. Used an Arduino, a custom-built Android app, and HC-05 Bluetooth serial module to build a terrestrial robot capable of being remotely controlled from a phone.

Tech stack: App Development (Android), Robotics, Embedded Systems, Electronics.

>> struixLang (A stack based Turing-Complete programming language)

January 2017 - August 2020

A stack-based case-insensitive homoiconic Turing-complete toy programming language implemented in Python3. Several primitive subroutines (words) are pre-defined and mechanisms to define new user-defined words within struixLang itself are in place.

Tech stack: Python3, Algorithms, Data Structures, Compiler Design, Assembly Programming.

>> ShellBot (Cross platform reverse remote shell utility)

January 2017 - August 2020

ShellBot is an advanced cross-platform Reverse Remote Shell Suite written in Python3. It relies on a client-server-controller model where a server can accept several clients at once, and relay a chosen client's shell to the controller. The program includes built-in functions to perform distributed brute-forcing/DoS attacks.

Tech stack: Python3, Networking, Cybersecurity, Operating Systems, Socket Programming.

>> eSpeak NG Bindings for Python3

September 2016 - August 2020

An eSpeak NG TTS binding for Python3 with support for altering the pitch, speed, and accent. This library was a result of not finding a well-documented TTS library with the required features for Python3 for a related project.

Tech stack: Python3, Operating Systems, Natural Language Processing, Audio Processing.

/ NOTABLE MENTIONS

> Completed Workshop on Ethical Hacking, Reverse Engineering & Python Programming organized by ISOEH (now known as ISOAH).
> Attended The Kolkata Police Hackathon (2022) organized by IEMLabs.

/ COURSES

> Ethical Hacking - IIT, Kharagpur
> Docker for Developers and DevOps - Udemy
> REST APIs with Flask and Python - Udemy

/ OTHER INTERESTS

> Video Editing/Motion Graphics
> Music Production
> Photography
> Script Writing/Film Direction