Parth Sanepara

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SUMMARY

Experienced **Embedded Firmware Engineer** with 5+ years of experience in designing, developing, and testing embedded systems and IoT solutions. Expertise in firmware development for wireless and wired technologies, including **BLE, Wi-Fi, Ethernet, and Cellular IoT.** Proficient in RTOS programming (**Zephyr, FreeRTOS**), low-power device development, and cloud integration using **AWS IoT Core**. Strong background in ARM-based MCUs, communication protocols (TCP/IP, MODBUS, MQTT), and embedded software debugging. Skilled in product prototyping, unit testing, and driver development for smart devices, sensors, and IoT applications.

EDUCATION

CDAC Bengalore   Istanbul, Turkey
*B.Sc. in Electrical and Electronics Engineering; **GPA: 3.62/4.00***   *Sep 2018 – Jun 2023*
*Minor Degree in Computer Engineering; **GPA: 3.58/4.00***   *Oct 2020 – Jun 2023*

  National University Admission Exam (YKS): Ranked 75th in Mathematics and Science among ca. 2.3 million candidates with a test score of 489.92/500. (Jul 2018)

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SKILLS

Languages: Embedded C, Python, C++

Technologies: Django, Node.js, React.js, MySQL, MongoDB, Git, Docker, Amazon Web Services, Kubernetes, Google Cloud Platform, Unity, Linux, ROS, OpenCV, Scikit-Learn, PyTorch, Keras, TensorFlow

WORK EXPERIENCE

SemperTech   Istanbul, Turkey
Software Engineer   *Sep 2023 – Present, Full-time*
  - Currently working on the "Arçelik Digital Home Energy" project in a collaborative effort with DAI-Labor at the Technical University of Berlin under the supervision of Prof. Dr. Şahin Albayrak.
  - Simulated data exchange processes with the EEBUS protocol suite using C# and Go frameworks. Migrated the entire framework from Go to C++ in order to ensure future adaptability for smart home IoT devices.

SESTEK Speech Enabled Software Technologies   Istanbul, Turkey
AI Research and Development Intern   *Jan 2022 – Feb 2022, Internship*
  - Implemented various NLP tasks, including NER, POS tagging, sentiment analysis, text classification, and extractive/generative QA using transformers and Hugging Face libraries. Conducted a literature review on information retrieval and reading comprehension to stay updated on the state-of-the-art ML models.
  - Developed a generative question answering system with Dense Passage Retrieval and Retrieval-Augmented Generation techniques using the Haystack framework on Python.
  - Worked on a Turkish open-domain question answering system by fine-tuning a BERT base model transformer with PyTorch. Evaluated exact match and F1 scores using different Turkish data sets and DeepMind's XQuAD data set and then tabularized the evaluation results.

PROJECTS

Filters and Fractals | *GitHub*
- A C project which implements a variety of image processing operations that manipulate the size, filter, brightness, contrast, saturation, and other properties of PPM images from scratch.
- Added recursive fractal generation functions to model popular fractals including Mandelbrot set, Julia set, Koch curve, Barnsley fern, and Sierpinski triangle in PPM format.

Chess Bot | *GitHub*
- A C++ project in which you can play chess against an AI with a specified decision tree depth that uses alpha-beta pruning algorithm to predict the optimal move.
- Aside from basic moves, this mini chess engine also implements chess rules such as castling, en passant, fifty-move rule, threefold repetition, and pawn promotion.

CMPE 250 Projects | *GitHub*
- Five Java projects assigned for the Data Structures and Algorithms (CMPE 250) course in the Fall 2021-22 semester.
- These projects apply DS&A concepts such as discrete-event simulation (DES) using priority queues, Dijkstra's shortest path algorithm, Prim's algorithm to find the minimum spanning tree (MST), Dinic's algorithm for maximum flow problems, and weighted job scheduling with dynamic programming to real-world problems.

CERTIFICATES

Certification in **Software architecture for the Internet of Things** - Coursera

Certification in **Internet of things** - Standford University Online University

Certification in **nRF Connect SDK Fundamentals** - Nordic Semiconductor   *Jul 2024*

Certification in **nRF Connect SDK Intermediate** - Nordic Semiconductor   *Sep 2024*

Certification in **Bluetooth Low Energy Fundamentals** - Nordic Semiconductor   *Sep 2024*

Certification in **Wi-Fi Fundamentals** - Nordic Semiconductor   *Sep 2024*

Certification in **Cellular IoT Fundamentals** - Nordic Semiconductor   *Oct 2024*