

Balaj Saleem

Software Engineer

📍 Ankara, Turkey
☎ +90 553 169 5037 / +92 320 051 4221
✉ balajsaleem@live.com
🌐 [linkedin.com/in/balajsaleem](https://www.linkedin.com/in/balajsaleem)
🔗 [balajsaleem.github.io/me/](https://github.com/balajsaleem)

Education

Bachelors of Computer Engineering

Sept 2017 - Jun 2021

[Bilkent University, Ankara, Turkey.](#)

Cumulative GPA: 3.23 / 4.00

Awards : Dean's High Honor List and Full-Ride Scholarship.

Experience

Machine Learning Engineer

Nov 2020 - Present

[Ango AI](#)

Worked as a machine learning engineer, working on key projects and developing AI assisted data labeling tools reducing manual annotation times and observing upto 800% increase in efficiency, giving the company an unparalleled edge in the annotation market allowing faster throughput, and enticing funding of about \$ 700K from global investors.

Responsibilities included:

- Procuring , refining and delivering labeled data with ensured quality to stakeholders including Governmental, Military, Insurance, E-Commerce organizations and many more ensuring timely, consistent and efficiently labeled data.
- Implementing an automated state of the art quality assurance pipeline relying on deep learning to reduce human intervention in assuring label quality by 40% and significantly increasing customer satisfaction with labeled data.
- Researching, Developing and Deploying AI assistance tools specifically focused towards image annotation on Python, React and Node.js using libraries such as OpenCV, TensorFlow, Keras, Pytorch, Numpy, Qt.,using GCP and AWS services.
- Implementing and combining interactive computer vision and image segmentation techniques like Grab-cut, Deep Extreme Cut, Single Shot Detection, Single Click Segmentation, MaskRCNN for rapid image labeling.
- Full stack development and integration of AI services on the online annotation platform using React and Node.js

Flutter Developer

Sept 2020 - Nov 2020

[Appoint](#)

Worked as the sole flutter developer for a Start-Up aiming to create an appointment / reservation management system for to tap the lucrative market of Barbers Shops and Parlors in Turkey. Developed a cross platform [application](#) that barbers / owners would use to manage and create reservations, manage customers, analyse trends and update services and business specifications. Responsibilities included:

- Developing scalable and accessible widgets with Dart, using Object Oriented, CI/CD and BLoC Design Principles.
- Maintaining fluid and productive communication with the founding members to ensure the requirements are met.
- Using Jira for issue tracking and Git for version control used as secondary tools. Bitrise for CI/CD
- Implementing Firebase cloud functions for interaction between database and mobile application.

Full Stack Developer

Jul 2020 - Sept 2020

[TÜBİTAK - Science and Technology Research Council of Turkey](#)

Worked as a summer intern in Turkish government's prime R&D institute on a full stack development [project](#). aimed at developing an event management (registration, scheduling and visualization) app using React, Spring and Flutter. The following were developed:

- Web app comprised of numerous responsive components using React JS and Material-UI, incorporating ChartJS, Axios, Google Maps API, SockJS, Stomp and multiple other libraries.
- Cross-Platform [mobile application](#) developed using the Flutter framework written in Dart, following the MVC pattern.
- A RESTful API using Spring Boot to communicate in realtime with database and clients(requests/websockets)
- A Database layer implemented using PostgreSQL to persist entities and query data.

Software Engineer

Feb 2020 - Jul 2020

[InfoDif](#)

Worked during semester as a part-time engineer in the core engineering team of InfoDif to expand functionality and add features to the company's trademark video management software for the defense industry. Key responsibilities included:

- Using object oriented design principles, to add and update components employing the cross-platform Qt framework in C++.
- Designing User Interface for components using XML format and Qt Designer.
- Using CI/CD principles and following the software life-cycle and using Git for version control.
- Developing a persistence layer using serialization for the application to improve user experience.

Android Developer

Jul 2019 - Oct 2019

Ascend Technologies

Developed and published an Android [application](#) for school management for multiple branches of Ascend International School to assist the management in decision making and identify improvement factors. Corollary work related to the application:

- Interacted with sponsors to elicit requirements, deliverables, scope and resources for the project.
- Implemented Firebase Real-time Database to centralize record of branches, employees and stats of each employee.
- Developed data visualization tools using Java and android libraries to review employee and branch performances.
- Developed Authentication systems for each branch to ensure privacy and safety of data.

Game-Developer

May 2019 - Jul 2019

Sigun Information Technologies and Consultancy

Worked on a project assigned by Turkish Science and Technology Research Council to develop a platform that trains and rehabilitates stroke patients through games by stimulating motor function development. Responsibilities included:

- Development of [15 mini-games](#), using Unity, each aimed at different aspect of motor function, with various levels.
- Implementing Bluetooth communication b/w patients computer and the device's actuators using the BLE 4.0 protocols.
- Data collection from the patients response and progress, refinement and submission of this data to the doctors
- Presentations and progress reports to stakeholders and government officials assigned to monitor the project.

Founder and President

Jan 2016 - Dec 2016

Google CS First Club, Pakistan

Initiated Google's CS-First program for the first time in Pakistan, provided a platform from high school for seniors to use their knowledge in the subject to teach students of lower grades to garner interest in tech-related domains. Work Done:

- Taught basic concepts of computing and programming to juniors;helped with projects and assignments.
- Worked as a moderator to ensure adherence to the program provided by Google, ensured proper allocation of resources
- Submitted progress reports every week to affirm the coherence of the program.

Projects

- **Foodster**: A cross-platform mobile application for generating personalized meal plans, cost estimates, time estimates using a recommender system based on user's nutritional preferences, with a massive recipe database. Providing an extremely time and cost efficient solution to one's nutritional needs. Used **Dart, Flutter, Node.js, Heroku, MongoDB**.
- **Image Shadow Removal**: Refined a state of the art architecture (LISA) to remove objects and their shadows completely from their images leaving the background intact using inpainting via a UNet architecture and partial convolutions. Used **Python, Google Colab, Docker** concepts of **Deep learning, Object Detection, Image Segmentation**
- **Emotion Recognizer**: A tool for recognizing 6 different emotions trained on the FER2013 dataset achieving 60% accuracy(SOA 70%). Used **deep learning** architectures including InceptionV3, ResNet, VGG with various preprocessing techniques, optimizers and activation functions. Used **Python, Keras, Tensorflow, Seaborn, Pytorch, Numpy, Pandas**.
- **Apollo-stars**: A student management and registration system. Included authentication, course registration, scheduling, job applications, grading, reporting. Using **Vue.js** and **Vuetify** frontend and **NodeJS**, and **PostgreSQL** for a Rest API.
- **Grocery-Crawler**: An automated online grocery store crawler and scrapper to scan items and their prices from popular grocery stores in Pakistan to compare prices / products from different stores. Uses **Selenium, BeautifulSoup** and **Python**
- **SirReal**: A 2D side-scroller with core mechanics of combat and negotiation, developed using **Unity** included model, level and mechanic design, NPC automation & an unprecedented in-game bargaining system.
- **EmployAi**: An experimental Machine Learning project that aims use Key Performance Indicators(KPIs) to train a model to predict employee effectiveness in an organization and areas of improvement. Using **Python, Scikit, TensorFlow** and **Keras**.
- **Defender**: Developed and documented a side scrolling space shooter game with my team for a course project. Followed object oriented software development practices, design patterns. Used **SDL2 Library, C++, UML**. Developed on **Linux**.
- **D2F-digital to functional**: A tool, developed as a project for a CS course, to help students in Logic Circuit Design, Simulation, and Boolean Algebra Solving with sleek UI and a robust design. Used **Java, JavaFX, CSS and FXML** and **UML**.
- **Evacuation Elevator**: Designed as a course project; using Digital Design and Controller Design. Programmed a processor for an elevator to vacate passengers. **Basys3 System-Verilog, C++** and **High Level State Machines**.

Skills

Software Development: Mobile Development | Android Development | Game Development | Full-Stack Development | Machine Learning Development | Web Development

Programming: Python | JavaScript | Java | C++ | C | C# | SQL | HTML | CSS | Data Structures | Algorithms

Tools and Frameworks: Unity | Flutter | Vue.js | React.js | Node.js | Docker | Jira | Git | AWS | GCP

Libraries: Spring-Boot | Material UI | Flask | Qt | Django | Selenium | BLOC | Numpy | Pytorch | Tensorflow | OpenCV | Keras

Machine Learning: Deep Learning | Computer Vision | Model Development + Deployment | Data Procurement | Data Life cycle | Feature Selection / Refinement | Data annotation | Active Learning | AI Assisted annotation | Online Learning

Computer Science: System Architecture Development | Object Oriented Design | Application Life Cycle Management | Databases | Operating Systems (Linux) | Artificial Intelligence | Digital Design

Supplementary: Public Speaking | Project Management | Administration | Proposal and Report Writing | Research, Analysis

Languages: English | Turkish | Urdu | Hindi

Interests

I like to make music, you can find me on SoundCloud. I like to read(more fact than fiction). I am an avid tennis player and swimmer.

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