Balaj Saleem

Software Engineer

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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, processing big data through ML pipelines for key projects. Focused on AI assisted data labeling to reduce annotation times. Observed upto 800% increase in labeling efficiency, giving the company an unparalleled edge in the annotation market, allowing faster throughput, and enticing lucrative funding from global investors.

Responsibilities included:

- Procuring , refining and delivering labeled big 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 recomender 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, Beautiful Soup** 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 | Machine Learning Algorithms | Data Pipelines | Big Data | 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