



Shaik Mazin Bokhari

Mechatronic Engineer / Data Scientist

Objective: To bring creativity and innovation to the field of automation and AI by bringing in a new prespective and intergrating different fields.

Information

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Projects

Home Automation [2021]
Ebbot- AIO dev app for Robotics [2020]
Semi-Humanoid Guide Robot [2019]
Smart Bike [2019]
Train Tracks Object Detection [2018]
Vision Based Road Navigation [2017]
Automated Delivery Robot [2017]
3D Indoor Positioning System [2016]
VR Disaster Simulator [2016]



Achievements

Intel-Crest Industry University Challenge 
DevCon Hackathon 
APROC Robotics Competition 



Experience

Toyota Motor Europe 
8 Months Internship, Belgium

[2017 – 2018]



Education

Artificial Intelligence & Machine Learning

[2021]

- Machine Learning | Computer Vision
- Data Analysis | Natural Language Processing
Texas University - Great Learning

[CGPA: 3.7/4]

Asia Pacific University

[2014 – 2019]

Bachelor Eng. (Hons) Mechatronics
Kuala Lumpur, Malaysia

[CGPA: 3/4]

Emirates Future International Academy

[2012 – 2014]

CBSE Science with Computer Science
Abu Dhabi, UAE

[CGPA: 7.8/10]



Extra Curriculum

Taekwondo Club [2014 – 2019]
Taekwondo Committee [2015 – 2017]
Student Council [2015 – 2016]
Drama Club [2014 – 2015]



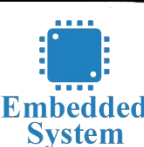
LANGUAGES & LIBRARIES



APPLICATIONS



SYSTEMS



Technical Skills

- Computer Vision
- Audio Processing
- Language Processing
- Machine Learning
- Data Analysis
- Edge Computing
- Cloud Computing
- Virtual Reality

Project and Work Experience



Home Automation

[2021]

A Home Automation Project that incorporates AI, computer vision and speech recognition. Being made compatible with existing frameworks such as HomeAssistant.IO used for integrating different systems, the AI developed helps learn and monitor the user's activity throughout the day with the aim of assisting, automatic scheduling and reminding the users from work to trivial day to day chores and routine with minimal need of manually interaction. System also automatically manages the user's inventory by recording item's location by either registering information through audio or automatically when computer vision is applicable.

Applied Skills: Machine Learning, Computer Vision, Natural Language Processing, Edge Computing

Ebbot

[2020 – 2021]

An All-in-One software solution with an aim to streamline and simplify programming and development of robotic projects using various Arduino based boards, Raspberry Pi and other smart board and also an educational app to teach students the importance of Maths in robotics and computers by giving problems that is solved using only equations.

Applied Skills: Application Development, Sensors

Semi-Humanoid Guide Robot

[2018 – 2019]

A Final Year Project for Bachelors in Mechatronics Degree. A half humanoid was made to guide, inform, and interact with people including foreigners that do not speak the native language. The humanoid can provide directions using speech and hand gestures, in scenario like an airport or a mall when asked by a person. Multiple Audio source is used for Spatial Audio Filtering and Localization which helped improve Voice Recognition in a crowded environment. At a historical site, a tourist can point at objects or structure and ask the robot "What is that?", the robot would recognize where the user is point with great accuracy.

The Guide robot can identify its respective location in a mapped 3D space using SLAM

Applied Skills: Computer Vision, Audio Processing, Cloud Computing

Smart Bike

[2019]

A bicycle equipped with sensors and components that allows the user to make user to track their usage, performance and track the bike's location. The bike had safety feature that would trigger an alarm and send a notification to the owner in case the bike is being stolen or having the electronics tampered with.

Applied Skills: Cloud Computing, Application Development, Sensors

Toyota Motor Europe - Internship

[2017 – 2018]

The internship program focused on Data Analysis through Non-Destructive Testing (NDT) of Materials/Parts and Visualization of the Data through Augmented Reality using the Microsoft HoloLens. For each type of Data, various algorithms were used to generate various forms of visualization.

Video OCT Scans of a material were visually enhanced for the users and had their data reconstructed in 3D using Blender with high Accuracy.

Applied Skills: Computer Vision, Data Analysis, Augmented Reality, Application Development

Train Tracks Object Detection

[2018]

An industrial project focused on detecting objects on the railway tracks through an on-board dashcam. The system can detect foreign objects and structures that protrude within the train's path and estimate distance between train and the detected object. The system was able to detect most objects partly above the ground with high accuracy.

Applied Skills: Computer Vision

Vision Based Road Navigation

[2017]

A project with a team of 4 tasked with building a small robot that navigates itself on a mini road track. The system consisted of Raspberry Pi and an Android mobile were placed on a 4-wheeler robot. The robot moved within its designated path with near zero deviation

Applied Skills: Computer Vision, AI

Automatic Delivery Robot

[2017]

A Project with a team of 4 members to be build a robot to detect human presence with the purpose of delivering an object from one point to another. The robot upon detecting human presence awaits instruction from the users, upon the said the instruction, it goes to a required location using a map stored in the memory and ultrasonic and gyro sensor for accuracy and awareness of its surroundings.

The robot was placed in a mini restaurant theme and was programmed to serve customers by guiding them to their tables and allowing them to choose items from the menu the robot displays. Upon the user confirming the order, the robot goes to the counter showing the selected items from the menu. Assuming the robot received the orders, the robot return to the table to provide the food to the customer.

Applied Skills: Sensors

Maze Solver Robot

[2017]

As a team of 2, we made a maze solving robot that uses gyro and ultrasonic sensors to solve and explore every region of a maze. The robot maps the entire maze using ultrasonic sensors as it moves around and when it reaches a dead-end it can calculate the next path for an unexplored area. The gyro sensor helps increase the accuracy of the robot's alignment when moving.

Applied Skills: Sensors

3D Indoor Positioning System for Constructions

[2016]

Each tool and equipment of a person attached with UWB technology, the system tracks the position of each tool and personal in an area. Each objects position is visualized in a 3D GUI. This system aims at making constructions sites safer by alerting if a person is in dangerous position/situation with respect to heavy machinery and to help guide where to use the tools with a pre-determined plan in the system, thus making work organised as well.

Applied Skills: Application Development, Sensors

Fingerprint Launcher App

[2016]

An Android app launcher that uses your unique fingerprint to launch different apps with each finger as an alternative to gesture, making app launch as simple as pressing the home button.

Applied Skills: Application Development



Competition Experience

Petronas Drone Challenge

[2019]

A drone challenge for university students using Intel's Aero RTF Drone. The challenge was to repurpose the drone for Industrial usage and to automate Ultrasonic Thickness (UT) scanning at varying height. Our team of 4 created a system to simulate UT scanning and its stability of the system that could be attached to the drone. A program was made in Unity that would give the operator manual control of the drone in a graphically represented virtual space created from a 3D model or generated from the real-world using Intel RealSense camera. In the program, it also allowed the operator to automate UT scanning by selecting spots to be scanned, in which the drone would calculate the shortest path and arrive at the location for scanning (Simulated only).

Applied Skills: 3D Modelling, Computer Vision, Application Development

Intel-Crest Industry University Challenge

[2018]

A competition revolving around IoT which was hosted by Intel and Crest Malaysia. Our Team consisted of 5 members, the challenge of the category our team joined in was to solve traffic congestion using IoT. The solution was to encourage users to walk, carpool and to take public transport to collect points with respect to traffic congestion. An android application is developed which is used to when the user is walking, boarding a public transport, or carpooling and by means of monitoring, analysing, and predicting traffic, the points are calculated and collected. The generated traffic information is meant to be sent to the city council for analysis.

Applied Skills: Machine Learning, Computer Vision, Edge Computing, Cloud Computing

Airvolution

[2017]

Participated in a hackathon hosted by AirAsia. Our team consisted of 5 student members. We Created a Chatbot for Facebook Messenger. The system involves a Server that acts as a junction between multiple APIs, API.AI to interpret the text message sent from users, a cloud hosted Machine Learning application to understand Facebook user's personality and uses Google Cloud Vision API to interpret Facebook pictures. The App Aims at providing recommended flight destination, itineraries, tailored pricing, personality-interest wise seat pairing.

Applied Skills: Machine Learning, Cloud Computing

DevCon

[2016]

Hosted by MaGIC. Our team consisted of built a Virtual Reality Game for Android and Windows platform, where the player is placed in a situation where a disaster such fire, earthquake or tsunami is taking place and the goal is to survive. The aim of the game is to provide education on what to do during an emergency.

Applied Skills: Application Development, Virtual Reality

APROC Competition

[2016]

Our Team consisted of 2 members. We Won 2nd place for Image Processing Line following category using image processing with an android mobile and its built-in camera that sends the instructions to the Arduino board via Serial communication to control the robot.

Won 3rd place for the Maze Runner category, the robot's aim was to reach all the checkpoints in a maze that changes according to triggers. We made a robot that maps the maze and can recognize which walls are movable

Applied Skills: Android, Java, C++



References

Andrew Willet

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Rahul Aggarwal

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Company : United Health Group
Position : Lead Data Scientist
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