JERRIN BRIGHT

(+91) 98401 78777 | CHENNAI, INDIA
LINKEDIN | PORTFOLIO | GITHUB | MAIL | SCHOLAR | NGO

PERSONAL PROFILE STATEMENT

I am a versatile and self-motivated engineer highly skilled in **Autonomous Systems** and **Robotic Real-time Perception,** focusing on aerial and ground systems. My **research focuses** includes SLAM, Visual Odometry, MAV, Pose Estimation, Motion Planning, State Estimation, Optical flow, Sensor fusion and Control Systems. I aim to work on research-oriented organizations that utilizes my technical skills and helps me in honing my skills.

QUALIFICATIONS

Vellore Institute of Technology, Chennai, India *June 2018-Present*
Bachelors of Technology in Mechanical Engineering *Cumulative GPA: 8.25/10.0*

Chettinad Vidyashram, Chennai, India *June 2003-May 2018*
CBSE – Computer Science *10th CGPA 9.4/10.0, 12th 83.2%*

PROFESSIONAL EXPERIENCE

Globalink Research Intern @ McMaster University, Ontario, Canada *Starting July 2021*
Designing and testing software for controlling a pneumatically-powered soft robot arm. It will acquire real-time data from several sensors, and implement a suitable controller (e.g., model predictive control). Thus, applying advanced control systems to a real-world problem. (**Supervised by Prof. Gary Bone)**

Summer Research Intern @ Arizona State University, Phoenix, USA *Starting May 2021*
Using laser scanning, photogrammetry to digitalize environments via visualizing data collected from sensors fusing into a unified system. DL algorithms are used for automated analysis. The digital representations made will be processed to provide insights to builders, stewards. (**Supervised by Prof. Thomas Czerniawski)**

Autonomous System Developer (ASD) - Intern @ Aero2Astro, India *Oct 2020-Present*
Developing ROS based autonomous navigation firmware using Visual Inertial SLAM concepts for indoor environment. Implementation was based on Sensor Fusion techniques, Extended Kalman Filters and is aimed to eradicate the need for GPS thus making the system/ firmware more reliable.

Data Science Intern @ BrainMagic InfoTech Pvt, Chennai, India *May – July 2020*
Automobile part recognition using transfer learning and data augmentation technique resulting in an IOU of 95%. Later, was deployed in AWS using Amazon Sagemaker and S3 Buckets.

Project Research Intern @ Yuan Ze University, Taoyuan City, Taiwan *April – June 2020*
Built a robust smart parking system using semantic segmentation with Conv. Conditional Random Fields and Atrous Convolution enhancing the visual capability of the system. Sensor Fusion of Camera and IMU using EKF to avoid failures or losses or sparse environmental conditions. (**Supervised by Prof. Wei-Tyng Hong)**

Team Captain and Co-Founder @ ATOM Robotics, VIT Chennai, India *Jan 2019-Present*
An Intelligent Robotics and Satellite exploration team consisting of 50+ aspiring young minds. The team focuses on Intelligent ground vehicles targeting IGVC, USA; Satellites targeting Can-Sat, USA and Autonomous RoboSoccer targeting World Robotics Olympiad (WRO).

RESEARCH AND PUBLICATIONS

Jerrin Bright et al 2021 IOP Conf. Ser.: Mater. Sci. Eng. 1012 012019 [**Paper link**]
Optimization of quadcopter frame using generative design and comparison with DJI F450 drone frame

Jerrin Bright et al (Currently in Progress)
Attention Embedded Squeeze-Excitation Residual Network- A CNN Benchmark for Medical Imaging

AREA OF EXPERTISE

Design and Simulation Tools	Fusion360, SolidWorks, Proteus, Gazebo, RViz, VREP, MATLAB
Programming Tools	C, C++, Python, Java, Embedded System, HTML, CSS, JS, PHP
Machine Learning Tools	OpenCV, TensorFlow, Matplotlib, NumPy, Keras, PyTorch, Scikit
Operating Systems	Windows, Linux Ubuntu, ROS, Raspbian OS
Linguistic knowledge	Fluent: English; Intermediate: German; Native: Tamil

ACCOLADES AND RECOGNITION

Outstanding Research Paper Award	RIACT 2020 International Conference
Recognized Galactic Problem Solver	NASA International Space Challenge
Winner of KURUKSHETRA'20, CEG Anna University	RoboZest, National Level Techfest
Winner of CURRENTS'20, NIT Trichy	Line Follower (LiFo), ECE Department
First Runner-up- Chennai International Youth Fest	LiFo, Youth Development Consortium
Fourth Runner-up of ATMOS'19, BITS Pilani	Law follower, Tech-Management Fest

RESEARCH PROJECT

Vestium- Smart Robotic Closet *May – Oct 2020*

Designed an 80*80 smart robotic furniture, which maximizes small spaces which will be poised to transform urban living. It is packed with plenty of space, hiding the bed when not in use, and allows to optimize space, at touch of a button. It can be used as an entertainment center, home office, bedroom, storage all in one closet.

Autonomous MAV enhanced with door-to-door delivery topographies *Jan – April 2020*

Developed a ROSpy based control system for a MAV to transverse to a set of GPSs setpoint autonomously picking and delivering a package. The Control System has two modules namely the Altitude (AC) and the position (PC) controller. AC stabilizes the drone using a PID based controller. PC takes in the target GPS coordinate has setpoint values and navigates successfully to the desired coordinates.

Robust Chest Xray Detection Architecture *July – Oct 2019*

Built a convolutional system for x-ray detection of 14 different chest diseases. Some of the important tools used in the system are transfer learning fusing Residual Networks with UNet, Data Augmentation techniques and autonomous cropping using contours and extrema. The dataset was accrued from the NIH with nearly one lakh imageries. An IOU of 94.7% was observed with the above-mentioned system.

SLAM embedded AGV for autonomous navigation *Sep – Oct 2020*

Implemented 3D mapping using Kinect and IMU sensors in an indoor environment. Visual Inertial Navigation System was used to make the 3D map simulated in Gazebo environment and visualized 2D in RViz. Feature extraction via Oriented fast and Rotated Brief (ORB) was used for extraction and tracking.

Intelligent Visual Robotic Inspection system for fault detection *Jan – Feb 2021*

Automated visual inspection with CMOS Camera using local binary pattern histogram (LBPH) algorithm and dimensional analysis and detection of defects, faults and corrosions using Machine Learning approaches.

Competition-based Robots *Jan 2019 – Mar 2021*

Intelligent Ground Vehicles, Can-Satellites, Law Following Robot, Obstacle Racer, Autonomous Self Driving Robot, Robo-Soccer, Maze Runner, Sumo Robot, Drag Racer, BattleBots, RC Nitro Cars, Agricultural Robots, Water Rocket, etc. were made in my journey of being the Co-Founder of ATOM Robotics.

EXTRA-CURRICULAR

Machine Learning Contributor *Oct 2020 – Feb 2021*

Contributing ML blogs via CodeSpeedy to various blog-based companies. Have published 13 blogs.

Madras Scientific Research Foundation, NGO *Oct 2020 – Dec 2020*

Researched on various cutting-edge areas of Manufacturing, Robotics and Vision systems. The research undertaken here are Defect Detection and Reinforcement for 3D printer models; Autonomous Lane Detection with neural networks; Manipulation and Control of 6-axis robotic arm.

Robotics Club, VIT Chennai *Jan 2019 – Mar 2021*

Have organized and led several events including the National Level Robotics Competition 'ROBOPRIX' as the Overall Student Coordinator, ABB Robotics and several other workshops.

Institute of Electrical and Electronics Engineer *April 2019 – May 2020*

Active Member of Robotics and Automation Society (RAS).

National Service Scheme *May 2019 - Present*

Active Member of Indian Government sponsored public service program. Part of several awareness programs – International Coastal Cleanup day, Community Services, etc.

DECLARATION

- I, Jerrin Bright, hereby affirm that the aforementioned statistics is true to my knowledge, as of Mar 5th, 2021.
- References available on request.