ELANGESHWARAN KANNABIRAN

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PERSONAL STATEMENT

Passionate post-graduate seeking to contribute to the advancement of **Humanoids, Animatronics, Healthcare Robotics, and Food Automation**. Motivated to excel in an **R&D** position utilizing skills to drive innovation and revolutionize the field of robotics.

EDUCATION

MSc in Computational Neuroscience & Cognitive Robotics - Merit Birmingham,
The University of Birmingham United Kingdom

- Proficient in Robot kinematics, control and motion planning, 2D engineering drawing, isometric projection, and 3D designs & stimulation of human-like mechanical models, SLAM, Image processing, and Bio-Signal processing.
- Ability to demonstrate the closest Human Cognitive behavior and action using mathematical models and electronic interface.

BE in Medical Electronics Engineering - First Class Bangalore, India
Dayananda Sagar College of Engineering

- In-depth understanding of Medical Imaging in clinical applications, Medical Innovation Process, Rehabilitation Engineering, Biomaterials & Artificial Organs, Structural and Functional Anatomy of the Human Body, Industrial Safety & Risk Analysis.
- Hands-on experience in Analog electronic circuits, Logic circuits, Signal & Image Processing, Engineering Drawing, Workshop Practice, along with C, C++, and JAVA.

PROJECTS

MSc Thesis - Dexterous Robot Arm for Human-like Grasping of Objects

- Achieved the closest **human like motion** on a **robotic arm** by implementing various human cognitive approaches and identify models and approaches for application in **humanoids** and other social robots
- Investigated the Human **structural anatomy** and **Cognitive approaches** with respect to reach and grasp tasks
- **Designed** and printed a **Robotic Arm** with closest Human resemblance (Structurally & Mechanically) **-SIEMENS NX**
- Computed an **Inverse Kinematic** model associated with a **Computer Vision** model **-PYTHON, EXCEL**
- Established **connections** between environments and examined **Reach and Grasp task** using the Robotic Arm **-ARDUINO, MATLAB**

BE Project – TELESURGICAL BIONIC ARM

- Designed a cost effective, wirelessly communicated **Master-Slave Bionic Arm** to aid in rural health care
- **Built** a **Robotic Arm** with Human resemblance **-MECHANICAL WORKBENCH**
- **Integrated** flex **sensors**, potentiometers and accelerometer fixed on a glove to be worn by a physician as a **single input - multiple output circuit** **-ELECTRONICS**
- Created a **local wifi network** using wifi modules **-ARDUINO**
- **Streamlined** the sensor output and **mapped** its **analog values** to **servo** angles to control the robotic arm with **forward kinematics** to provide **first aid remotely** - **ARDUINO, ELECTRONICS**

Personal Projects

- Human **Colour Vision** Model **-MATLAB**
- **K-means** classification **-MATLAB**
- Marker **Transformation** function for **Motion Capture** systems **-PYTHON, MATLAB**
- **Inverse Kinematic** solver algorithms **-PYTHON, MATLAB**
- Simple **A* Algorithm** **-PYTHON**
- PC **Game** **-PYTHON**
- **Path following** robot **-ARDUINO**
- Real time **PPG signal** display **-ARDUINO**
- 2D Design of **Lower Limb Exo-skeleton** **-AUTOCAD**
- Adjustable **Prosthetic Leg** **-SIEMENS NX**

CERTIFICATION

- Humaniod Robotics using Raspberry PI
- CATIA V5: DMU Kinematics
- Machine Learning
- Wearable Robotics-Exoskeletons (Lower Limb)
- UR robotics e-series e-learning

TECHNICAL SKILLS

- MATLAB
- Python
- Arduino
- Linux fundamentals
- AutoCAD & SolidEdge (2D Design & Isometric Projection)
- NX designs, Fusion360 (3D Design and Stimulation)
- KiCad (Circuit Analysis, Designing and Debugging at breadboard, perf board and PCB level)

NON-TECHNICAL SKILLS

- Innovative
- Time Management
- Communicative
- Collaborative
- Leadership Qualities
- Critical Thinking & Problem Solving
- Adaptable

PROFESSIONAL ENGAGEMENTS

Big Data in Medical Research 12/2020
International Conference (Online) (IC RTEETIMP-2020), December 2020 Recent Trends in Electrical, Electronics, Telecommunications, Instrumentation, Medical Electronics Engg. & Physics

Redistributing the Pressure of Prosthetic Systems 04/2019
Seminar given at the Department of Medical Electronics

Telesurgical Bionic Arm 12/2019
International Journal of Engineering and Science Invention (IJESI)

WORK EXPERIENCE

Biomedical Engineering Intern 2019
Sagar Hospitals Bangalore, India

- Performed **gap analysis** of **existing and required technology**.
- Analysed the equipment **quality control protocol** within 5 departments.
- Formulated a preventive and corrective **maintenance protocol**
- Observed **duties** of a Biomedical Engineer during **medical procedures**

INTERESTS

- Body Building
- Drawing & Painting
- Cooking