Tanzim Mashrur

Robotics and Computer Vision Researcher

Passionate about learning new technologies and undertaking projects that encourage technical creativity

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EDUCATION

Master of Applied Science, Rehabilitation Robotics

University of Guelph

05/2019 - 04/2021 *Guelph, Ontario, Canada*

Relevant Information:

- **Courses:** Machine learning, Image Processing, and Robotic Systems
- **Area of research:** Rehabilitation Robotics
- **Thesis:** Development and Functional Analysis of the Assistive Feeding Robot

WORK EXPERIENCE

Robotics and Computer Vision Researcher

University of Guelph

05/2019 - 04/2021

*The thesis project involved the design and development of an **Assistive Feeding Robot** for disabled individuals*

Achievements

- Created a novel system design that emphasized **generalized functionality** and **seamless user experience**.
- **Formulated and led** the research team, which provided direction for the overall project.
- System prototype **exceeded supervisor's expectations**, its functionality surpassed the original goals.
- Conducted a **live demonstration** of the prototype to industry professionals, which **received high praise**.
- From validation, the system displayed **minimal error and high success rate**.
- Working to **publish journal paper**

Contact: Hussein Abdullah - habdulla@uoguelph.ca

Embedded Software Developer

The Robotics Institute of Guelph

01/2019 - 04/2019

*Primary **Embedded Developer** for a device that provides assistance to the elderly*

Achievements

- Developed an algorithm for **ensuring safety using thermal readings**, it was both fast and reliable.
- Created a **Bluetooth Gateway** for mobile app and database communication using **WiFi** and **BLE**.
- **Helped improve** the system website and mobile app.
- **Accelerated overall development process**, which enabled for faster deployment.

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COMPETENCIES

Python | C++ | OpenCV | GUI Development | TensorFlow | Fanuc Robotics | Object Detection | Facial Tracking & Recognition | Image Segmentation | 3D Localization | Microcontroller & Sensor Integration | ROS | React Native | Camera Calibration | Git | Linux | Public Speaking | Collaboration

RELEVANT PROJECTS

Assistive Feeding Robot (05/2019 - 04/2021)

- Comprised of 6 DOF **Fanuc Robot** that was programmed in **Python** and leveraged **Multithreading.**
- Automatically acquires food via **fork, spoon, or grasping** which is then brought to user's face.
- Detects food using **object detection**, **Faster RCNN** was implemented via **TensorFlow.**
- **Facial recognition** and tracking implemented via **DLib** & **OpenCV.**
- **3D Localization** done through **Intel RealSense Camera.**
- Implements **real-time safety system** that continuously tracks user's position.
- **Smart inventory algorithm** was created for automatically detecting changes in feeding area.
- **Minimalistic GUI** was implemented with **React Native** and a **Flask backend.**
- Algorithm was created for **automatic passive training** for **object detection model.**

LANGUAGES

English

Native or Bilingual Proficiency

INTERESTS

Artificial Intelligence | Computer Vision | Embedded Development | IOT Systems | Robotics | Home Automation