MOSTAFA OTHMAN
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SUMMARY

Highly skilled robotics engineer and machine learning enthusiast, keen on developing and deploying emerging robotic systems for industrial applications. Competent in enhancing and streamlining robot operations, utilizing deep learning and computer vision techniques to increase efficiency and improve performance. Interested in providing innovative solutions to industry-specific issues and advancing technological progress in robotics.

EXPERIENCE

Rapyuta Robotics, Tokyo, Japan: Robotics Software Engineer   Dec 2022 – present
- Engineered software configurations and deployed over 80 autonomous mobile robots (AMRs), 20 (AFLs) and 30 edge server PCs across production and demo environments, ensuring seamless integration and operational readiness.
- Collaborated with cross-functional teams including engineering, product, and client success to define system requirements, implement features, and align technical deliverables with business goals.
- Diagnosed and resolved complex runtime issues during live robot operations, reducing downtime by half and improving overall system reliability.
- Led full-cycle deployment of robotic systems at major industry exhibitions and trade shows, managing installation, operation, troubleshooting, and post-event reporting.
- Provided technical support for Rapyuta Robotics' AMR products — Sootballs and Forklifts — across multiple customer sites in Japan, ensuring optimal performance and user adoption.

Laboratory of Intelligent Robotics Systems, Kazan, Russia: R&D Robotics Engineer   May 2021 – Jul 2021
- Designed and implemented a tele-operation system for a large-scale 10m x 7m cable-driven robot using a haptic interface, enabling high-precision remote control and real-time feedback.
- Developed bi-directional communication between the haptic device (C++) and Omron PLC controllers using WebSocket protocol , achieving real-time motor control and sensor data streaming.

PROJECTS

Master Project:Tele-operation and Resilient Peg-in-Hole Assembly with Kuka iiwa Robotic Arm   Dec 2021 – Jul 2022
Achieved resilient peg-in-hole assembly by combining tele-operation, haptic device, force feedback, shared autonomy.
- Built a hybrid robotic control system combining teleoperation, force feedback, shared autonomy, imitation learning, and learning from demonstrations , enabling resilient peg-in-hole assembly beyond the native accuracy of the KUKA LBR iiwa robotic arm.
- Integrated advanced control strategies using ROS , achieving sub-millimeter precision in tight-tolerance assembly tasks, and benchmarked performance improvements against standard robotic capabilities.
- Utilized KUKA LBR iiwa and haptic devices to enhance human-robot interaction, demonstrating intuitive control and high assembly accuracy in experimental trials.

Bachelor Project:Tele-operated Virtual Reality Control of a 7-DOF Industrial Robotic Arm   Oct 2019 - Jul 2020
Collaborated in a team of four to control and integrate Robot arm for digital twin, achieving first place in AIOT Egypt challenge
- Developed a VR-based teleoperation system for a 7-DOF industrial robotic arm , allowing immersive control through virtual reality interfaces.
- Implemented forward and inverse kinematics algorithms , trajectory planning, and real-virtual world mapping using ROS and Unity , increasing robot mobility and task flexibility.
- Designed interactive UI and simulated robotic behavior in Unity 3D , achieving seamless integration between VR environment and physical hardware.

EDUCATION

Master's degree, Robotics and Computer Vision   Graduating Jul 2022
Innopolis University, kazan, Russia   4.5/5 GPA
Relevant coursework: Advanced Robotics, Behavioral and Cognitive Robotics, Dynamics, Machine Learning

Bachelor's degree, Mechatronics Engineering   Graduating Jul 2020
Nile University, Giza, Egypt   Highest Honors 3.71/4 GPA
Relevant coursework: Sensors and actuation,Kinematics, Circuits, Control theory

TECHNICAL SKILLS

Robotics: ROS, Docker, Github, Modelling and simulation, Hands-on experience Kuka-iiwa
Design and Prototyping: SOLIDWORKS, LabVIEW, MATLAB, Unity3D, Gazebo, 3D-printing
Programming: Python, C++, TensorFlow, Pybullet, OpenAI Gym
Competitions: Participated in various robotics competitions including ROV, WRO, AirRace, Fighting Robots
Teaching: Taught robotics concepts to junior university students and mentored them in robotics competitions.

PUBLICATION

Robotic Arm Pick and Assembly Using Deep Learning and Hybrid Vision/Force Control, Innopolis, RU: Aug 2021
  • Published in 2021 IEEE International Conference "Nonlinearity, Information and Robotics" NIR Paper