SENCER YAZICI

CONTROL ENGINEER

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EXPERIENCE

R&D Developer Assistant

Polonom Robotics

July 2019 – December 2019 Istanbul,Turkey

Developing Robots that are capable of mapping environment and moving autonomously.

- Developing State Machine components for vehicles' autonomous drive.
- Modeling vehicle and tuning controller parameters accordingly.
- Developing a middle layer for Driving Oriental Motor industrial motors through their driver sith STM32F4, using Modbus RTU protocol and connecting the layer to ROS.

R&D Developer

Tekhnelogos

June 2019 – July 2019 Istanbul,Turkey

Developing speed controller for autonomous ground vehicle capable of lifting up to 500 kgs.

- Constructing robust communication between the STM32F4 and the computer.
- Modeling vehicle and tuning controller parameters accordingly.
- Control of the provided motor driver.
- Read & Count quadrature encoders.

Software Developer

Ravinspect Tech – Unmanned Visualization with Intelligence

March 2018 – February 2019 Istanbul,Turkey

Detecting lightning strikes on an airplane in hangar, with quadrotor.

- Autonomous path planning and collision avoidance for unmanned quadrotor
- User friendly Graphical User Interface to monitor the status of quadrotor and control the mission progress

Intern

Ravinspect Tech – Unmanned Visualization with Intelligence

February 2018 – March 2018 Istanbul,Turkey

- Main camera gimbal position control and communications

INTERESTS

C++ Python ROS Robotics Mobile Robotics TensorFlow PyTorch YOLO

Hard-working Eye for detail Motivator Music & Electric Guitar

LANGUAGES

English ●●●●●

German ●●○○○

EDUCATION

B.Sc. in Control Engineering

Istanbul Technical University

Sept 2016 – ongoing Istanbul, Turkey

Current GPA: 3.25/4.0

ACADEMICAL WORK

Formation, Control, and Obstacle avoidance of Multi-agent Quadrotor Swarm Systems

Senior Design Project, Thesis, under supervision of Assoc. Prof. Dr. Tufan Kumbasar

Sept 2019 – ongoing Istanbul, Turkey

Artificial Intelligence and Intelligent Control Lab

PROJECTS

Lead Software Developer

ITU Rov Team

September 2016 - June 2017

Developing a software for Remotely Operated Underwater Vehicle (ROV) to compete in MATE'17

- ROV's Ground Control Station and Onboard Controller Software
- Embedded programming for ROV's microcontroller

Software Developer

ITU Rover Team

September 2017 - June 2018

Developing a software for Mars Rover to compete in URC'18

- Robotic Arm inverse kinematic calculations and path planning software
- Ray spectrum and material analysis on a custom built Spectrometer, using image processing on captured spectral image data

Lead Software Developer

ITU Auv Team

September 2018 - Ongoing

Developing a software for Autonomous Underwater Vehicle to compete in RoboSub'20 and Singapore Auv Challange, SAUVC.

GitLab

gitlab.com/itu-auv

- 3D path planning and path following algorithms
- Autonomous navigation experience in move_base and move_base_flex
- Vehicle stabilization and control, on both embedded and Jetson Xavier Hardware
- Developing mission spesific Sub-State Machines, and construction of Main State Machine
- Image processing, using AI & OpenCV
  - Detection & Classification of mission tools and objects
  - Detection & Avoidance of obstacles
  - Using camera feed, to track camera movement
- Simultaneous localization and mapping (SLAM)
- Programming embedded ARM microcontroller on a custom designed motherboard
- ARM microcontroller and ARM linux computer (Nvidia Jetson Xavier) robust communication for telemetry and data exchange
- Using EKF (Extended Kalman Filter) for sensor fusion and position tracking/estimating
- A state machine structure to construct a mission flow
- Debug interfaces to monitor and trace problems
- ROS to MQTT Bridge node, to track telemetry data, on MQTT Visualization Tools
- Integration of NASA Ames Research Center's OpenMCT Mission Control Software to ROS, for visualizing telemetry feed
- Gazebo based 6DOF simulation, for simulating hydrodynamic and hydrostatic affects, creating competition environment and materials.