Vivek Radhakrishnan

vivekrk44@gmail.com | +1 (347) 294 8197 | New York

SUMMARY

Experienced Autonomy Software Engineer with over a decade of expertise in developing, scaling, and maintaining complex distributed swarms of UAVs. Proficient in modern C++ and Python, specializing in state estimation, motion planning, and control algorithms. Adept at hardware design from circuits to PCB to embedded systems like STM32, NXP. Experienced at collaborating with cross-functional teams to deliver robust, high-performance autonomous solutions.

EDUCATION

M.Sc. in Robotics
New York University, New York
2021 - 2023 GPA: 3.97

B.Sc. in Electrical Engineering
Birla Institute of Technology and Science, Dubai
2010 - 2014

PATENTS

A system for charging a battery in an aircraft

- Utility, No. 18/467,202 (Pending, 2023)
- Provisional, No. 63/375,638 (Granted, 2022)

SKILLS

- C/C++, Python, C#
- Embedded programming (STM32, NXP)
- Flight controllers (PX4, VOXL, Crazyflie, Betaflight, ArduCopter/Plane)
- Gaussian filters (EKF, UKF, PDAF) design and implementation
- Linear / Non Linear controller design and implementation
- ROS, ROS2, Fast-DDS
- Linux systems (Debian, Nix, Arch)
- Shell scripting (Bash, ZSH, Fish)
- Docker
- Continuous integration (Jenkins)
- Debugging, troubleshooting, problem-solving
- PCB Design (Kicad, EasyEDA)
- Swarm architecture design
- Cross-functional team collaboration

LINKS

website
linkedin

EXPERIENCE

ZEROFLAi - Co-Founder & CEO 07/23 - Present
- Designed and implemented autonomous charging systems for UAVs, enhancing mission continuity without human intervention.
- Developed tight integrated systems with PX4 and QGroundcontrol for unified mission control.

Agile Robotics and Perception Lab - Researcher 09/21 - 09/23
- Developed and optimized state estimation and localization algorithms.
- Introduced a universal object detection perception framework.
- Developed a model-free controller for resilient quadrotor visual tracking.

Technology Innovation Institute - Senior Researcher 07/20 - 08/23
- Developed state estimation algorithms for fixed wings and multirotors.
- Implemented non-linear control algorithms for fixed wings and multirotor platforms.
- Implemented CI/CD using Jenkins and Docker.

Algorythma - Systems Integration Engineer 10/18 - 06/20
- Control and perception subsystems for autonomous aerial platforms.
- Developed and tested software for embedded applications.
- Globally consistent state estimation for swarms.

BUT nv. - Lead Hardware Engineer 05/15 - 09/18
- Led hardware engineering projects, focusing on the development and deployment of interactive media and robotics solutions.
- Hardware hacking and integration with Unity 3D.

The Assembly - In House Engineer 10/14 - 05/15
- Delivered workshops and built innovative projects in robotics and IoT, fostering hands-on learning and practical application.

Etisalat - UAV Engineer 08/14 - 10/14
- Developed UAV solutions for the Smart City Project, contributing to winning the Drones for Good Award.

PEER-REVIEWED PUBLICATIONS

Unifying Foundation Models with Quadrotor Control for Visual Tracking Beyond Object Categories
IEEE International Conference on Robotics and Automation, 2024

Directed Graph Topology Preservation in Multi-Robot Systems with Limited Field of View Using Control Barrier Functions
IEEE Access, 2023

AutoCharge: Autonomous Charging for Perpetual Quadrotor Missions
IEEE International Conference on Robotics and Automation, 2023

Vision-based Relative Detection and Tracking for Teams of Micro Aerial Vehicles
IEEE/RSJ International Conference on Intelligent Robots and Systems, 2022

Challenges in Vision-based Drones Navigation
IEEE/RSJ International Conference on Intelligent Robots and Systems, 2019

Autonomous Unmanned Aerial Vehicle for Reconnaissance based on Robotic Operating System
Third Symposium on Indoor Flight Issues, 2013