Justin Nguyenvu

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Education

University of Missouri- Kansas City

Kansas City, MO

Interdisciplinary Doctorate of Philosophy - Computer-Science/Mechanical-Engineering, GPA:3.9

Fall 2022 - ETA Fall 2024

- Emphasis on Guidance Navigation and Controls
- Have Secret Clearance
- Presented in AIAA 2023 SciTech's National Student Conference Competition
- Presented in AIAA 2023 and 2024 Defense (Upcoming)
- Courses Taken: Machine Learning, Deep Learning, Aircraft Combat Survivability, Optimization, Advanced Numerical Methods

University of Missouri- Kansas City

Kansas City, MO

Master of Science - Mechanical Engineering, GPA: 3.8

Spring 2021 - Spring 2022

- Robotics and Controls Emphasis
- Thesis on integration of Unmanned Traffic Management System with vision based landing utilizing Linear Quadratic Gaussian controller
- Won First Place in AIAA Regional Conference for multi-agent path planning in Unmanned Traffic Operations

University of Missouri - Kansas City

Kansas City, MO

Bachelor of Science - Mechanical Engineering, GPA:3.1

Fall 2017 - Fall 2020

Employment and Experience

Lockheed Martin - Advanced Development Programs

Marietta, GA

Software Engineer Intern

May 2023 - August 2023

- Implemented multi-threaded process in algorithm library with C++ and reduced time complexity to implement method in half
- Added additional features in algorithm library for C130
- Included obstacle avoidance for different obstacle configurations in algorithm while considering surrounding terrain

Missouri Institute for Defense and Energy / Naval Research Academy

Kansas City, MO

Guidance Navigation and Controls

August 2022 - Current

- Working with multi-disciplinary team and current lead for Guidance, Navigation, and Controls for Fixed Wing (FW) UAS platform
- Developed algorithm and code (Python and C++) for FW UAS utilizing Model Predictive Control (MPC) with Robot Operating System (ROS) 2
- Currently researching higher level decision making processes utilizing Transformers with Reinforcement Learning Processes with FW applications

Edwards Air Force Base

Edwards, California

Fellowship Research Internship

May 2022 - August 2022

- Designed and developed software and communication architecture for integration of Unmanned Aerial System (UAS) with C4 diagramming to build context and understanding of UAS interaction with test pilot students
- Updated and integrated 7 year old legacy code PX4 Autopilot, written in C++ and C, to allow Programmable Test Inputs (PTI) for System Identification (SID) testing of UAS via autonomous frequency sweeps
- Incorporated supervisor co-computer utilizing ROS, written in Python and C++, that is interfaced with Pixhawk4, flight tested the system and verified system enacted safety trips
- Developed Docker container in co-computer to allow ease of software transition with different operating systems for future integration

Drop Drone

Kansas City, MO - San Francisco, CA

Graduate Researcher

May 2021 - August 2021

- Worked in $20,000 STTR research grant to build and develop UAV for infra-red (IR) detection and tracking
- Integrated Pixhawk2 with Ardupilot, lidar, and IR camera for IR detection
- Soldered and wired I2C and serial communication protocols for connection of Lidar and camera protocols with Pixhawk2
- PID tuned UAV to ensure adequate flight performance of UAV

Skills

- Python, CPP, ROS, MatLAB
- C, Java, Kotlin
- JavaScript, CSS, HTML
- MySQL, MongoDB
- Docker
- Linux, Windows, Github
- Agile Principles
- Object Oriented Programming
- Agile Development (SOLID)
- Android Application
- Additive Manufacturing and Prototyping
- Solidworks
- Wiring and Soldering
- Machine shop fabrication and equipment
- Artificial Intelligence
- Deep Learning with Neural Networks
- Computer Vision
- Mathematical modeling and Optimization
- Data analyzing and data visualization