Nicklas Stockton

CONTACT & PROFILES

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PROGRAMMING LANGUAGES

- Python
- Rust
- LaTeX
- C
- C++
- Bash
- Asm (PowerPC, MIPS)
- Matlab

TECHNOLOGIES

Linux/FreeBSD • Unix coreutils
OpenSSH • Gnuplot • Vim
Git • Cross-compilation
GNU Make • CI/CD (Gitlab/Github)
CMake • Docker/Podman

INTERESTS/PASSIONS

- Open source software/contribution
- Homemade pasta
- Barefoot running
- Music
- Robotics/Simulation (ROS)

NORTHROP GRUMMAN

PRINCIPAL FTL SYSTEMS ENGINEER (SOFTWARE)
- Future Technical Leaders (FTL) is highly competitive three-year technical and professional development program aimed at identifying and developing high-potential engineers and technologists to become future industry leaders

2022–Present   Annapolis, MD
- Technical and agile scrum lead for team of 5 engineers
- Design and implement modernized versions of legacy applications
    - Replace Windows VB application with Qt application
    - Replace legacy communication middleware with modern OSS frameworks
    - Port non-realtime hardware controller components from RTOS to Linux

2021–2022   Fairfield, OH
- Modernized developer toolset and workflow to enable better collaboration and automation, eliminating mundane tasks and reducing developer merge times (from days to minutes)
- Mentored new developers and provided technical guidance for software design and implementation
- Developed Linux kernel module modifications to support customized Xilinx FPGA data acquisition hardware
- Developed RF data visualization tools to support data validation and verification activities

CYBER SOFTWARE ENGINEER
2019–2021   Fairfield, OH
- Technical and project lead for team of 6 engineers supporting multiple customer deliveries
- Implemented crucial pieces of automated pipeline to streamline product test and release cycle
- Passionately pushed for more streamlined processes and better automation of mundane tasks to improve developer quality of life

FREELANCE

DATABASE DEVELOPER - RUST
Feb–Apr 2020
- Adopted previously developed time-series database project without documentation and minimal tests
- Added the ability to index database entries using H3 geospatial indices
- Wrote over 1400 lines of documentation covering the public API
- Added tests to validate high-priority internal functions which uncovered bugs to be fixed
- Complete project timeline was less than 3 months

QT GUI DEVELOPER - C++
Feb–Jul 2019
- Developed custom plugin for video streaming service to simplify user experience
- Integrated new features deeply into existing open-source core (OBS Studio)
- Contributed back to community when feasible
- Simplified project architecture and utilized open-source libraries to clean implementation

AIR FORCE RESEARCH LABORATORY

AEROSPACE ENGINEER
2017–2019   WPAFB, OH
- Received Scientific and Technical Achievement Team Award — F-16 Auto-Strafe "Death Claw"
- Learned and modified legacy OpenGL codebase to produce custom simulated aircraft HUD symbols within three weeks
- Successfully refactored simulation code base for increased modularity, portability, and maintainability enabling simulation to run in a variety of environments
- Introduced Git to wrangle scattered code versions and fragments into unified whole
- Manually translated Simulink models into C++, validating model behavior against original

EDUCATION

Master of Science — Aerospace Engineering
UNIVERSITY OF CINCINNATI
2016–2018

Bachelor of Science — Aerospace Engineering
UNIVERSITY OF CINCINNATI
2013–2017
- GPA: 3.87 overall, 3.90 in Aerospace Engineering — Dean's list
- Engineer of the Month (Dec 2015); Knowlson and Irene Byar Scholarship Recipient (Jun 2015)

RESEARCH

University of Cincinnati — Thesis Research   2015–2017
- Developed iterative simulation ability for the purpose of machine learning intelligent control.
    Simulation is complete with simulated sensors and mock up environment.
- Wrote custom fuzzy logic module using pure Python by using efficient inference/defuzzification.
    Extended with additional genetic algorithm for genetic fuzzy learning.
- Created genetic fuzzy library in C for dynamic system control learning.
    Focused on speed and correctness for use in real-time, low-latency situations.

Asymmetric Inc./ University of Cincinnati — Advanced Red Team - Technical Support and Operations Analysis Demonstration   2016
- Delivered prototype on a demanding schedule due to a pressing deadline.
- Interfaced multiple sensors and software packages to control exploration mission.
- Integrated flight controller to on-board flight computer using Python and Robot Operating System (ROS).
- Demonstrated prototype to a group of servicemen for use in dangerous environments.

Autonomous Air Vehicle Competition Team Member — Air Force Research Labs Autonomous Air Vehicle Conference
2014–2015
- Competition challenge requirements included locating and imaging a target in an indoor, GPS–denied environment.
- Developed software to integrate various hardware components to ease the exchange of sensor data.
- Software processes raw data streams from serial connections to useful information to be used in the control and guidance of the air vehicle.
- Current work includes developing improved computer vision algorithms and interpreting encoded waypoint information.

Undergraduate Research — National Science Foundation   2013
- Analyzed a benchmark structural stability problem to devise a control methodology using fuzzy–genetic systems.
- System model exhibited both flexible and rigid body modes. Designed controller performed within 3% of theoretically ascertained limit of stability.
- Presented findings before a peer audience at multiple conferences.
- Demonstrated the ease of using fuzzy control to tame highly non-linear systems with intuition.
- All work was done using Matlab.

PUBLICATIONS AND PRESENTATIONS

- Stockton, N., "Hybrid Genetic Fuzzy Systems for Control of Dynamic Systems", *Thesis (MS) University of Cincinnati*, 2018
- Lamping, A., Ouwerkerk, J., Stockton, N., Cohen, K., Kumar, M., Casbeer, D., "Multi-UAV Control and Supervision with ROS", *Aviation Technology, Integration, and Operations Conference*, AIAA, Atlanta, GA, 2018.
- Stockton, N., Kumar, M., Cohen, K., "A Fuzzy-Logic-Based Solution to Dynamic Target Interception and Landing with a Small Multirotor Aircraft", *SciTech*, AIAA, Grapevine, TX, 2017.
- Janson, A., Stockton, N., Cohen, K., "Genetic Optimization of Fuzzy Logic Control for Coupled Dynamic Systems", *SciTech*, AIAA, Kissimmee, FL, 2015.
- Brown, B., Crowell, C., Feie, B., Hartmann, J., Hutchins, B., Kukreti, S., Mummidivarapu, S., Redmond, B., Sathyan, A., Stockton, N., Stubblebine, A., Kivelevitch, E., Cohen, K., "Development and Validation for the First Annual AAVC Competition by the University of Cincinnati Autonomous Vehicle Group", *Autonomous Aerial Vehicle Conference*, AFRL, Wright–Patterson Air Force Base, OH, 2014.