Tim Kanarsky

tkanarsky@outlook.com · (925)-223-7979 · github.com/tkanarsky

Education

University of California, Los Angeles — Los Angeles, CA
BS Computer Science, Mathematics minor *GPA: 3.96* — Sep 2019 - Jun 2023
Selected coursework: Operating Systems, Algorithms, Networks, Computer Architecture

Experience

SpaceX — Hawthorne, CA
Starship Flight Software Intern — Jun 2021 - Sep 2021

- Designed protocol for zero-configuration setup of data flows on Starship avionics network. Implemented server and client library using Flatbuffers, Rust, and C++
    - Allows replacement of avionics modules without reprogramming, paving the way to faster iteration and repair of prototypes.
- Adapted telemetry review tool to work with Starship booster codebase, enabling continuous deployment of builds to simulators and vehicle. Eliminated dozens of after-hours manual interventions.

Avionics Software Intern — Jun 2020 - Sep 2020

- Optimized telemetry validation algorithm; achieved $60\times$ speedup over existing implementation
- Refactored stress test automation infrastructure – improved avionics testing throughput by reducing human interventions.
- Interfaced new automated test equipment with in-house Python framework.

AVBotz Underwater Robotics — Pleasanton, CA
Software Team Member — Sep 2015 - Aug 2019

- Helped develop, test, and operate an autonomous submarine
- Prototyped underwater image enhancement and feature detection algorithms with OpenCV
- Created browser-based camera viewer and control panel for submarine with Flask and ZMQ
- Wrote drivers in AVR C to interface with sensors

Skills

Proficient in:	Python and C++ under a Linux environment
Familiar with:	Rust, NumPy, OpenCV, AWS/Google Cloud, Pytorch, ROS, Docker

Projects

Alarm Listener *Node.js, NumPy* — github.com/tkanarsky/homebridge-alarm-listener
Detects smoke detector alarms through spectral analysis, and alerts the user through a virtual HomeKit smoke sensor. Available on `npm` for use with the Homebridge framework.

Window *Embedded C++, Flask* — github.com/tkanarsky/window
A solar-powered message board with Bluetooth proximity detection and voice mailbox features. Prototyped over 36 hours at IDEAHacks 2020.

Dormotics *Embedded C++, Google Cloud Functions, Firebase*
Automated my dorm room: designed, 3D printed, assembled, and programmed interfaces for physical objects such as wall switches, LED strips, curtains, and blinds; wrote custom integrations for Google Assistant and Apple HomeKit.

GenePID *Python* — github.com/tkanarsky/pid-genetic
Tunes a simulated dynamic system's PID controller values using a genetic algorithm.

Eggshell *Python* — github.com/tkanarsky/ansiparser
A proof-of-concept Slack bot that renders an SSH session in real-time in Slack chat. Users can input commands and monitor long-running tasks without leaving Slack.

Awards

Semi-finalist — MIT Battlecode
Placed top 32 out of more than 300 teams at an AI-game-bot programming competition. — Jan 2018

- Implemented jump-point search algorithm, which decreased path planning CPU time and allowed more agents to act per game tick.