Tim Kanarsky
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Education

B.S. Computer Science and math minor at UCLA
Graduating June 2023
GPA: 3.88
Selected coursework:
- Operating Systems
- Linear Algebra
- Embedded Systems
- Signals and Systems
- Neural Networks
- Computer Vision, Graphics
- Databases

Work Experience

Software engineering intern at Facebook, summer 2022
- Created an API in Hack on top of the in-house ORM for serializing existing Facebook posts from database, paving way for enhanced cross-app content sharing
- Led team of 6 engineers in updating existing database schemas to support new API
- Wrote full-stack web app in GraphQL/React to search and catalog database schemas

Flight software intern at SpaceX, summer 2021
- Resolved 17 bugs preventing booster flight software from building in CI environment.
- Designed protocol for zero-configuration setup of data flows on Starship avionics network, permitting faster iteration and repair of Starship prototypes. Implemented server and client library using Flatbuffers, Rust, and C++

Avionics intern at SpaceX, summer 2020
- Wrote device drivers and middleware in Python to interface with automated test equipment used in the avionics testing process
- Parallelized slow telemetry validation algorithm, resulting in 60x speedup over existing single-threaded implementation
- Worked on software framework for a new type of test procedure, combining ATE control, data validation, and technician-friendly anomaly reporting.

Skills

Proficient in Python, Rust, C++ on Unix-based systems.
Familiar with OpenCV, ROS, Monte Carlo localization, TDoA algorithms, Pytorch, ZeroMQ, Protobuf, SQLite, electronics fundamentals, etc.
Bilingual (English and Russian), critical thinker, strong interdisciplinary knowledge.

Projects

AVBotz Underwater Robotics (avbotz.com)
- Helped develop, test, and operate autonomous submarine in high school robotics club.
- Developed object detection algorithms, web-based control panel, localization visualizer, sensor drivers, etc.
- Competed in AUVSI RoboSub competition

Throw-tracking Nerf ball (https://hackaday.io/project/170654-nerfornothing)
- Equipped an off-the-shelf Nerf ball with dual accelerometers, embedded Web server with live data visualization, FTP log download, etc. to estimate the parameters of a throw (distance, time aloft, spiral rate).

Smart dorm room
- Interfaced existing objects such as wall switches, LED strips, curtains, and blinds with smart-home ecosystem using 3D printed adapters, motors, and Bluetooth reverse engineering.
- Wrote custom integrations for Google Assistant and Apple HomeKit

Alarm Listener (github.com/tkanarsky/homebridge-alarm-listener)
- Detects smoke detector alarms through spectral analysis
- Alerts the user through a virtual HomeKit smoke sensor if smoke detector alarm is heard
- Available on npm for the Homebridge framework.

Genetic algorithm for PID tuning (github.com/tkanarsky/pid-genetic)
- Tunes a simulated dynamic system's PID controller values using a genetic algorithm
- Validates performance for a simple 1D quadcopter simulation.

Hobbies

Backpacking, karaoke, skiing.
Amateur radio -- callsign KK6EKQ :)
Technician at UCLA Makerspace (Jan 2021-)
- Assist with projects, mentor students, and maintain equipment in student workshop
- Learned 3D CAD/CAM, as well as hands-on machining, woodworking, and electronics prototyping skills