Benjamin D. Manley

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EDUCATION

University of Michigan, *Ann Arbor, MI* — *May 2021 B.S.E. / May 2022 M.S.E.*

B.S.E & M.S.E. in Computer Science, Minor in Physics — **3.97 / 4.00 B.S.E. GPA**

Honors: 1931E Scholar Society (President), Dean's List, James B. Angell Scholar

Relevant Coursework: Auton Robotics, Quantum Computing, ML, CV, OS, UI, Security, Distr Systems, Compilers, Web Systems, Physics (E&M, Heat/Waves, Quantum), Calculus, Statistics, Linear Algebra

EXPERIENCE

SpaceX Starlink, *Redmond, WA*

Software Engineer II — *Aug 2022 – Present*

- Sole RE for the WiFi6 Gen3 router (now >1M online), including platform bring-up, feature porting, factory support, global rollout metrics analysis, and a custom secure boot STM32. *Go, C, Bash, Python, SQL.*
- Scaled the Starlink consumer router fleet from ~100K routers to over 4M on a team of as few as 3 people.
- Implemented FQ-CoDel packet queueing in WiFi TX path for fair bandwidth allocation in dense client scenarios. *C.*
- Designed next-gen airplane network layout. Added enterprise router network configurability and led iterative design with large airline consumers.
- Drove router reliability efforts that reduced kernel panic rate by >50%. Implemented fleetwide fault data collection.

Software Engineering Intern — *May – Aug 2021*

- Implemented reliable over-the-air software updater with an A/B-boot-conscious NAND flasher that has maintained a fleet of >4M embedded devices for >3 years. *Go.*
- Owned all security features on Gen2/Gen3 routers (OpenWRT kernel and U-Boot config, ARM Trusted Firmware secure boot, anti-rollback software versioning, automated board fusing, compliance CI, etc.). *C, Bash, Python.*

Microsoft Garage, *Cambridge, MA*

Software Engineering Intern — *June – Aug 2020*

- Delivered a Microsoft Teams mobile app feature for displaying shared links in chats from conception to shipment.
- Developed scalable client and backend software in *Android* and *C#* enterprise codebases.
- Ensured accessible feature UI for blind and motor-impaired users with automated tooling.

Honeybee Robotics Spacecraft Mechanisms Corp., *Pasadena, CA*

Software Engineering Intern — *June – Aug 2019*

- Developed real-time, memory-constrained flight software for multiple interplanetary missions to enable interrupt-driven timing, serial communication, and translation of system tick counts into J2000. *C, FreeRTOS.*
- Designed a method of timestamping to minimize overhead during critical data collection.

Autonomous Robotics Senior Design Project, *Ann Arbor, MI*

Team Member — *Jan – May 2021*

- Built a robot to sanitize user-selected objects with UV light by autonomously mapping a space, tracking sanitization coverage, and generating new sanitizing poses around target in real time (achieved >95% coverage). *C++.*
- Implemented 2-D LiDAR SLAM with Monte Carlo localization, 3-D stereo camera point cloud stitching, and A* path planning for navigation.

Michigan Robotic Submarine, *Ann Arbor, MI*

Co-Founder, Software Lead — *Feb 2020 – May 2021*

- Led a team of engineers to develop autonomous control and navigation software for an underwater vehicle, integrating computer vision, task/motion planning, and motor control using *ROS.*

EECS 370 (Computer Organization) + EECS 598 (Applied Parallel Prog. w/ GPUs), *Ann Arbor, MI*

Instructional Aide / Graduate Student Instructor — *Aug 2020 – May 2022*

ACTIVITIES

Ear Peace: Save Your Hearing Foundation, *Nonprofit Board Member and Ambassador* — *Aug 2013 – Present*

Personal Website (benmanley.dev), *Dabbling in web design for fun!* — *May 2020 – Present*

"Only Twice A Year" Documentary, *Co-Director, Co-Writer, Editor, Graphic Artist, Narrator* — *Oct 2021 – Aug 2024*

M-agination Films Production Group, *Producer, Editor, and Sound Technician* — *Oct 2017 – June 2022*