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, *Redmond, WA*
Starlink Software Intern — *May – Aug 2021*
- Shipped core backend features in Go for the out-of-beta routers in the Starlink satellite internet system
- Implemented a safe and seamless over-the-air software updater with an A/B-boot-conscious NAND flasher
- Owned all security considerations on the Gen2 router (OpenWRT kernel and U-Boot configuration, ARM Trusted Firmware secure boot, anti-rollback software versioning, automated board fusing, SSH/IP lockdown, etc.)
- Established automated, hardware-in-the-loop penetration and compliance tests for early regression mitigation

Microsoft Garage, *Cambridge, MA*
Software Engineering Intern — *June – Aug 2020*
- Delivered a feature in Microsoft Teams from conception to shipment in a full-stack, all-intern team using Agile
- Developed scalable client and backend code in Android and C# enterprise codebases
- Implemented the first feature to follow brand-new standards for operational telemetry data and code structure
- Performed manual and automated tests to build accessible UI for blind and motor-impaired users

Honeybee Robotics Spacecraft Mechanisms Corp., *Pasadena, CA*
Software Engineering Intern — *June – Aug 2019*
- Created new flight software system to be used on multiple space missions in the next decade
- Developed real-time, memory-constrained flight software with FreeRTOS for interrupt-driven timing, serial communication, and translation of system tick counts into J2000 using intermittent time correlation packets
- 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 that autonomously maps a space and sanitizes user-selected objects with UV light
- Implemented LiDAR SLAM with Monte Carlo localization and A* path planning for navigation and exploration
- Robot stitches 3D point clouds using SLAM data, segments the room, and uses 3D representation to track sanitization coverage and generate new sanitizing poses around target in real time (achieved >95% coverage)

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
- Architected a system design 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 – Present*
- EECS 370: Taught about compilers/linkers, assembly, processor pipelines, caches, virtual memory, etc.
- EECS 598: Taught about parallel programming methods, GPU architecture, CUDA programming, etc.

SKILLS

Programming Languages: C/C++, Python, Go, Java (+ Android), HTML/CSS, JS (+ React), Bash, basic exp. in C#, Assembly
Development Tools / Tech: Git, Vim, VS/VSCode, Android Studio, Expo, gRPC, Kubernetes, CUDA, ROS, FreeRTOS
Media Software: Adobe Premiere Pro, Adobe Photoshop, Adobe Audition, LaTeX

MISCELLANEOUS

Ear Peace: Save Your Hearing Foundation, *Nonprofit Board Member and Ambassador* — *Aug 2013 – Present*
M-agination Films Production Group, *Producer, Editor, and Sound Technician* — *Oct 2017 – Present*