

Timothy (TJ) Chase

716-949-0748 | tbchase@buffalo.edu

EDUCATION

State University of New York at Buffalo (UB)

Buffalo, NY

- PhD in Computer Science and Engineering - Advised by Dr. Karthik Dantu Expected May 2024
- Bachelor of Science in Computer Science May 2020
- Certificate in Data Intensive Computing May 2020

EXPERIENCE

UB Advanced Navigation and Control Systems Laboratory

Aug 2020 – Present

Graduate Research Assistant

- Advised under Dr. John Crassidis and Dr. Karthik Dantu, in collaboration with the OSIRIS-REx Navigation Team at NASA Goddard Space Flight Center
- Researcher focused on autonomous optical Terrain Relative Navigation (TRN) and spacecraft Simultaneous Localization and Mapping (SLAM)

UB Distributed Robotics and Networked Embedded Systems Lab

May 2020 – Present

Graduate Researcher

- Advised under Dr. Karthik Dantu
- Researcher focused on new techniques in mobile robot perception and visual SLAM

NASA Goddard Space Flight Center - Wallops Flight Facility

May 2018 – Present

Software Engineer, Pathways Intern

- Developed firmware for an internal research and development project called C-SaCC (Cubesat Storage and Communications Card)
- Designed C-SaCC in-flight command set and embedded software for a PIC microcontroller to handle spacecraft/C-SaCC command relay, FPGA/radio interfacing, and data storage/transmission
- Working on embedded flight software for five ongoing cubesat missions for NASA Goddard Space Flight Center
- Developer and maintainer of numerous core Flight System (cFS) applications, as well as NOS³ simulator test-beds and COSMOS mission control configurations for those applications
- Responsible for various Linux kernel modifications for the flight computer operating system and FPGA design/development

UB Nanosatellite Laboratory

July 2016 – May 2020

Lead of Flight Software

- Responsible for software development in various areas, including driver development, system optimization, hardware and software level testing, communications, Linux firmware modification and kernel compilation, etc
- Responsible for making design and architecture decisions for three cubesat missions
- Responsible for managing the overall progress/timeline of each flight software system and delegating tasks to accomplish this
- Also responsible for various managerial duties including organizing meetings, holding workshops, training members, and giving presentations and status updates to upper management and the Air Force Research Laboratory (AFRL)/NASA

NASA Jet Propulsion Laboratory (JPL)

Aug 2019 – Dec 2019

Software Engineering Intern

- Software engineering intern under JPL's Robotic Operations group working on the Mars Perseverance rover
- Worked within a flight-software-in-the-loop simulation/operations tool that validates rover command sequences and predicts autonomous behavior
- Developed a system to dump/decode flight software memory state and propagate it forward to seed the simulation

UB Scalable Computing Research Group

Jan 2019 – Dec 2019

Undergraduate Researcher

- Advised under Dr. Jaroslaw Zola
- Performed survey-level research and implemented a novel search space pruning method in an accelerated Bayesian network learning framework

NOVI Aerospace

Jan 2019 – Dec 2019

Data Science Intern - Remote

- Aided the NOVI data science team with data acquisition and pre-processing for ongoing satellite mission development

UB Blockchain Thinklab

Jan 2019 – May 2019

Undergraduate Researcher

- Advised under Dr. Bina Ramamurthy
- Performed survey-level research of blockchain technologies and potential use-cases for them

AWARDS AND HONORS

UB Blockchain App Design Competition

April 2019

First Place Use-case, Second Place Overall

- Developed a decentralized application built on top of the Ethereum blockchain that tracks the shipment of pharmaceutical drugs
- Personal responsibilities included back-end development, minor front-end development, and smart contract development and deployment

UB Hackathon Competition

Nov 2018

First Place

- Developed a machine learning application used to classify breast cancer tumors as being either benign or malignant based off results of an FNA (fine-needle aspiration) procedure
- Personal responsibilities included front-end/back-end software development, feature selection, model performance comparison, hyper-parameter tuning and application accuracy testing

TEACHING & MENTORING

UB Computer Science and Engineering

Teaching Assistant

- CSE 421/521: Introduction to Operating Systems

Jan 2020 – May 2020