

# ELLIOT TRAPP

## SOFTWARE & MISSION OPERATIONS ENGINEER

elliotttrapp.com | Los Angeles, CA

### PROFESSIONAL EXPERIENCE



#### NASA Jet Propulsion Laboratory, Software and Mission Operations Engineer

July 2019 - Present

##### *Operational Cloud Store (OCS) Cognizant Engineer*

- Developed and deployed AWS infrastructure utilizing services including S3, OpenSearch, DynamoDB, APIGateway, CloudFormation EC2, ECS, and more, facilitating secure data transmission between 27 engineering teams and diverse international partners.
- Defined Infrastructure as Code (IaC) practices and produced dozens of Terraform and Serverless modules across the Europa Clipper mission, contributing to ongoing optimizations in DevOps practices and security.
- Conducted training sessions on operations topics, fostering team knowledge in system administration and cloud operations.

##### *Darkroom Visualization Developer*

- Captured customer requirements for functionality, design, scalability, and security in functional, component, and interface diagrams.
- Designed visualization stack leveraging Commercial off-the-shelf (COTS) software including Postgres, TimescaleDB, Grafana, Telegraf, and InfluxDB.
- Implemented microservice architecture to deploy dev, test, and production venues with configuration managed docker-compose files and terraform modules to deploy ephemeral EC2 instances on AWS.

##### *Distributed Object Manager Operational Lead*

- Spearheaded the implementation of a new Ground Data System (GDS) paradigm, overhauling the command product uplink pipeline in use by 12 active flight missions.
- Led a high-performing team of 4 engineers and three cohorts of interns to provide mission-critical support for 12 flight roles, ensuring operational excellence and reliability.

##### *Mars Sample Return Lander (SRL) Flight Software Developer*

- Delivered python autocode modules to write C flight software for the SRL role enabling telemetry uplink and downlink from the surface of Mars.

##### *Mars 2020 Entry Decent & Landing Visualization Developer*

- Integrated orbiter telemetry, empowering the world to witness the real-time location of the MRO and MAVEN orbiters on landing night.

#### NASA Jet Propulsion Laboratory, Software Engineering Intern

January 2019 - July 2019

- Implemented an OpenMP based multi-threaded optimization algorithm for multibody state propagation.
- Automated the production of Jupyter notebooks.

#### NASA Johnson Space Center, Software Engineering Intern

August 2018 - January 2019

- Developed a recurrent neural network model to classify astronaut cognitive workload using pupillometry image data, enhancing space mission safety and efficiency.
- Authored comprehensive Python and MATLAB libraries to automate data cleaning, ingestion, and verification processes for pupillometry data, improving data processing efficiency and accuracy.

## SKILLS



Python	TypeScript	JavaScript	C	Ruby	Perl	Docker
Puppet	Terraform	Serverless	AWS	ElasticSearch	Jenkins	Git
REST APIs	Postgres	MySQL	MongoDB	JIRA	Linux/Unix	HTML/CSS

## PROJECTS



### Docker Home Media Server

- Administer a home server for friends and family running 13 containerized microservices to deliver a local and private alternative to commercial cloud application providers.
- Secured with LetsEncrypt TLS/SSL certificates behind a reverse proxy and GlueTUN VPN.

### Open Source Raspberry Pi Voice Assistant

- Created a fully offline and private voice assistant using the Rhasspy open source voice assistant software and a Raspberry Pi 3.

### Amateur Godot Game Dev

- Self-teaching basic game development using the Godot game engine and GDScripting language.

## EDUCATION



### Master of Science, Computer Science

2016 - 2018

DePaul University, Chicago

### Master of Arts, Philosophy

2012 - 2015

The New School for Social Research, New York

### Bachelor of Arts, Philosophy & Political Science

2007 - 2011

DePaul University, Chicago

## CERTIFICATIONS



AWS Advanceduser

January 2021

PADI Open Water Diver

August 2021

## AWARDS



NASA JPL Voyager Award

April 2022

NASA JPL Team Award

Sept 2022

NASA JPL Team Award

June 2022

NASA JPL Team Award

Sept 2021