Brian Castro

Senior Backend & Fullstack Software Engineer

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TECHNICAL SKILLS

- **Proficient:** Python, Flask, Django Rest Framework, AWS (ECS, Step Functions, S3, Cloud Formation, Cloud Watch, Lambda), PostgreSQL, Linux, Bash, Docker, Postman
- **Exposure:** TypeScript, JavaScript, React, Ruby on Rails, Golang, GCP (Cloud Run, Cloud Storage, Cloud Functions, Maps Platform, Kubernetes/K8s), Bazel, rasterio, poetry, openAPI/Swagger

PROFESSIONAL EXPERIENCE

Orbital Sidekick | Software Engineer | San Francisco, CA Oct 2021 - Present

- Engineered RESTful API in Python and Django Rest Framework with 50+ endpoints for accessing satellite imagery and tasking satellites for new hyperspectral imagery from GHOSt satellite constellation, supporting in $1.2M annual sales.
- Led design and development of orbital path calculation API to determine when satellites pass over a specific location using Python, Django Rest Framework, SPG4, and AWS, greatly increasing the accuracy and efficiency of location data.
- Completed US Gov (STRATFI) contract valued at ~$16M, developing RESTful API in Python and Django REST Framework for imagery opportunities, image collection, and retrieval; and presented a live demo to US Space Force stakeholders.
- Led team design meetings on team of 8 and wrote design documents and for REST API endpoints covering Orders, Statuses, Detections, and Satellite Orbital Path, as well as internal CLI covering Data Search.
- Developed Tasking and Archive Orders API following government specifications in Python, Django, PostgreSQL, and AWS, enabling acquisition of new imagery-as-a-service, as part of CSPO $1.3M government contract.
- Updated File Delivery Pipeline to process over 100k raw hyperspectral images from satellites and output data in more usable format (georectified .hsi files with ENVI headers), running on AWS (ECS, Step Functions, S3).
- Designed and built Capture API for indexing over 100k images, and searching and retrieving those images via URL parameters filtering images by location, date, cloud coverage, etc using Python, Django, and AWS.
- Replaced Object Model-based API with document model with Python and Django to use STAC catalog standard format for imagery metadata, allowing easy organization and access of catalog exceeding 2 PB of hyperspectral imagery data.
- Designed and implemented Event Detection API, which tracks methane or liquid hydrocarbon leaks from monitored pipelines, allowing for rapid discovery and response to emissions as low as 100 kg/hr.

Badge List | Software Engineer | San Francisco, CA (Remote) Nov 2020 - Sep 2021

- Developed new features to support Badges and User Accounts functionality for tracking achievements in online educational courses using Ruby on Rails and JavaScript, supporting growth from 20k to 30k users.

Virta Health | Software Engineer | San Francisco, CA Sep 2019 - Mar 2020

- Architected full-stack feature for patient onboarding and enrollment portal for 30 client companies to accept 10,000+ new applicants using Python, Flask, TypeScript, and React, with API and code generation in Swagger.
- Engineered developer infrastructure tools to support engineering team of 20 for company-wide migration from AWS to GCP, using Tilt for local development and deploying to Kubernetes in staging and prod.

Google | Software Engineer, Contractor | Mountain View, CA Mar 2018 - Apr 2019

- Redeveloped backend of public-facing web-app for Google's Foobar coding challenge with Python, Django, and Google App Engine, migrating 100+ coding challenge questions to non-relational Datastore to meet security requirements.
- Owned development of Python and Django API endpoints for code submission, scoring, and user progress of submitted coding challenges, including Star Trek easter egg narrative for 20% of interviewees.
- Drove testing of application using Python unittest module and Selenium with code reviews conducted in GitLab.
- Migrated Python backend to RESTful Flask-based API and frontend to TypeScript and Angular, rewriting endpoints and logic for B2B Google Analytics Marketing Platform product with over 20K lines of code.

Pinterest | Software Engineer, Contractor | San Francisco, CA Oct 2017 - Jan 2018

- Shipped critical internal tools used for content moderation review for Trust & Safety team to ensure compliance with German NetzDG law using Python, JavaScript, and Angular, completing project in legally mandated 10 week deadline.
- Collaborated closely with project stakeholders at various teams across Pinterest, consulting with Trust & Safety, delegating engineering tasks, and ensuring resulting product met legal requirements as well as user expectations.

Ampex Data Systems | Software Engineer | Hayward, CA Dec 2015 - Oct 2017

- Developed web-based GUI to replace custom CLI using JavaScript, Python and Flask to interface with data recording and sensor hardware used by 12+ major aerospace industry corporations worldwide.
- Improved documentation by 3X through improving readability of features, software changes, updates and testing procedures focused at both standard users and internal engineers.

EDUCATION

B.S. Geophysics, *University of Rochester*

PROJECTS & OTHER WORK

Sidewalk Astronomy Volunteering | "AstroCastro" Jan 2022 - Present

Independent "pop-up" astronomy education and outreach, featured in the San Francisco Chronicle, having shown 20K people the cosmos from SF and around the country, operating portable and giant telescopes with up to 20" diameter scopes.

San Francisco Bay Area Outreach Coordinator | The Planetary Society Jun 2016 - Aug 2020

Revitalized long defunct Bay Area chapter of a non profit dedicated to promoting space exploration, corresponding with 2000+ members to organize events coordinated with NASA and other space organizations

StarGAZR | Project Lead | Hosted Online | Github Repo Oct 2016 - Present

Platform for finding best spots to go stargazing by aggregating sources that report astronomical seeing conditions; won best design at Science Hack Day by leading a team of 8 in constructing RESTful web applications with Python and JavaScript.