

## Experience

Freelance Software Engineer  
{Missoula, Montana}

May 2009 – Present

- \* Developing and maintaining custom web applications for local and international clients, leveraging frameworks like React, Django, and Flask.
- \* Building bots for Slack and Discord to automate workflows, integrate APIs, and streamline team communication.
- \* Providing technical consultation on product strategy and MVP creation, helping startups refine user feedback loops and product roadmaps.
- \* Automating deployment pipelines using GitHub Actions and serverless architectures for cost-effective, scalable hosting solutions.
- \* Contributing to FOSS (Free and Open-Source Software) projects, focusing on collaborative code reviews and community engagement.

***Impact:** By combining technical expertise with practical consulting, my freelance work empowered a wide range of clients to launch, optimize, and grow their digital presence—no matter their starting point or technical background.*

Software Engineer VYNYL, LLC  
{Remote}

March 2021 - April 2024

### Happier Living (Healthcare)

- Developed a web-based, mobile-responsive customer portal integrating AWS Lambda, SQS, SNS, S3, DynamoDB, and Step Functions for virtual healthcare appointments (Zoom consultations, Athena scheduling).
- Utilized Serverless Framework to streamline deployments, ensuring rapid iteration and reduced operational overhead.
- Built CI/CD pipelines with GitHub Actions, employing Python's unittest for robust unit and integration testing.
- Leveraged PynamoDB to model DynamoDB data schemas, ensuring maintainable and scalable interactions.
- Used AWS X-Ray and CloudWatch for performance monitoring and quick diagnostics.

### UCSF Multitudes (Early Childhood Education)

- Built and maintained Playwright-based integration tests for a tablet app aimed at detecting early learning disabilities (e.g., dyslexia).
- Automated data validation by comparing CSV files to database entries via custom Python scripts, improving data integrity.

### Additional Achievements

- Delivered fault-tolerant solutions through DevOps best practices, comprehensive monitoring, and responsive incident management.
- Collaborated with cross-functional teams (front-end, QA, product) to deliver high-impact features under tight deadlines.

***Impact:** Advanced the reliability, scalability, and overall performance of mission-critical healthcare and education applications by combining Python engineering with DevOps excellence.*

Software Engineer Submittable, Inc.  
{Missoula, Montana}

September 2019 – March 2021

### DevOps Management:

- Orchestrated the full software development lifecycle and production deployments using AWS CodePipeline.
- Automated release communications via GitHub release notes, integrated with Slack for real-time updates.
- Built and maintained test and production environments in AWS CloudFormation, leveraging the Serverless Framework.
- Developed and debugged build automations with AWS CodePipeline, AWS EventBridge, and AWS Lambda.
- Oversaw AWS IAM for secure account and permissions management.
- Reviewed and merged Dependabot PRs to ensure continuous security and dependency hygiene.
- Managed SecOps tasks with AWS Certificate Manager, EC2, ELB, and RDS, scaling infrastructure as needed.
- Configured domain routing via AWS Route 53 and set up CloudWatch alarms for proactive monitoring.
- Acted as on-call responder, debugging production issues and performing emergency fixes or rollbacks to minimize downtime.
- Reduced deployment overhead by 30% through process automation.
- Improved release cadence from weekly to daily.

***Impact:** Streamlined the deployment process, reduced release overhead, and maintained near 24/7 service availability for a large-scale document submission platform.*

CTO TOMIS, Inc.  
{Missoula, Montana}

September 2016 - July 2019

**Technical Lead:**

- Owned product design from the executive vision stage through technical implementation.
- Drove the design and development of detailed technical specifications.
- Created realistic strategies and timelines to fulfill short- and long-term goals.
- Researched emerging technologies; built prototypes and proofs-of-concept.
- Led the back-end team in designing, developing, and QA'ing REST APIs (Python/Django).
- Assisted front-end teams (React.js) with quality assurance and key design decisions.

**Project Management:**

- Served as Scrum Master, overseeing Jira design, organization, and Agile ceremonies.
- Held daily standups, weekly sprints, and managed the Jira issue board (creation, curation, triaging).
- Administered repository management in Bitbucket; integrated team communication via Slack.
- Organized Confluence documentation and utilized Jira NextGen Kanban to prioritize epics.
- Wrote comprehensive release notes from Jira releases using Confluence templates.

**DevOps Management:**

- Oversaw the software and API development lifecycles, enforcing commit-quality rules and code review processes.
- Maintained rigorous branch management (feature, release, hotfix) for healthy deployments.
- Employed Bitbucket pipelines for automated testing on feature branches.
- Managed release tagging using Jira and Git; tracked bugs and feedback through Usersnap.

**Site-Reliability Engineering:**

- Monitored application performance via DataDog and Honeycomb.
- Utilized Stackdriver and DataDog for logging, infrastructure monitoring, and incident detection.
- Configured Sentry (with Jira integration) for exception reporting and ticket creation.
- Ensured uptime and alerted stakeholders using UptimeRobot; tracked incidents and post-mortems in Statuspage.io.

***Impact:** Spearheaded the creation of a pioneering SaaS solution for tour operators, automating workflows and delivering actionable business analytics.*

Co-Founder, CTO dotmos, LLC.  
{Missoula, Montana}

July 2015 - January 2017

**Technical Lead:**

- Drove the design and development of core product features, creating technical specifications for a social media/search aggregation platform.
- Oversaw front-end and back-end architecture, leveraging Django, Node.js, and React.js.

**Lead Software Engineer:**

- Implemented full-stack solutions, integrating multiple external APIs into a cohesive user experience.
- Ensured quality and maintainability through code reviews, testing, and iterative development.

**Project Management:**

- Led a cross-functional development team, managing repositories, issue tracking, and documentation.
- Coordinated communications using tools like BitBucket/Git, Asana, DeployBot, Intercom, Usersnap, Open Analytics, and Slack.
- Analyzed data and user feedback to drive continuous product improvements and feature prioritization.

***Impact:** Unified diverse social media and search platforms into a single, user-friendly interface—enhancing discovery and engagement for both end users and content providers.*

Data Scientist, Software Engineer Upstream Research, Inc.  
{Missoula, Montana}

November 2015 – September 2016

**Data Scientist:**

- Acquired and analyzed large, geography-based data sets to create and update ArcGIS services.

**Software Engineer:**

- Wrote and tested automation scripts in Python/ ArcPy.
- Developed an ASP.NET MVC application in C#, devising unique solutions for novel problems.

- Wrote and supported custom functions in PostgreSQL.

## Quality Assurance:

- Conducted user-testing, wrote QA reports, and developed Python scripts to test and load-test REST API endpoints.

## System Administration:

- Deployed software releases, upheld SLA requirements for uptime, and applied security updates/patches.
- Managed Azure resources using Visual Studio.

## Customer Support:

- Interfaced directly with customers, troubleshooting software and user issues via Freshdesk.

***Impact:** Unified diverse datasets into actionable insights for health and community planning, streamlining operations and enhancing data-driven decision-making across multiple stakeholders.*

Security Consultant **Lake Missoula Group, LLC.**  
{Missoula, Montana}

February 2015 – May 2015

## Client Engagements:

- Assisted a diverse client base (banks, hospitals, retail outlets) with security assessments.
- Performed a range of vulnerability and penetration tests (internal/external), along with web and mobile application security analyses (WASA) and wireless infrastructure assessments (WIA).

## Reporting & Reviews:

- Authored detailed findings for each engagement, presenting results to both technical and non-technical stakeholders.
- Conducted technical reviews on assessments conducted by other consultants, ensuring thoroughness and accuracy.

***Impact:** Strengthened clients' security postures through comprehensive testing and clear, actionable recommendations—mitigating vulnerabilities across multiple industries.*

Senior Software Developer **Hanna-James Enterprises, LLC.**  
{Missoula, Montana}

July 2014 – February 2015

## Test Automation:

- Developed terminal-based test automation software in Python to streamline QA workflows.
- Built a proof-of-concept prototype for D3-based Tor network tracking software in CoffeeScript.

## GUI-Based Tools:

- Created a GUI-based test automation application using Python (GTK).
- Wrote architectural specifications in  $\LaTeX$  to ensure clarity and maintainability.

## Database Architecture:

- Designed and implemented a MySQL database for an SDK toolkit.
- Created a Python-based data abstraction layer to manage tool insertion, expansion, and execution workflows.

## Documentation:

- Authored comprehensive specification documents for a GUI-based SDK architecture using  $\LaTeX$ .

***Impact:** Delivered robust automation and data management solutions that improved software quality, reduced development cycles, and provided a solid foundation for future product expansions.*

## Teaching

*Teacher's Assistant* **Programming Languages**  
*Teacher's Assistant* **Computer Ethics**  
*Instructor* **Computer Modeling**  
**{University of Montana-Missoula}**

Spring 2012  
Fall 2011  
Fall 2010 - Spring 2011

- \* Taught freshman and sophomore students advanced features of Microsoft Excel and Access and assisted them during labs.
- \* Graded all assignments, papers, and exams. Also, maintained office hours to be available out of class for individual tutoring and fielding questions from students.

*Mentor* **The Firehose Project**  
**{<https://thefirehoseproject.com/>}**

Fall 2014 - Fall 2015

- \* Assisted assigned students by answering questions and working through code samples during weekly one hour online video sessions.
- \* Assisted assigned students by being available for question and code sample walkthroughs via email during regular office hours.
- \* Participated in online video group discussions surrounding larger projects.

## Education

**University of Montana-Missoula**  
*M.S. Computer Science, emphasis in Machine Learning, Data-Mining, and Simulations*  
**University of Montana-Missoula**  
*B.A. Psychology, minor in Math, Media Arts*

May 2014

May 2010

## Technical

### Languages

- \* **Proficient:**  $\LaTeX$ , Python, Bash, JavaScript, Matlab, R, Markdown
- \* **Familiar:** C/C++/C#, Coffeescript, OCaml, Perl, Ruby
- \* **Willing to Learn:** Dart, Go, Haskell
- \* **Prefer not to use:** PHP, Java

### Frameworks

- \* **Proficient:** Django, Django REST Framework, Flask, ASP.NET
- \* **Familiar:** Elasticsearch, React.js, Vue.js, Node.js

**Favorite Python Modules:** BeautifulSoup4, Celery, Matplotlib, NumPy, ØMQ, Pandas, Redis, Requests, SciPy, Scrapy, Spyder

**Automation / Multitasking:** Celery, Redis, RabbitMQ, ØMQ

**Machine Learning:** Keras, PyBrain, PyTorch, Scikit-Learn, TensorFlow

**Data:** Access, CSV, JSON, MySQL, PostgreSQL, RESTful APIs, SQLite, SQL Server, XML, YAML

**Data Visualization:** D3, Matlab, Matplotlib, R

**Design:** Twitter Bootstrap, HTML5/CSS3/Sass/Less, Invision

**DevOps:** Atlassian (Jira, Confluence, Statuspage, Bitbucket Pipelines), Azure, Bitbucket / GitHub (GIT), DeployBot, Docker, Google Cloud Platform, Kubernetes, Mercurial

**Development Environments:** Atom, Android SDK, PyCharm, SublimeText, VIM, Visual Studio / VSCode, XCode

**Development Techniques:** Agile Methodology using the Scrum or Kanban frameworks, Behavior-Driven Development, Iterative and User-Centered Design, Rapid Application Development, Test-Driven Development

**Communication:** Discord, Google Hangouts, IRC, Join.me, Skype, Slack, UberConference, Zoom

**APIs:** Darksy, Discord, Facebook, Google (Ads, Analytics, Maps, Places, Search Console), Instagram, Mailchimp, Pinterest, Rebrandly, Rezdy, Slack, Twilio (SMS / SendGrid), Twitter, Web CEO, Xola

**Bots:** Discord, Slack

**Network Security:** Aircrack-ng, Burp Suite Pro, Kali Linux, Kismet, Metasploit Framework, Nessus, NeXpose, Nmap, Wire-shark/tshark

**Operating Systems:** Debian and Red Hat-based Linux, Mac OS X, Windows

## Selected Projects

A list of some of my favorite personal and graduate projects, not specifically listed in my work experience, that I had the most fun on. The source code for most of the following projects is on GitHub @**blairg23**. The rest may be in private repositories on Bitbucket **blairg23**.

### Grad Projects

#### **Bak-Tang-Wiesenfeld Model for Displaying Self-Organized Criticality**

Also known as the Abelian Sandpile Model, this Python/Matplotlib application simulates sand being poured on a single point.

#### **Earthquakes**

A Python script to plot earthquakes that have occurred in the world, using the Matplotlib Basemap module.

#### **Hoot, aka The Wolf Box**

A hardware/software solution for broadcasting and recording sounds in adverse climates.

#### **Particle Simulator**

A particle physics simulator written in Python using the OpenGL libraries.

### Personal Projects

#### **bookmarks-manager**

Bookmarks Tagr<sup>®</sup> is a full RESTful API for importing your Chrome bookmarks and creating a highly organized network graph of bookmarks and tags. Notable features include smart tagging, social sharing, up/down voting, and reporting bad links for removal.

#### **BetterPassword**

A short script to turn an easily remembered password into a large hashed password for better security in online applications.

#### **create-api-wrappers**

Reynold's RESTful Wrapper<sup>®</sup> is an application that creates API wrapper methods in Python from a list of API endpoints and their valid parameters.

#### **delete-files**

A short script to recursively remove all files within a given directory, given a regex match.

#### **expense-analysis**

Expensive<sup>®</sup> is an application that takes CSV files as input and builds a database of financial transactions to perform financial data analysis tasks, such as analyzing spending habits to build a budget.

#### **files-in-folder**

An application designed to perform an md5 hash-wise diff on files in two given directories. Outputs the contents of the folder (filenames and hash) and the diff as a CSV.

#### **images-from-url**

An application designed to scrape images off any given URL or REST API. On the last commit, it supported Imgur, Instagram, Tumblr, and any raw HTML website.

#### **Nutflux**

A suite of small applications centered around multimedia consumption, Nutflux<sup>®</sup> started as a Netflix clone for consuming your local multimedia collection. Now this suite contains multiple utilities for create a better multimedia experience.

##### **movie-decider**

An application that takes your current multimedia collection and helps decide what you want to watch based on a series of mood questions.

##### **movie-file-fixer**

An application for formatting poorly formatted movie filenames, adding a movie poster from IMDb, and adding subtitles based on the md5 hash of the file. Recent commits were a huge refactor to add test automations, unit tests, and CI/CD pipeline.

##### **movie-tv-show-reminder**

An application that reminds you when your favorite shows have new episodes or a new season.

##### **movie-viewer**

A Netflix clone that uses the Plex API to showcase your multimedia collection.

##### **music-file-fixer**

Like movie-file-fixer, but for music files.

#### **rename-images-to-datetime**

A short script to rename image files to a datetime format based on the datetime the image was produced. Can also format from one datetime format to another. Many cameras name their files like DSC.0001.png, even if that file has already been created. This script's objective was to create unique files based on that unique datetime format.

#### **TweetyPy**

A Python Twitter client with a wrapper method for every Twitter REST API endpoint. Powered by **Reynold's RESTful Wrapper<sup>®</sup>**.

## Professional References

### Submittable, Inc.

Lance Fisher - VP of Engineering - 406.370.9609

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### TOMIS, Inc.

Evan Tipton - Founder, CEO - 404.217.1611

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### dotmos, LLC.

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### Upstream Research, Inc.

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David Bechtold - Senior Software Developer - 406.529.9606

### Hanna-James Enterprises, LLC.

Misti and Dan James - President/CEO and Vice President - 406.546.4602

Bradley Bahls - Lead Project Manager, Senior Software Developer - 406.207.6351

### University of Montana

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