

# J. Matt Peterson

Senior Software Engineer

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I create software that makes the world a better place.

*I am seeking challenging work using new technologies.*

I'm a generalist and have experience using and effectively combining many different technologies. This enables me to provide the best possible solution based on requirements. I strive to deliver usable, simple, maintainable and robust solutions.

## Experience

### Senior Staff Software Engineer at [Clumio](#)

*September 2022 – October 2024*

#### Cloud Engineer, Staff Software Engineer 2

*Created and maintained cloud native, declarative Kubernetes based infrastructure. Designed, planned, implemented, and maintained cloud and distributed systems through growth and company acquisition. Identified, defined and designed solutions and processes for development and CI/CD environments.*

- Replaced manual, time-intensive, opaque system with ArgoCD. Advocated for change, designed and implemented ArgoCD ecosystem to manage all Kubernetes based infrastructure resource from initial organizational need, through design, adoption, deployment and maintenance.
- Leveraged Prometheus, Grafana, Slack and Jenkins to integrate notifications, Kubernetes local logging, metrics and optional tracing through Datadog.
- Created, maintained, and scaled Kubernetes clusters, CI/CD systems, Homebrew, and core cloud-native infrastructure across 20+ clusters and thousands of namespaces.
- Continuous cost analysis and reductions through identifying technical inefficiencies.
- Implemented and maintained multi-region multi-account AWS and GitHub resources declaratively through Terraform and Terragrunt.
- Improved performance, compliance, cost and stability through build automation, testing, and linting of source code and configuration.

⇒ **KUBERNETES, TERRAFORM, HELM, ARGOCD, AWS, PYTHON, GO, SHELL, GITOPS, JENKINS, CLOUD NATIVE, AWS LAMBDA, HOMEBREW, CONTAINERS, GITHUB, MAC OS X, ALPINE, DEBIAN**

## Infrastructure at [Cresta](#)

November 2019 – August 2022

### Senior Software Engineer, Infrastructure

*Created cloud native, declarative Kubernetes based infrastructure. Scale and prioritize projects as the company grew. Chose infrastructure technology, vendors and influenced architecture decisions.*

*Responsible for cloud and service costs.*

- Implemented, maintained and scaled Kubernetes apps, CICD systems, brew and automation around gitops.
  - Managed AWS, Datadog and PagerDuty resources declaratively through Terraform.
  - Built an analytics system to provide queries across multiple data sources.
  - Created the company KPI dashboard. Built extensible system to generate KPIs.
  - Integrated logging, monitoring and notifications using Datadog and PagerDuty.
  - Continuous cost analysis and reductions through identifying technical efficiencies.
  - Automated customer creation system away from error-prone, time-sensitive, manual process.
  - Supported developers through scalable methods such as documentation, automation, and self-serve systems.
  - **Automate and lint all the things** through CICD, Kubernetes cronjobs and services.
- ⇒ **KUBERNETES, TERRAFORM, PYTHON, HELM, FLUX, LINKERD, AWS, GO, SHELL, TRINO, HOMEBREW, GITOPS, SOC2 TYPE II, ISO 27001, GITHUB, AGILE, MAC OS X, AMAZON LINUX 2, DEBIAN**

## Principal Software Contractor & Owner at 235nuclear, LLC

September 2009 - Present

235nuclear develops applications and systems that just work, brilliant user interfaces and features that work as you expect. Our users come first. We strive for great user experiences and excellent customer support.

- ⇒ **CLOJURE, DEVOPS, PYTHON, OPENSTACK, JAVASCRIPT, AUTOMATION**

## Infrastructure Lead and DevOps Manager at [#Fly](#)

August 2018 – October 2019

### Infrastructure Lead and DevOps Manager at #Fly

Created cloud first, [Kubernetes](#) based infrastructure and CICD system. Lead and managed multiple teams of 2-4 people. Responsible for cloud and service costs. Chose infrastructure technology and influenced architecture choices. Defined work, roles and hired team members.

- Replaced Jenkins with a GitLab based fully automated immutable CICD system. The CICD supported linting, integration testing, artifact and credential creation and deployment.
- Reduced cloud costs by 75% while deploying production services through three pivots.
- Cold started a multi-cloud, multi-location system using Kubernetes as the control plane.
- Integrated logging, monitoring and notifications using [CNCF based technologies](#).
- Ran #Fly IT support, setup and supported call center, created iOS app CICD system.

### Interim AI Team Lead at #Fly

In addition to my Infrastructure Lead and DevOps Manager role I lead the AI team in the Spring of 2019. We created a prototype trip generator in Clojure. This implemented a novel business system to create customer value through optimizing entire cohesive trips instead of individual travel bookings.

- Set goals, iterated and refined scope which increased productivity of the team and delivered and deployed a prototype in three months.
- Integrated with Google Calendar through OAuth2 to find and plan trips based on calendar events.
- Delivered and deployed the AI pipeline and CICD system to production.

⇒ KUBERNETES, GOOGLE CLOUD, CICD, PYTHON, SHELL, AWS, TERRAFORM, HELM, GITOPS, GITHUB, GITLAB, CLOJURE, AGILE, MAC OS X, COREOS, UBUNTU, DEBIAN

## Senior Software Engineer and DevOps at LSST

September 2015 – July 2018

### Senior Software Engineer for LSST EPO

First technical member for the [LSST EPO](#) (Large Synoptic Survey Telescope) team. Investigated, evaluated, demoed and recommended technology choices. Prepared and participated in a formal subsystem review by the NSF (National Science Foundation). Participated in defining roles and hiring additional team members. Participated in focus group testing.

- Created an astronomical image sky viewer prototype. [Poster & Paper](#)
- Implemented a Jupyter interactive environment with supporting extensions, python libraries and a Kubernetes based deployment. [Deployment Source](#) [JavaScript Source](#)
- Implemented a Jupyter notebook-based prototype of EPO's formal education investigations. [Python Source](#)
- Mentored and assisted other software engineers.

## DevOps Engineer for LSST DM SQRE

DevOps for [LSST DM SQRE](#) team. Provided DevOps, GitOps and SRE related services and systems for 70+ scientists developing a novel astronomical software pipeline for LSST. [Paper](#) [Paper](#)

- Git LFS (Large File Storage) server which uses GitHub's Git LFS extension to source control large files while storing them remotely. [Docs](#) [Deployment Source](#) [Library Source](#)
- GitHub based GitOps to enforce merge, status check and protection rules on LSST Git repositories. [Library Source](#)
- Multi-cloud, multi-location fault tolerant ELK 5.x deployment. [Source](#)
- Bare metal ESXi deployment to provide virtualized Mac OS X instances on Mac Pro hardware. [Source](#)
- Conda packaging of entire LSST DM stack. [v0.13.0 LSST DM](#) [v2.3.5 LSST SIMS](#)

⇒ PYTHON, JAVASCRIPT, JUPYTER, RUBY, SHELL, OPENSTACK, AWS, GOOGLE CLOUD, ANSIBLE, KUBERNETES, TERRAFORM, PACKER, ELK, CONDA, MAC OS X, CENTOS, UBUNTU, DEBIAN, ESXI

## Software Engineer at iPlant Collaborative / Cyverse

September 2011 – September 2015

### Lead Software Engineer on Atmosphere

Atmosphere, iPlant's cloud infrastructure service platform, facilitates and addresses the growing need for highly configurable and cloud-enabled computational resources by the bioinformatics research community. Atmosphere's user base is rapidly growing with over 50% growth the past 6 months.

- Lead developer and architect of Atmosphere. Joined the team as the existing team left. I'm tasked with turning a prototype into a useable, maintainable, robust, scalable solution.
- Implemented multi-cloud, multi-provider cloud infrastructure with a unified API.
- Implemented software defined networking (SDN) using OpenStack's neutron.
- Simplified, decoupled and standardized the Django implementation. Reduced dependencies by over half. Expanded the available server environments from CentOS5.5 to any modern Linux distribution.
- Implemented distributed, asynchronous, reliable, fault-tolerant work flow using celery and redis.
- Implemented new features such as web based ssh, web VPN and real-time notifications to improve usability.
- Mentored, lead and assisted other software engineers at iPlant.

⇒ PYTHON, JAVASCRIPT, RUBY, SHELL, CLOJURE, DJANGO, OPENSTACK, AWS, EUCALYPTUS, SDN, POSTGRESQL, HTML5, CSS3, JQUERY, NODE.JS, REDIS, PALLET, CENTOS, UBUNTU

## Software Developer at ReliaSoft Corporation

*July 2007 - September 2009 (2 years 3 months)*

### Lead Software Developer on Lambda Predict 3

*Lambda Predict 3 is reliability prediction software. When actual product reliability data is not available, standards-based reliability prediction may be used to evaluate design feasibility, compare design alternatives, identify potential failure areas, trade-off system design factors and track reliability improvement.*

- Lead developer and architect of Lambda Predict 3. Started with high level requirements, no framework and no source code of previous version. Successfully shipped in less than two years.
- Implemented in Visual Basic 2.0. The presentation layer was derived using reflection and attributes on the mathematical model of the standards. This allowed for new standards to be added with less effort, reduced regression testing and strengthened the robustness of the user interface.
- Office Interoperation with Access and Excel. The build process was completely automated using msbuild reducing build time from a kludgy 4 hours to a repeatable 10 minutes.
- ⇒ **VB2.0, ADO.NET, WINDOWS FORMS, DATA BINDING, NUMERICAL ANALYSIS, METADATA AND REFLECTION, DAO, VS2008-VS2010, ACCESS, EXCEL, MSBUILD, 3RD PARTY CONTROLS, SQL**

## Software Developer at 3M Motor Vehicle Systems

*March 2005 - June 2007 (2 years 4 months)*

### Software Developer on Kansas International Registration Plan

*Kansas IRP is a \$1.5 million product being developed from the ground up using 3M's newest technologies.*

- Implementation and design of C# UI custom controls and forms focusing on innovation.
- Implementation in C# of business rules, data access objects, web services and validation events.
- SQL stored procedures used by application.

### Software Developer on Iowa Accident Processing System

*Iowa APS is a part of the Iowa Drivers System, a multi-million-dollar enterprise solution. APS processes all traffic accidents reported in Iowa. It is the company's first use of client and server-side business objects.*

- Team member of Drivers conversion team and APS lead conversion developer; converting approximately 50 million main data rows to SQL Server databases. Conversion and go-live was reported as, "Perfect" by the customer.
- Lead developer APS implementing business objects, web services, web reports, batch jobs, UI controls and forms in C#, SQL and ASP.NET.

### **Software Developer on 3M Motor Vehicle Systems Tools**

→ Created, designed and implemented in C# and SQL an Active Directory tool. The tool created and updated, imported and exported AD nodes and securities.

⇒ **N-TIER DEVELOPMENT, CLIENT-SERVER, ENTERPRISE, WEB, C#, .NET 1.1, .NET 2.0, WINDOWS FORMS, ADO.NET, ASP.NET, SQL, SQLSERVER, STORED PROCEDURES, ACTIVE DIRECTORY, DEVEXPRESS**

### **Undergraduate Researcher at University of Arizona**

*2002 - 2003 (1 year)*

→ Learn, evaluate and make a recommendation on whether C# can be used as a teaching language in high school AP classes and introductory college computer science courses.

→ Research under Stuart Reges, Senior Lecturer.

→ Create handouts and assignments for CS 386 and CS 387.

⇒ **VS2002, .NET 1.0, C#, JAVA**

## Specialties

<b>CLOJURE</b>	Web development, analysis, process automation and distributed services. Specifically with Riemann, core.logic, core.async, ring and compojure.
<b>PYTHON</b>	Cross platform and web applications, web service and office automation. Specifically using Jupyter, libcloud, Django, NumPy, Pandas, PyObjC and native Clipboards.
<b>WEB</b>	Cross-browser, standards compliant JavaScript, HTML5 and CSS3. Specifically using React, Backbone.js, Underscore.js or Lodash, Ajax, JSON, Node.js, Canvas.
<b>CLOUD</b>	Multi-cloud, multi-platform, hybrid infrastructures. Specifically using Kubernetes, Google Cloud, OpenStack, AWS, Xen, KVM and software defined networking.
<b>CM</b>	CI/CD deployments through GitLab and Jenkins. Managing and building systems using Kubernetes, Helm, Ansible, Terraform and Packer.
<b>ADDITIONAL</b>	Ruby, bash, SDN, VMs, nginx, Apache, RabbitMQ, Redis, PostgreSQL, MySQL, scheme, CL, Mac OS X, Debian, Ubuntu, CentOS, ESXi, MS-DOS 5.0 - Windows 10, Microsoft Office 2002 and beyond and - last but not least - emacs.

## Education

### University of Arizona

*2000 – 2005*

Computer Science and Mathematics Major

### Rock Valley College

*2000*

Associate of Arts Degree

## Honors and Awards

- AURA Team Award 2017 (LSST DM SQRE).
- 3rd place in 2002 Regional ACM International Programming Competition.
- Summited Denali, Alaska on June 24th 2000.
- Iowa State University, Government of the Student Body Senator 1996 – 1997; have held the following positions with ISU Mountaineering and Climbing Club: Vice President, Treasurer, Secretary and Webmaster.
- Founder of Guilford High School computer club 1992.

## Resources

[jmatt.org](http://jmatt.org)

[JMatt on GitHub](#)

[JMatt on LinkedIn](#)

[Atmosphere](#)

[Lambda Predict 3](#)

[3M Motor Vehicle Systems](#)

[Reading Arizona](#)