








Bailey Wickham


Contact

 Traveling
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 [PGP Keys](#)

Personal

 Personal Site: baileywickham.com
 Github: [baileywickham](https://github.com/baileywickham)
 Running, Surfing

Publications

 I. Gallagher, A. Hasse, B. Wickham, E. Brussel.
[Poster at MAA Golden Session](#) Spheres of
Planes in the Generalized Quaternions

Side Projects

[fuzzer](#) 

A markov chain based fuzzer written in Go which generates new data based on an input corpus to test applications. Supports multiple markov chains and test corpuses in parallel.

[cont](#) 

A minimal container implementation in C. Uses namespaces, cgroups, overlays to create and manage multiple containers.

[PrettyCities](#) 

Use Keras and Google maps API to try to generate predictions about how pretty a city is.

More on [Github](#)

Education

09.2018 – 06.2022 **California Polytechnic, SLO**

- BS in Mathematics (Pure focus), BS in Computer Science, 3.56 GPA
- Minor in Chinese (two years of language courses)
- Graduate courses in Field Theory, Point-Set Topology, Algebraic Topology, Programming Languages

Received Frost funding Spring, 2022 to research Version Space Algebras under Dr. Robert Easton in the Mathematics department.

Worked with Masters student under Dr. Theresa Migler to characterize power networks from a graph theoretic approach. Studied graph networks and built a framework for ingesting data.

Attended [Simple Group](#), a research seminar with a focus on algebraic topics.

Attended programming languages reading group under Dr. John Clements and Dr. Aaron Keen. Discussed current topics in programming languages and type theory.

Experience

06.2022 – Present **Freelance full stack developer**

Developed full stack application for Free Healthcare Clinic in CA, AWS stack using React, AWS Lambda, AWS Cognito

01.2021 – 07.2022 **Amazon, IPX Team**

1 year, 6 months

Remote/SLO, CA

Junior Developer at Amazon SLO on Indie Publishing Experience team responsible for the publishing workflow for KDP authors. 20h per week October-June, 40h per week June-September. Fully remote position for first year, hybrid for second. Declined FTE offer.

Built internal tools to simplify developer experience. Built tree visualization tools for store data. Developed DSL for querying book location on Amazon store.

Worked on team of three to decide infrastructure path forward for team. Led major infrastructure choices for medium scale component. Led initial planning and development of said component, including CI/CD, designing APIs, integrating with other services through custom DSL.

Summer 2020 –
Winter 2021

Frost Undergraduate Research ([Poster](#))

[Frost Research](#), Cal Poly

Participated in undergraduate research in Pure Mathematics under [Dr. Eric Brussel](#). We studied a moduli space of embeddings of complex planes into the quaternions. We then generalized our approach over the generalized quaternions, classifying the

embeddings of commutative subalgebras, related affine varieties, and conjugacy classes. We also studied H from a category theoretic perspective. Paper in progress.

09.2018 – 12.2020
2 years, 3 months

Cal Poly CubeSat Lab

[PolySat](#), [Cal Poly](#)

Led development and deployment of CPCL infrastructure to AWS (~5 machines). Wrote Cloudformation templates, ansible scripts to manage deployment. Deployment met Cal Poly IT security standards.

Mission Lead of ExoCube II (Spring 2019-Summer 2020), a 3U small satellite as part of NASA's [ELaNa XX](#) program. Led team of ~20 through build, testing, and predelivery phase of the spacecraft. Worked with NASA Goddard, Virgin Orbit, TriSept to organize delivery of spacecraft. Mission funded by NASA, NSF.

ExoCube II successfully launched on Virgin Orbit Q1 of 2021. Worked with current mission lead during initial acquisition and operations.

Developed Embedded Flight Software for CPCL including commits to buildroot, IPC library, beacon and XDR parser.

Summer 2017,
2018

Cascade Custom Software

Portland, OR

Junior developer at Cascade Custom Software. Developed full stack web applications for third parties using Angular/Vue, Typescript, SQL Server. Assisted in migration of ~5TB Salesforce production SQL server for third party.