



Maximilian Held

Freelance developer & data scientist

Technologies

DevOps 10 yrs.
(git, Docker, CICD, Nix, Terraform)

Cloud (Azure, GCP) 6 yrs.

R (Shiny, tidyverse) 10 yrs.

APIs (REST) 4 yrs.

Web (HTML, CSS, JS) 8 yrs.

Pipelines 6 yrs.
(Dagster, BigQuery)

Models 10 yrs.
(unsupervised learning, graph data, Bayes)

Industrial Protocols 2 yrs.
(Modbus, EIB/KNX)

Paradigms

- ▶ Declarative Programming (Infrastructure)
- ▶ Functional Programming
- ▶ Test-Driven Development
- ▶ 12 Factor

Domains

- ▶ Financial Modelling

Summary

I'm an expert R developer and DevOps engineer, with 12 years of experience in industry, research and open source.

I build reproducible, maintainable and scalable full-stack data products. I focus on bringing software development best practices to data science, using defensive programming, test-driven development, CI/CD and source control management. Though not a computer scientist by training, I have come to love just building something that saves another human being a lot of time, or perhaps, even serves her in solving an important problem.

I have also learned (the hard way) that software development, in R as elsewhere, is not without risks. I work best when I understand the user's needs well, and can break it down into small, modular, and well-tested pieces. This requires a lot of focus and "saying no" (mostly to oneself).

Client Projects

Building Shiny Apps for Internal Use

2026

— (Insurance)

I built several Shiny apps at an international insurance conglomerate, including deployment, requirements engineering and performance tuning.

Improving Performance of a Large Shiny App

2024 – 2025

— (Financial Services)

I rebuilt several packages for a large Shiny app used by hundreds of internal customers weekly. I addressed performance bottlenecks and improved maintainability by refactoring functionality into modules and applying parallel and async patterns.

Implementation of Default Risk Model

2024

— (Financial Services)

I built a Shiny app for internal use at a national financial institution, including extensive unit tests and client feedback.

Re-Implementation of a Financial Model

2022 – 2023

— (Financial Services)

I rebuilt a spreadsheet-based financial model in R, complete with a Shiny frontend and extensible API. Because the package needed to be reproducible and cross-validated against legacy software, Excel results could be reproduced from R in full.

Consulting on Containerisation, Cloud Migration

2022 – 2023

— (Financial Services)

I consulted the client on improving their R/Shiny development infrastructure and hosting. I built an end-to-end proof-of-concept CICD pipeline from version-controlled source code to containerised cloud deployment using Azure App Service.

Transitioning DevOps and Refactoring R Code

2021 – 2023

Immunai, Inc. (Biotech, Tel Aviv / New York)

I standardised the compute environment for biotech workloads across development, research and production, across several locations, with dozens of internal modules and hundreds of external dependencies. To meet the heightened need for reproducibility in the industry, images were fully versioned, efficiently cached and rebuilt on every commit. I also productionised several internal R packages and helped the client strengthen best practices.

- ▶ Opinion Dynamics
- ▶ Industrial Internet of Things

Education

2010 – 2016

PhD Studies

Bremen International Graduate School of Social Sciences (Germany)

Dissertation on public choice and taxation. Dropout.

2008 – 2010

Graduate Studies in Public Policy

Hertie School of Governance (Berlin, Germany)

Berlin Studies Centre. No degree.

2007 – 2008

Graduate Studies in Demography

University of California, Irvine (USA)

Fulbright Fellowship.

2004 – 2007

Bachelor of Arts in Integrated Social Sciences

Jacobs University Bremen (Germany)

German Academic Scholarship Foundation President's List.

Contact

📍 Bad Sachsa, Germany

☎ +49 151 22958775

✉ info@maxheld.de

🏠 maxheld.de

🔗 maxheld83

🐦 maxheld

🌐 maxheld

Code Review

— (Automotive)

2021

I conducted a comprehensive code review of an extensive Shiny application and advised the client on future design patterns and architecture.

Consulting on Inventory Management Automation in R

— (Manufacturing)

2021

I consulted the client on the design of an inventory management automation project in R.

Building R DevOps for GitHub Actions

Posit, PBC (Software, Boston, MA)

2019

I built the open-source ghactions package for the continuous integration and continuous delivery (CICD) product from GitHub for the leading R development house for use by the tidyverse team.

Experience

Owner

Max Held Data Products

2019 to date

I consult clients as a freelance developer and build data products.

Data Analyst

Lower Saxony State- and University Library Göttingen (Germany)

2020 – 2021

I developed ETL pipelines, dashboards and data DevOps solutions for bibliometric data to assist the library and associated organisations in contract negotiations and compliance.

Research Associate

University of Hohenheim / Friedrich-Alexander Universität Erlangen-Nürnberg (Germany)

2016 – 2020

I wrote software for a specialised psychometric method (Q), as well as one-off analyses of economic data.

Research Associate

Jacobs University Bremen (Germany)

2014 – 2016

I conducted and analysed behavioral economic experiments in Jan Lorenz's computational social science group on Opinion Dynamics and Collective Decisions. I implemented an agent-based model in R.

Open Source

See my GitHub profile for a comprehensive list of open source projects.

Nix

Creator and Maintainer

nullkomma

Nix[Pull Requests](#)

DeterminateSystems/flake-iter, DeterminateSystems/flake-schemas, DeterminateSystems/ci

R packages[Creator and Maintainer](#)

ghactions, biblids, muggle, pensieve, crow, shinycoro

R packages[Pull Requests](#)

roxygen2, testthat, pkgdown

Volunteering

Deutsche SchülerAkademie / Bildung und Begabung gGmbH (Bonn, Germany)

[Instructor and Manager](#)**2003 to date**

Summer camps for gifted students.

Reference

Here is a reference from a client (2021–2023):

Max has been working with us since the summer of 2021 and has been providing the utmost professional, transparent and timely service. We hired Max's services due to his unique expertise in making software developed using the R language usable and reproducible in our research and production systems.

Throughout his work with us Max transformed our computing environment by learning the special needs of our company, designing and building automatic DevOps processes and toolings that allowed us to streamline our development cycles. The result is a much more efficient, consistent, and reliable software development cycles and software deployment into production. This means that our developers are now much more efficient and spend much less time on fixing code issues but instead develop new features.

Beyond helping us transition our development organization to use software development and deployment best practices, Max was also very knowledgeable and helpful in many architectural questions. His invaluable input helped us restructure our systems to make them more scalable and stable throughout.

In summary, Max is a talented and experienced R developer, DevOps and software engineer. He is also very nice and the entire team trusts his advice and likes working with him.

I'm happy to answer any additional question you may have on a teleconf if needed.

Guy Yachdav Senior Director of Software Engineering Immunai Inc. (Tel Aviv / New York)