Research Software Engineer, Type Theory

CA-2026-RSE-1

Call for Applications

Topos Institute is looking for a Research Software Engineer, based in **Berkeley, CA**, to design and implement type theories for CatColab, our collaboration platform for formal modeling and programming.

Summary

We are a non-profit research institute dedicated to realizing a world where the systems that surround us benefit us all, so that society can better cooperate on critical issues — the climate crisis, pandemic responses, agricultural modeling, global access to education, and more — through interconnected systems that consider holistic impacts. We develop new tools for collective inquiry and modeling, enabled by a combination of novel foundational mathematics, open-source software engineering, and meaningful collaboration with domain specialists. Collaboration and discussion are fundamental to our work culture, so we deeply value gathering in person at the office.

- **Title:** Research Software Engineer
- **Location:** Berkeley, CA (USA)
- **Employment type:** 1.0 FTE
- **Salary:** $85–115k

Topos is committed to building a team with diverse perspectives and life experiences, so those with personal or professional backgrounds underrepresented at Topos are highly encouraged to apply.

Further information about Topos Institute, including our blog and YouTube pages, can be found on our website: topos.institute.

About the position

In this interdisciplinary role, you will design new type theories and build working implementations of them, delivering next-generation formal languages to modelers and programmers across a range of domains. Your work will center on CatColab, our open-source collaboration platform for modeling and programming in domain-specific categorical logics. CatColab is written in Rust and TypeScript and is actively developed in the open on GitHub. It is our first software project at Topos Institute intended for users without specialized mathematical training: its mathematical core, based on double-categorical logic and systems theory, scaffolds the software without being directly visible to users.

You will design new type theories for categorical and double-categorical logics, and you will build prototype implementations of these type theories in Rust. Current projects include type theories for theories and models in double-categorical logic and for rule-based models in biochemistry. You will also assist research scientists in writing academic papers involving type theory, and assist other members of the research engineering team in integrating new languages and type checkers into the CatColab platform. You will work at the interface between type theorists, category theorists, software engineers, and other domain specialists — both at our Berkeley office and remotely with our team in Oxford — distilling ideas in order to communicate across disciplinary boundaries.

Responsibilities

- Designing new type theories for categorical and double-categorical logics, in collaboration with specialists in category theory
- Building prototype implementations of type theories in Rust, and assisting the research engineering team in integrating new languages and type checkers into the CatColab platform
- Assisting research scientists in writing academic papers involving type theory, as well as writing educational resources such as documentation
- Communicating between type theorists, category theorists, and software engineers at Topos, and soliciting user needs from external domain specialists and community stakeholders, considering impact throughout

About you

- Postgraduate degree (PhD preferred) in mathematics, computer science, or a related field, with research experience in type theory, categorical logic, or programming language theory, and familiarity with category theory
- Solid programming skills and experience building and maintaining real-world software, such as type checkers, proof assistants, or other implementations of type theories; experience with Rust is a strong plus
- Ability to contextualize work in a wider cultural, social, and ethical context
- Proficient verbal and written communication skills; initiative and interpersonal skills necessary to communicate between type theorists, category theorists, software engineers, and other domain specialists
- Excited to work in person with a small (~10) but vibrant team in Berkeley, California, and collaborate with a similarly sized team in Oxford

There is evidence to suggest that women and people of color are less likely to apply for jobs unless they believe they meet every one of the qualifications as described in the job description. If this role speaks to you, we encourage you to apply, even if you don't believe you tick all the boxes.

Eligibility criteria

Topos will consider sponsoring US visas for exceptional applicants. Please include details of your visa requirements (if any) in your application (e.g. in your cover letter).

Topos is an Equal Opportunity Employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability, or status as a protected veteran.

Us and you

We are dedicated to shaping the future of technology to ensure a more equitable and just world, and we believe that a technology that supports a healthy society can only be built by an organization that supports its team members. As such, Topos is committed to ensuring that we clearly and compassionately negotiate your role and responsibilities while you're at Topos, and then ensuring that you have the support that you need to fulfill that role.

Topos offers generous benefits including medical, dental, and vision insurance (all premiums covered), 18 days paid vacation annually, 13 paid company holidays annually, and a 401(k) plan (non-matching).

Why Topos?

Exceptional Team. Collaborate with world-leading researchers and high-caliber funding agencies.

Inclusive Environment. Be part of building a diverse team where different perspectives are valued and everyone can contribute their best work.

Meaningful Impact. Lead breakthrough research on humanity's most pressing challenges — from climate change to public health to collaborative open science.

Technical Innovation. Support the development of genuinely novel technologies that could transform how humanity approaches complex, collaborative decision-making.

Supportive Culture. Join a caring, inquiry-driven community that values both intellectual rigor and personal well-being, with a strong focus on in-person office culture but flexibility to support work-life balance.

Growth Opportunity. Shape a team poised for significant expansion and impact.

Application process

To apply for this position, please email **CA-2026-RSE-1@topos.institute** with the subject line "**CA-2026-RSE-1**" and two PDF attachments:

1. a copy of your CV; and
2. a cover letter **including the contact details for two references** who we can contact.

Your cover letter might describe your interest in Topos Institute and this position, your professional experience, your future goals, your specific relevant experience, and your potential contribution to a diverse and inclusive environment at Topos. Please feel free also to convey any information about preferred names and pronouns.

Please note that we will **not** contact your references without first notifying you.

We will review applications on a rolling basis.

If you have any questions about the application, or the role in general, please email **CA-2026-RSE-1@topos.institute**.