Research code as a service

How to square the circle of providing a stable web-based user interface to evolving research code

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**API**
Developed by RSEs, an API exposes the research code to the web app via a stable interface

**Research**
Cutting-edge research code written by scientists, which can evolve rapidly in response to user feedback

**Web app**
A modern web app provides a user interface for non R users

**Users**
R users can use the package directly - non R users can use the web interface

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Domain specific knowledge is decoupled from web app and API and written in a language scientists are already familiar with

Interactions between API and web app are validated against JSON schemas

The web app interface is dynamically generated from metadata provided by the API

Orchestration with docker allows deploying stable versions and updating of the backend without disconnecting users

Long running processes are executed in parallel at scale using a load balancer implemented with Redis

Continuous integration to automatically test updates against a suite of integration tests

Internationalisation using i18next (JS) and traduire (R)

All code is open source and hosted on GitHub

Public health officials from Zimbabwe, who used Naomi to produce estimates of people living with HIV, and their treatment needs - results will be used in their national budgeting and grant applications

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naomi.unaids.org
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