

## **Name and contact information:**

Full name: Rui Huang

E-mail: [ruihuang789@gmail.com](mailto:ruihuang789@gmail.com)

Telephone: +44 7857094301

LinkedIn: <https://www.linkedin.com/in/rui-huang-20/>

School: University College London

Potential Mentor: Dave Cramer

## **Project Name:**

New and improved website for pgjdbc (JDBC) (2022)

This project would aim to update the pgjdbc website. Currently it is based on a very old PostgreSQL template and uses jekyll to build it. Ideally it will be buildable from github actions so that updating it was automated.

## **A list of deliverables**

Website Wireframe and prototyping pages

Better performance in the UI

Updated PostgreSQL

New and improved awesome website for the pgjdbc project

## **A detailed description**

In this document, I propose I will rewrite the pgjdbc website by the React way because currently it is very old with bad user experience.

React arrived in 2013 as a better way to build web apps with JavaScript. It's often referred to as a library for building UIs. What makes React such a desirable library to learn is that it doesn't replace HTML. It takes advantage of HTML's popularity and strength as the most popular programming language, by letting us use a very similar syntax to HTML to build interfaces and add dynamic features to it using JavaScript. HTML is the language of the web, but creating entire websites with HTML alone can be repetitive and hard to manage. When it comes to adding behavior to a site, we need JavaScript. And since our goal is to build great apps with JavaScript, we should use React.

In addition, updated Postgres allows us to store large and sophisticated data safely. It helps developers to build the most complex applications, run administrative tasks and create integral environments.

## **Outline your approach**

Website prototyping tool: Figma

Figma is a design tool that enables web designers to create unique and exciting user interfaces for phones, tablets, and social media. This tool provides a

platform for collaboration and prototyping, which makes the design journey interesting.

I can build a React app out of a single HTML document. All I have to do is bring React in with the following external scripts. The first is for building our React app, and the second is for displaying, or rendering the React app in the browser.

React lets me define components as a class or a function. I can provide optional inputs to the components called 'props'. Components let me split up the UI into independent sections like header, footer, and body. Each component will work independently so any individual component can be rendered independently into the React DOM without affecting the whole page. It also comes with 'lifecycle methods' which let me define pieces of code I want to execute according to the state of the component like mounting, rendering, updating and un-mounting. React components come with their own trade-offs. For example, we can reuse a component by exporting it to other components.

pg\_upgrade (formerly called pg\_migrator) allows data stored in PostgreSQL data files to be upgraded to a later PostgreSQL major version without the data reload typically required for major version upgrades. Major PostgreSQL releases regularly add new features that often change the layout of the system tables, but the internal data storage format rarely changes. pg\_upgrade uses this fact to perform rapid upgrades by creating new system tables and simply reusing the old user data files. If a future major release ever changes the data storage format in a way that makes the old data format unreadable, pg\_upgrade will not be usable for such upgrades.

Development tool: VS Code, GitHub

Visual Studio Code is a streamlined code editor with support for development operations like debugging, task running, and version control. It aims to provide just the tools a developer needs for a quick code-build-debug cycle. In addition, the project will be buildable from github actions so that updating it was automated.

## **Outline your approximate schedule**

**Present ~ May 20 (4 weeks)**

Wireframe, Website Prototyping

Make mockups for new web elements and the admin page.

**May 20**

GSoC announcement.

**May 20 ~ June 3 (2 weeks)**

Get to know the team better.

Because many individuals participate in open source projects, community bonding is a key stage. Begin talking about prospective ideas.

**June 3 ~ June 17 (2 weeks)**

Coding officially starts.

**June 17 ~ June 24 (1 week)**

Create essential features such as components of JavaScript.

**June 24 ~ July 15 (3 weeks)**

Use new design systems and PostgreSQL updating.

**July 15 ~ July 17**

First evaluation between mentors and students.

**July 15 ~ July 29 (2 weeks)**

Upgrade the front-end website. Add the admin panel.

**July 29 ~ August 19 (3 weeks)**

Test and fix bugs.

Implement other potential ideas after discussing with mentors and the team.

**August 19 ~ End date**

Submit code and final evaluation.

**The future**

I hope to contribute to pgjdbc website and other software in the PostgreSQL ecosystem even after GSoC 2022. First and foremost, I will provide support for the developed module, because I believe providing support for a module is as important as developing it. Apart from that, following is something I would like to work upon after the completion of this project.

**Other Commitment:**

I don't have other commitment during the summer, I would like to 100% focus on this project.

A document describing your background

About me

I am a second-year undergraduate at University College London. I have four years of programming and software engineering experience. I am always glad to have various opportunities in front-end, back-end, and database development to improve my skills and know more techniques. To be honest, I studied a lot from my previous activities. I was a website developer for TEDxUCL. Currently, I am doing a part-time software engineer internship at a fast-growing technology startup in London. Coincidentally, we use PostgreSQL for database setup at my startup. In the past years of software engineering experience, I have witnessed the importance of PostgreSQL for database. I have always been a big fan of open-source software, frameworks, and libraries, and I use a lot of them. However, I did not have the opportunity to contribute to an open-source project.

That is the reason to make I apply for the Google Summer of Code in 2022. Because of my interests of web development and databases, and I frequently use PostgreSQL, I decided that contributing to PostgreSQL's projects would be the most rewarding experience.

I have dreamed of being a great developer since the first day I learned programming. GSoC provides me a chance to make contributions to open-source projects, with mentorship from great developers all over the world. This is my first time to develop open-source projects. During this period, I have no other tasks scheduled and have plenty of time for this project. I cherish this opportunity and would put my 100% to devote to this project!

My CV/Resume

# RUI HUANG

London / 0785 709 4301/ ruihuang789@gmail.com

## EDUCATION

---

### University College London

London, UK

Bachelor of Science, Information Management

September 2020 – June 2023 (Expected)

- The degree includes Computer Science and Management courses in Faculty of Engineering Sciences
- **Computer Science Courses:** Data Structures and Algorithms in Java, Software Engineering, Web Technologies, Information Systems, Programming, Database Systems

## SKILLS

---

- **Programming Languages:** Java, JavaScript, HTML/CSS, SQL
- **Technologies:** React.js, Angular, Spring Boot, MySQL, REST, Gatsby, Node.js, PostgreSQL, Heroku, Jamstack, GraphQL, GitHub

## EXPERIENCE

---

### DevHub Global

London, UK

Part-time Software Engineer Intern

April 2022 – June 2022

- Work at a fast-growing technology start-up currently raising a pre-seed round
- Develop a community website for software engineers to share experience and join seminars
- Utilize techniques such as **Gatsby** for website setup, **PostgreSQL** for database setup, **Heroku**, and **GraphQL**

### E-Commerce Website Project

London, UK

Full Stack Developer

March 2022

- Developed a full stack e-commerce application with **Angular** front-end and **Spring Boot** back-end
- Developed a Spring Boot back-end using **REST APIs** and **MySQL** database
- Processed credit card payments using **Stripe API**
- Coded using development tools such as IntelliJ, and Maven

### TEDxUCL

London, UK

Website Developer

September 2021 – December 2021

- Led a team of 6 and used **React.js** to develop website for TEDxUCL
- Gained 300+ new TEDxUCL society memberships and 4 new sponsorships after the website was published
- URL: <https://www.tedxucl.com>

## EXTRACURRICULAR

---

### JP Morgan Chase & Co.

London, UK

Winner Team, Technology for Social Good Challenge

May 2021

- Won competition on ideating and developing a solution that reimagines how to drive diversity & inclusion
- Utilised Figma to create App design and prototyping as well as pitch delivery to the JP Morgan judges
- Delivered a presentation pitch to a panel of technology executives and was awarded 1<sup>st</sup> place

### UCL First Generation Society

London, UK

Treasurer

September 2021 – June 2022

- Created a supportive environment for first generation university students who are entering higher education
- Managed the finances using an online student union platform and cooperated with a team to organize event
- Organized and hosted a career event with Amazon's campus ambassadors and full-time employees

## LANGUAGES & INTERESTS

---

**Languages:** English, Mandarin, Cantonese

**Interests:** Table tennis, Badminton, Go, Running, Volunteering