Pu Tong

Web Developer

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Education History

Master of Science (Infrastructure Management in Engineering)   *Year of Graduation: Dec 2022*
Institution: National University of Singapore   *CAP Top 5%*
- Involved Research Project: *Site and Crane Layout Optimization for Multistage Construction using a Combination Model of Genetic Algorithm and Mixed-Integer Linear Programming.* | Skills including python, Numpy, Pandas, Gurobi, Optimization methods, Linear methods, Matplotlib, Pygad, Shapely, and Sklearn.

Bachelor of Engineering (Honors Degree)   *Year of Graduation: Dec 2018*
Institution: Monash University   *WAM Top 15%*
- Skills including Excel, Excel VBA, Matlab and AutoCAD, basic HTML, CSS and JS.

Work Experience

Full Stack Developer (Part-time)   *July 2022 - Current*
ME Cafe Games LP
- Developed frontend management tools for employee and cashier operations using React and the AntD component library.
- Established backend server using Express and managed database information using the Sequelize framework.
- Projects involved the development and management of a cashier system, printing system, employee scheduling system, and the implementation of other CRUD (Create, Read, Update, Delete) operations.
- Achieved successful project deployment using Nginx, ensuring seamless accessibility and performance for end users.

Engineer   *April 2019 - Current*
Shanghai Tunnel Engineering Co. Pte Ltd
Responsibilities & Achievements:
- Successfully developed the project material management page and data management for the cutter head using React technology stack along with the Material-UI component library.
- Efficiently managed and retrieved data through Axios and RESTful APIs, ensuring smooth and reliable data flow.
- Utilized the Koa framework for backend development, optimizing the handling of asynchronous middleware and improving server response time, and combined it with Sequelize ORM for MySQL database management to enhance data management efficiency.

Difficulties & Challenges:
1. **React State and Rendering Issues:** Encountered difficulties in getting the DOM element before rendering the Popover component due to the asynchronous nature of useEffect. This caused two render phases, leading to unexpected animation results. The problem was resolved by using useLayoutEffect or useRef to adjust the Popover position synchronously after setState before rendering.
2. **Handling Custom Icons in Button Components:** Used dangerouslySetInnerHTML to set custom icons for the button component. This attribute couldn't be applied directly to the component, so it was passed to the child component. The child component could not simultaneously call props.children and props.dangerouslySetInnerHTML, so a dynamic attribute approach was implemented to resolve the issue.
3. **Timed Pop-Up Window:** Developed a custom hook that used the cleanup function from useEffect to create a timed pop-up window, which would automatically appear and clear the timer after 2 seconds.
4. **UseMemo and Event Handling:** When using useMemo to create a JSX and add a click event, it was required to include the state change event in the dependencies of useMemo to prevent closure issues.
5. **Animation Triggers:** Successfully triggered text animation effects in the child component using an animation trigger state.
6. **Arrow Functions and Lazy Loading:** Encountered a challenge with arrow functions being unable to be lazy-loaded by React Router, which required function components. The issue was resolved by switching to regular function components.

Other Project Experience

Blog System Project (Full-Stack)
website: public-facing page: http://www.putong.info/blog **admin backend page:** http://www.putong.info/blogadmin **back-end API:** http://putong.info:3000
background: Upon gaining proficiency in Vue and Node.js, I developed a full-stack system for a blog.
Achievements: The system features a homepage carousel, categorized articles, project and personal information, and commenting functionality. It is bifurcated into front-end and back-end segments.
The front-end leverages Vue as its framework, with Vue-cli used for scaffolding. Routing is handled by Vue-router, while Vuex is employed for managing shared data. The front-end segment comprises a public-facing browse page and an admin backend page.
- The public-facing page incorporates elements such as avatars, icons, paginators, lazy-loaded images, and a built-out comment component module. During development, the project implemented technologies such as image lazy loading, custom loading directives, and an event bus.
- The admin backend page is constructed using the Vue framework paired with the Element-admin form engine and the Element UI component library.
The front-end uses Axios to make real data requests. During the packaging process, the project encountered issues with large package sizes, which were resolved through dynamic importation and CDN loading.
The back-end is built with Node.js, constituting a lightweight server, and it offers front-end interfaces via Express. MySQL is utilized for data persistence, and database operations are conducted via the Sequelize library's interfaces.

Relevant Professional Skills

- Proficient in HTML5+CSS3
- Skilled in the JavaScript language
- Familiar with CSS preprocessor languages such as Sass, Less
- Proficient in applying browser compatibility techniques, familiar with responsive layouts and flexbox layouts, percentage adaptive layouts
- Familiar with ECMA standards, proficient in DOM, BOM operations, and object-oriented and functional JS programming
- Proficient in AJAX/JSON, used **Axios** library to achieve network communication and data exchange technology, understand JSONP or CORS cross-domain issues and solutions
- Proficient with the Modern frontend framework including React Stack (**React, Redux, React-router**) and Vue Stack (**Vue, Vuex, Vue-router**).
- Understand the modern front-end scaffolding tools such as **Webpack**, **Vue-Cli,** or **Vite** to build single-page projects, and package the projects
- Understand MVC & MVVM design patterns and modular development processes
- Proficient in front-end storage solutions such as localStorage, record user operation habits, and frequently used data such as network tokens, to reduce HTTP requests and enhance user experience
- Proficient in using MySQL database, database driver, and ORM frameworks like **Sequelize.**
- Master Node.js core modules, **Express**, and **Koa** framework to quickly build web servers through middleware and routing

Other Skills & Language

MS Excel   MS Project   Python   PyQT5   PyGad   Scikit-learn   AutoCAD   Revit   Canva   Mandarin   English