# Nicholas (Nico) Carlier | Software Engineer

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## SKILLS

**Technical Skills:** JavaScript, Ruby, Python, SQL, Git, React, Redux, Node, Express, Ruby on Rails, Typescript, jQuery, HTML5, CSS3, PostgreSQL, MongoDB, AWS S3, Webpack, RSpec, jBuilder, AJAX, OpenAi API, Google Maps API, Design Patterns, Sass, UX/UI

## SOFTWARE ENGINEERING PROJECTS AND CONTRIBUTIONS

**Fairbnb | [Live](#)** -  Single page Airbnb clone. Sign up, search, book, leave reviews, use map, calendar        [GitHub](#)

- Reduced PostgreSQL database tables by 25% and heavily DRYed up backend through use of polymorphic tables on the database level
- Crafted custom SQL queries using Active Record associations to extract data from multiple tables in one query, reducing server load
- Integrated Google Maps API to display listings to toggle between list and map mode for seamless user experience
- Architected  RESTful APIs to facilitate CRUD operations, allowing users to book, review and update bookings with high performance
- Fortified application with CSRF protection, restricting CRUD operations to authenticated users, bolstering data integrity and security

**Reps 'N' Recipes | [Live](#)** - Tool for tracking and visualising fitness and nutrition progress.        [GitHub](#)

- Engineered backend architecture using Express.js and MongoDB - schema-less design accommodating diverse user fitness metrics
- Utilised React.js for the frontend development, chosen for its virtual DOM and reusable components
- Implemented Redux for global state management, reducing API calls allowing live meal and workout data sync across components
- Stored exercise GIFs in AWS S3 for high availability and faster load times, improving user experience (UX)
- Utilised Chart.js for real-time analytics visualisation, providing user insights into their performance and dietary habits

**Apache Superset  | [Live](#)** -  An open-source modern data exploration and visualisation platform        [GitHub](#)

- Enhanced accessibility features, focusing on screen reader-friendly navigation of tables and data filtering

**Blue Claim | Stanford Law X LLM Hackathon |** Built in 24 hours to automate workers compensation forms

- Led development in a one-day hackathon to create a single-page app using GPT-4 API and OCR to write and export forms

**Chess By Nico | [Live](#)** - Single page chess app inspired by Chess.com to play chess with friends or against AI        [GitHub](#)

- Developed a responsive, intuitive chess app with React.js, featuring adaptive UI for all platforms and custom drag-and-drop mechanics
- Enhanced gameplay with websockets for real-time multiplayer and integrated Stockfish API for AI challenges, ensuring a seamless UX

**Tubify | [Live](#)** - Single page JavaScript app. Youtube url to text then customise with ChatGPT        [GitHub](#)

- Leveraged Youtube's API to fetch youtube transcripts. Engineered prompts for OpenAI's API transform and format raw transcripts

## WORK EXPERIENCE

**Engineering Intern  → Associate Systems Engineer** | Aroa Biosurgery | Auckland, New Zealand        2022 – 2023

- Spearheaded the comprehensive redesign of a pneumatic toggle press, involving meticulous planning, detailed calculations, simulations, and CAD modelling. My leadership and problem solving allowed substantial cost reduction, slashing estimates from $80k to $20k NZD
- Collaboratively worked within an agile team to enhance the design of a tension regulation system, significantly reducing production breakages and downtime. This project showcased my ability to quickly adapt to complex problems and deliver efficient solutions

**Process Development Engineering Intern** | Sunfed | Auckland, New Zealand        2022

- Engineered and executed the development of a conveyor-joining device, preventing significant daily food waste in the production line. This role highlighted my capacity for innovative design and the implementation of practical solutions in a fast-paced environment.

## EDUCATION

**Full-Stack Software Engineering Bootcamp** | App Academy | San Francisco, CA        2023

- 1000+ hours in intense development environment, daily pair programming, team projects, learning new technologies in tight deadlines

**BEng. in Mechanical Engineering (Honours)** | University of Auckland | Auckland, New Zealand        2020 – 2023

- Course-work: Engineering Computation and Software Development, Electronics and Computing, Multivariable Control Systems
- Projects: Removal of moving object from image (C), Fluid flow simulation (Matlab), Simulation of inverted pendulum (Matlab)