

# Tingrui Hu

## Personal Info

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## Skills

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**Frontend Languages:** HTML, JavaScript, CSS, TypeScript, Stylus  
**Frontend Techniques:** Vue, React, React Native  
**Backend Languages:** Java, Python, PHP  
**Backend Techniques:** MySQL, Flask, MongoDB  
**Design Techniques:** Figma, Photoshop

## Education

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**Degree:**  
**BSc. Computer Science** Fall 2015 – May 2020  
Memorial University of Newfoundland, NL, Canada

**Course Projects:** Sept 2018 – Dec 2018  
**TSP Graphing**  
A data visualization tool for graphing computation of Travel Salesman Problem (find the shortest route across all cities in a map). The algorithm was written in Python, and the visualization tool was written with Vue and Typescript. My group solved datasets up to 4663 cities. By multithreading and Numba, our analysis was four times faster than the lecture solution, which was evaluated as the best report ever in this course.  
*Responsibilities:*

- Designed and implemented core algorithm.
- Tracked the computation workflow and exported key values in JSON.
- Developed the graphing tool with Plotly.

*Demo:* <https://wolff-h.github.io/#/demos/tsp-graphing>

**Bounty** Jan 2020 – May 2020  
A platform shooting web game, built with Vue, MongoDB, and Vuex as state management. Player will play as a framed bounty hunter chasing the mastermind. A variety of weapons (pistol, rifle, grenade, ...) are available in different modes (killing, racing, puzzle, ...). In addition, players can build and publish their own levels. The project was done in a group of four.  
*Responsibilities:*

- App architecture  
Project structure: design of all packages/classes, implementation of most classes; Workflow modeling: user procedure, module communications; Deployment: building, integration, and deployment.
- Game logic  
Game engine (run and render game), config specifications, and network interface.
- UI views  
View components, router, game HUD, and game editor GUI.

*Demo:* <https://ga3hu.com/external/apps/with-vue/demo-game-bounty>  
*Source:* <https://github.com/wolff-h/comp-4-770>

**Work on Campus:**  
**Web Assistant** - Memorial University of Newfoundland Sept 2018 – Dec 2018

- Maintained Earth Science Department's website, using HTML, CSS, SSH, and school's internal site builder.
- Organized and updated latest information to site; Rewrote Campus Life page.

  
**Data Processing Support** - Memorial University of Newfoundland Jan 2019 – Apr 2019

- Conducted research for International Student Work Experience Program about students' part-time job information.
- Collected data and computed descriptive statistics in Jupyter Notebook using R, such as scatter plot, box plot, etc.

## Work Experience

**Internship Web Developer** - Shanghai Yeem Information Technology

May 2019 – Aug 2019

*Project: Yongda Online (mobile end)*

The mobile end web application of Yongda Shanghai (a car dealer). The app provides online car experience and services, containing info search, service status tracking, and online self-services. I was responsible for the Car Owner Service module.

*Responsibilities:*

- Frontend  
Car transactions: buy/sale/rent cars; Online services: car maintenance, emergency rescue; Banking: insurance query, co-brand cards. The UI is written with HTML5, jQuery, AmazeUI, specialized for mobile experience.
- Backend  
Fetch data from client database; organize fetched data to be ready for frontend in PHP.  
Process forms posted and submit tidy data to database.

**Freelance Full-stack Developer** - ThermoFlo

Jan 2018 – Apr 2018

*Project: Schedule Management*

A Gantt Chart like project management web app for ThermoFlo, an Australian spray booth company.

User can insert new tasks on main screen, edit the workflow by drag and drop, and update timeslot tiles. The app also integrates with useful functions like browsing mode, multi accounts, timeline filter and more; offered friendly schedule management and straightforward information record.

*Responsibilities:*

- Product Design  
Understood client's business scenario and achieved the objectives in program.
- Frontend  
Developed with Vue in Typescript and Stylus. Used Vuex to manage state, Axios to communicate with backend asynchronously, and jQuery to do delicate DOM operations.
- Backend  
Developed with PHP and MySQL. Processed time objects and managed session states.

## Personal Projects

**wolff-h.github.io**

Feb 2020 - Mar 2020

My GitHub homepage, a SPA (single page application) website built with Vue, Vuex in Typescript. It archives demos of my original works:

- *drag-scroll*: A JavaScript library for comprehensive drag-scroll operations (container scroll related to user drag).
- *stick-element*: A JavaScript library enables sticky (the implementation of native CSS sticky behavior, without native restrictions).
- *smart-algorithms*: A set of algorithm demos, including A\* search, JPS search, alpha-beta, and reinforcement learnings.
- *Selected Course Projects*

Site: <https://wolff-h.github.io>

Source: <https://github.com/wolff-h/wolff-h.github.io-source>

**Bounty react-rewrite**

Jan 2020 – Apr 2020

Rewrite of the course project *Bounty web game*. This is an optimized version written with React, Redux in Typescript and Stylus.

Source: <https://github.com/wolff-h/comp-4-770-react-rewrite>

**Image Processing Toolkit**

Jan 2019 – Apr 2019

An image processing toolkit in Java, including color pixel histogram analysis, image smoothing, corner detection and Hough transformation. All algorithms were implemented from scratch.

Source: <https://github.com/wolff-h/image-processing-toolkit>

**Anji Wilding Study**

May 2019 – Aug 2019

A mobile app. It was a framework app for recording collected information of wildings in Anji, China for research purpose. The app was written with React Native, Redux, Typescript and Stylus.

Source: <https://github.com/wolff-h/anjiiwildingstudy>

**language-awn**

Jan 2018 – Apr 2018

An atom (one of the most popular code editors) package for making notes in natural language. It is an editor plugin implementation of *Outline Note Taking* method with *scoped reference* functions.

Demo: <https://github.com/wolff-h/language-awn/wiki/demo>

Source: <https://github.com/wolff-h/language-awn>