YONG CHENG

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EDUCATION

Washington University in St. Louis — St. Louis, MO
- *Master of Science in Computer Science* — *August 2021 ~ May 2023*
- *GPA: 3.9/4*

Shanghai Ocean University — Shanghai, China
- *Bachelor of Science in Information and Computing Science* — *September 2016 ~ May 2021*
- *GPA: 3.9/4*

Interests: Software Development, Geometry Processing, Artificial Intelligence, Math

SKILLS

***Technical Skills*:** MySQL/PostgreSQL/Firebase, C/C++, Python, Html/CSS, JavaScript (React, Node.js/NPM, Socket.IO, Vue, jQuery, Ajax), JSON, PHP, C#, Java, Mathematica, Swift, Matlab, LaTeX
***Software/Technology*:** Git, AWS, Azure Blob Storage, Docker, Photoshop, Unity, Agile Software Development, RESTful API

WORK EXPERIENCES

Washington University in St. Louis | St. Louis, MO — *09/2022 ~ 12/2022*

Teaching Assistant for CSE 332/504N Object-Oriented Software Development Laboratory | C++

- Graded students' assignments based on quality, which were all labs in C++, where I did code reviews and pushed feedbacks to GitHub.
- Held office hours. Helped students with studio/lab questions by elaborating the reason behind the answer or asking them a similar but easier question to give them an inspiration to the original question.

Elekta, Inc. | St. Louis, MO — *05/2022 ~ 08/2022*

Software Engineering Intern | JavaScript, Node.js, Azure blob storage, PostgreSQL, Docker

- Worked on an agent software for radiation therapy, which is used to manage DICOM files. DICOM is an image standard used in medical area such as CT photos. This software is a multifunctional and handy DICOM viewer for the company to use.
- Implemented JavaScript to grant the software the ability to visualize DICOM files, to parse DICOM files, to recursively index attributes, to query DICOM files, and to upload and to download files.
- Configured and managed a database and a blob storage for users to put and fetch data. Utilized the framework developed by the company to build UI and optimized the interaction experience of that. Implemented RESTful API according to the design documentation.

PROJECTS (all in GitHub at https://github.com/CocoYard)

Microtubule tracking tool | Python, Napari, Image/video Processing — *12/2022*

- Microtubules are major components of the cytoskeleton. I was assigned the task to develop a tool to track their segmentations for biologists at *WashU*'s lab. Given the first frame's position of the selected microtubule, the tool should output its segmentation at all frames.
- Blurred and used *Contrast Limited Adaptive Histogram Equalization (CLAHE)* to adjust the global contrast. Designed algorithms to produce a binary image with dynamical threshold which is more accurate than the built-in function in *Open-CV*.
- Used algorithms such as *opening, closing, Hough transformation* and designed a loss function to get the target microtubule. Solved detection difficulties such as stretching, shrinking, moving, rotating, and crossing of the microtubules.

Sync Music Player | (full stack) HTML/CSS, JavaScript, React, Firebase, Node.js — *04/2022*

- An online music player which helps two people listen to music synchronously. Users use their email or their own account number and passcode to log in. Whenever one user switches or pause/resume a song, the other user will see the same effect on his/her player.

Calendar | (full stack) HTML/CSS, JavaScript, PHP, MySQL, jQuery — *03/2022*

- The whole page uses *JavaScript's* asynchronous request so that it partially downloads data from server instead of entirely redirecting to other pages. Users can add events to a specific date and create groups to share events together. The website has strict logic and passes the security checking. It earned the top 5% grade among the class.

Pedagogical Applet of Chan's Algorithm | HTML/CSS, JavaScript, Vue — *12/2021*

- Demos are important for computational geometry teaching, so we developed a demo to display the implementation procedure of a convex hull algorithm, Chan's algorithm, which is efficient for the time complexity of O (n log *h*) where 'n' is the number of input vertices and *'h'* is the number of output vertices.
- Used *JavaScript* to conduct the algorithm and *Vue* to construct the sketch board. The demo stops at every necessary step for displaying the hull's construction of that stack frame. Designed an "auto" button where if it is pressed, the demo goes through all the steps spontaneously.

CONTEST EXPERIENCES & AWARDS

Mathematical Contest in Modeling | Matlab — *09/2019*

- Participated in a mathematical modeling research topic, that is, to use a drum to bounce a ball and analyze the strategy in different conditions of various angles, force magnitudes and frequencies so that the ball reaches the bouncing target.
- Proposed a model to simplify the calculation and to compute mechanical data. Used the space coordinate series to make the equations and used the mathematics software to solve them. Communicated with team members and completed a thesis; won the national 2nd prize, which is in the top 3.8% of all competitors.

Contemporary Undergraduate Mathematical Contest in Modeling *The 2nd Prize, National Ranking: top 3.8%* — *09/2019*

The People's Scholarship in China *The 1st Prize, Ranking: top 5%* — *2018 & 2019 & 2020*