

# Bo-Yuan (Yuan) Chen

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## EDUCATION

**University of Washington**, Seattle, WA

Sep. 2022 – Dec. 2024

*Master of Science in Electrical and Computer Engineering*

Overall GPA: **3.96/4.0**

Key Coursework: Introduction to Database Systems, Special Topics in Electrical Engineering, Data Structure and Algorithms, Advanced Topics in Electrical and Computer Engineering, System Programming

**National Taiwan University**, Taipei, Taiwan

Sep. 2017 – June 2021

*Bachelor of Science in Mechanical Engineering*

CS Related Coursework GPA: **3.87/4.3**

Selected Coursework: Game Programming, Deep Learning for Computer Vision, Computer Programming, Data Structure and Programming

## SKILLS

Programming Languages: **C/C++(main), C#, Python, SQL, JavaScript**, HTML, CSS, Java, Arduino coding

Tools: **SQLite3, Unity3D, Linux**, Docker, MySQL, Node.js, ROS, PyTorch, TensorFlow, OpenCV, scikit-learn

## PROFESSIONAL EXPERIENCE

**Backend Software Engineer Intern, Knobull Inc (C++, JavaScript, HTML | REST API, MERN Stack)** Exeter, RI

*Web Development, Software Engineering*

July 2023 – Sep. 2023

- Led a team of seven in developing a MERN stack REST API and an academic search engine for a news website.
- Designed and implemented a Bootstrap-based homepage based on the founder and stakeholders' requirements.
- Established coding standards and documented the project comprehensively.

**Backend Software Engineer, 3MealFood  (JS, HTML, CSS | REST API, MEAN Stack)**

Kaohsiung, Taiwan

*Web Applications*

July 2023 – Sep. 2023

- Developed a RESTful API connected with MongoDB and deployed it on AWS servers.
- Implemented user sign-up with confirmation email, login, post management and reached up to 200 daily users.
- Ensured data integrity and security with access token after validation and utilized Angular.js for backend interface.

**Research Assistant, NTU Lab  (Python | PyTorch, OpenCV, NumPy, Scipy, Pandas, Linux)**

Taipei, Taiwan

*Unpaired Unsupervised CT Metal Artifact Reduction*

Apr. 2021 – July 2021

- Utilized unsupervised and semi-supervised learning to eliminate metal artifacts from CT images.
- Developed U-Nets in a cGAN base model trained end-to-end to screen out artifacts as low-frequency noises.
- Exploited blurring as image processing techniques in the discriminator model to focus on low-frequency noises.
- Improved the PSNR by 23% and the MAE by 29% against traditional methods.

## PROJECTS

**Disk-Based File Search System with Multithreaded Web Server (C, C++ | Linux, OOD)**

Seattle, WA

*System Programming*

Apr. 2023 – June 2023

- Constructed a web search engine that retrieves stored files based on user queries of keywords.
- Built a file parser, file system crawler, and indexer in in-memory inverted index structure serving the search engine.
- Improved 80% in runtime of the query process by converting the in-memory file system to a disk-based file system.
- Created a multithreaded web server as the front-end of the query processor returning the look-up inverted indices.

**IoT Position Application for In-Home Robots (C++, Python, PyTorch | Linux, ROS)**

Seattle, WA

*Engineering Entrepreneurial Capstone, Amazon Lab 126*

Jan. 2023 – June 2023

- Developed two systems by collecting fixed RSSI (wireless signal data) to localize the in-home robot.
- Assigned DNN and SVM models with lidar maps as ground truth to predict location from wireless data.
- Improved the mean square error against traditional multilateration method by 39%.
- Established a navigating algorithm for directing an in-home robot to the IoT device simply with RSSI value.

**Vaccine Scheduler Database Application  (Python, SQL | Azure, DB-API)**

Seattle, WA

*Introduction to Database Systems*

Nov. 2022 – Dec. 2022

- Developed an app using Python and SQL to simulate registration of a COVID-19 vaccine appointment.
- Built the database server in Microsoft Azure working with Python DB-API pymssql.

**Automatic Path Following Fan-Propelled Car (C++ | Arduino Coding, Control System, AutoCAD)** Taipei, Taiwan

*Practice of Mechanical Engineering*

Mar. 2020 – Jun. 2020

- Led a team of five to design digital circuits, car body configuration, and control systems of a prototype.
- Assigned PID control on moving velocity by adjusting a fan's rpm with Brushless DC Motor from PWM signals.
- Collaborated with another team to automate path following, speed control, car following, and overtaking in a contest.
- Redesigned with 70% of car size and improved 14% in response time by converting encoder from optical to magnetic.

**Functional Reduced And-Inverter Graph  (C++ | OOD)**

Taipei, Taiwan

*Data Structures and Programming*

Sep. 2019 – Feb. 2020

- Built an Electronic Design Automation tool with over 3,000 lines of C++ code.
- Constructed a CMD tool and the functions in object-oriented design.
- Parsed input circuits from a text file, sought for function-equal candidates in circuits and simplified it into a FRAIG.