

# Yang LI

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## EDUCATION

### Duke University (Duke), Durham, NC

Aug. 2023-May 2025 (expected)

- M.S. in Computer Science; GPA: 4.0/4.0

### The Ohio State University (OSU), Columbus, OH

Sept. 2019-Dec. 2022

- B.S. in Computer Information Science (Software Engineering), Minor in Mathematics
- GPA: 3.987/4.000, Dean's list for all 8 semesters

## RESEARCH & PROJECTS EXPERIENCE

### Hint-QPT and CARVER: Towards Interpretable and Robust Parametric Query Optimization

May 2024

Student Assistant in a 4-person group, Duke Database Group, Instructor: Jun Yang, Professor of Computer Science

- Designed and developed an interactive front-end interface that dynamically displays optimized results and comparative analysis, leveraging API (Sqlvis) for real-time data visualization in Python
- Completed a functional demo which allows users to interact with predicates on individual tables and table joins and provides statistical information such as estimated selectivity from PostgreSQL and visualizes the error distribution
- Developed a robust validation pipeline to evaluate the performance of learned optimizers (such as PAR<sup>2</sup>QO that integrates RQO AND PQO) in dynamic environments by slicing the original JOB database using time, category and Bernoulli random slicing strategies
- Proceeded one paper with a Ph.D student as the co-first author the other paper entitled with PAR<sup>2</sup>QO: Parametric Penalty-Aware Robust Query Optimization (RQO) as the second author

### Analyzing Alzheimer's Biomarkers Through Dynamic Brain Topology

Summer 2024-Spring 2025

Graduate Assistant in a eight-person team, Duke University Data+ Program, co-instructed by Prof. Tananun Songdechakraiwt, Arts & Sciences-Computer Science & Prof. Michael Lutz, School of Medicine-Neurology

- Collected de-identified brain imaging data, clinical data, and generated connectome, and preprocessed MRI data using fMRIPrep, and utilized SLURM at Duke's computation sets to accelerate data processing
- Performed data analysis through persistent homology to acquire stable brain connectivity data and identified how topological modes changed with Alzheimer's progresses
- Reinterpreted the methods in analyzing large and intricate brain network dataset, and completed a poster presentation: [Data+ 2024: Analyzing Alzheimer's Biomarkers through Dynamic Brain Topology](#)

### Exploring the Integration of Graph-level Information into Graph Neural Networks through Use of Features

- Worked out the limitations of graph neural networks (GNNs) that focus on single-modality structural connections to capture long-range functional interactions, and proposed incorporating functional topology into neural network architectures using persistent graph homology
- Submitted the paper to **ICML 25**

### Seamless App

Oct.- Dec. 2023

- Crafted an MVC framework that empowers healthcare providers to select from various prompts and datasets to formulate optimal vaccination strategies for organ transplants
- Incorporated a CSV Parser for processing flowchart files, vaccination details, and question sequences in the app, complemented by a database architecture in Cloud Firestore and Firebase Storage
- Embedded a QR Code Scanner in the app to create and read custom QR codes, enhancing the functionality for

easy future access and reference

### **Android App-What's in My Fridge-Recipe App**

Sept. -Dec. 2022

- Used Firebase for the back-end database structure and the MVVM framework for data model design
- Designed and implemented database tables, associations with Firebase Realtime Database

### **Rasa-ChatBot: Slack ChatBot**

Oct. 2022- Jan. 2023

- Designed knowledge-based systems utilizing the Rasa Platform and for history storage

### **Java Spring Boot-Discord ChatBot**

Sept. 2022- Dec. 2022

- Developed using the Spring Boot framework, enhanced the UI design with HTML and CSS, and incorporated interactive elements using JavaScript

## **PROFESSIONAL EXPERIENCE**

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### **Start-up company: If You know You know**

Jan.

2024-present

*IYKYK Mobile AR App, lead developer, Mentor: Kris Chaisanguanthum*

- Investigated clients' requirements and integrated User Experience Design into software development by using SwiftUI to create a seamless experience
- Designed and wrote codes for a location-based mobile iOS app that serves as an AR concierge for medium-scale experiences from scratch
- Developed SQL and graph queries to manage data with an SQLite database, and implemented a key feature of additional search functionalities like finding food options within a venue

## **TEACHING ASSISTANT EXPERIENCE**

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### **TA for COMPSCI 653: Human-Centered Computing, Duke**

Aug. -Dec.

2024

### **TA for BUSOBA2321 and CSE 2111, grader for CSE 1223, CSE 2321 and CSE 3232**

Sept. 2020- Dec.

2022

- Worked closely with course instructors during teaching-learning processing, including grading assignments, delivering coding workshops and Q&A sessions

## **LEADERSHIP EXPERIENCE**

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### **Key Member, International Career Management, OSU**

Aug. 2020-Dec. 2022

### **Key Member, Chinese Students & Scholars Society, OSU**

Aug. 2020-Dec. 2022

- Initiated and led the optimization of web design, prepared releases/articles as required
- Created and maintained relationships with sponsors, organized and negotiated events

## **SKILLS**

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- Languages: English (proficient), Chinese (native), Shanghainese (proficient)
- Programming Languages: Java, Python, C, Ruby, SQL, JavaScript, HTML, CSS, Swift, R, Matlab, LaTeX, TypeScript
- Other Software and Technologies: Rasa, Git, Figma, Mathematica, Access, MongoDB, Docker, Kubernetes
- Frameworks: Ruby on Rails, Python Flask, Java Springboot, SwiftUI, Typescript Vue.js