

# Ben Cheng

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## EDUCATION

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### University of Toronto

*Specialist in Computer Science (Co-op), Major in Statistics (GPA: 3.94 Dean's List)*

Ontario, Canada

Sep. 2021 – June 2026

## PROFESSIONAL EXPERIENCE

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### CSC494/495 Course Research Student

Jan 2024 – Present

*Dynamic Graphics Project (DGP) Lab*

- Designing Chatbots for Spatial Reasoning on Location-Based Information
- Developing location-aware services with cartographer, librarian and navigator functions
- Applying Chatbots and LLM models to automatically learn about space and object relation, applying spatial reasoning and labelling objects and points of interests
- Supervised by Professor Khai Truong in the Dynamic Graphics Project Lab

### Software Engineer

Dec 2023 – Present

*ActEarn (Startup)*

- Joined an AI-powered app, WanderFlow, which leverages Generative Artificial Intelligence (GAI) to revolutionize information consumption and customize personal content
- Participated in WanderFlow development (iOS-17 application) using React Native, Sendbird and Clerk
- Designed and implemented the tips and suggestions pages demonstrated to new users

### Web Developer

Sep 2023 – Present

*Centre for Social Services Engineering*

- Developed searching functions on the backend server with RESTful API using NodeJS and TypeScript
- Implemented the full-search and advanced search query for GraphDB using Lucene connector and SPARQL query
- Implemented the backend methods, frontend interfaces and tests with Jest Library for the searching functions

### Software Engineer

May 2023 – Present

*Middleware Systems Research Group*

- Upgrade and maintain PHP-built website (May 2023 - Sep 2023)
  - \* Upgraded the website to a 64-bit system with XAMPP 8.2.4 from a 32-bit system with XAMPP 1.7.4.
  - \* Enhanced the website security by over 15% through applying the Google OAuth2 verification package.
  - \* Embedded LinkedIn and Twitter posts and spaces in the lab webpage.
  - \* Utilized Google Analytics API to analyze the website dataflow and viewing counts
- Built modern lab website (Django CMS, Docker, Nginx, Google Scholar, Redis, MySQL) (June 2023 - Present)
  - \* Constructed Django CMS website application wrapped in Docker Container.
  - \* Utilizing Sklearn Surprise to construct the recommender system for recommending the publications.
  - \* Implemented a CI/CD pipeline utilizing GitHub Actions to automate code integration, testing and deployment process, enhancing the development process
  - \* Leveraged Google Scholar API to demonstrate publications published by professors

## PROJECTS

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### Student Assessment Prediction | *PyTorch, Numpy, Pandas, Scikit-learn, Scipy*

(Nov 2023 – Dec 2023)

- Constructed, trained and tested models by KNN and Matrix Factorization algorithm
- Implemented an Item-Response-Theory model to predict student correctness on the diagnostic question, and improved the performance by introducing more predictors and feature engineering
- Analyzed and predicted whether a student can correctly answer a specific diagnostic question based on the student's previous answers

### MovieReviewShare | *React, NodeJS, Express, MongoDB, Redux, Tailwind CSS, Azure*

(July 2023 - July 2023)

- Developed a movie-review platform application using NodeJS, ExpressJS and RESTful API
- Deployed backend and database server on Microsoft Azure and MongoDB Atlas cloud platform
- Constructed tools for authentication and authorization through JWT

**SoftStore** | *React, Spring Boot, Spring Data JPA, Material UI, TypeScript, Redis* (May 2023 - June 2023)

- Developed a full-function purchase/sell platform using Spring Boot, React, Spring JPA and Redis
- Designed, applied and implemented a responsive front-end webpage template adapting mobile devices
- Constructed and developed a set of tools for authorization and authentication based on Sa-token authentication framework

**Mini Eventbrite** | *JDBC, SQL, Java, Swing UI, Git* (Sep 2022 – Dec 2022)

- Collaborated with team members developing the application through Git and Github
- Implemented the function for users to publish, edit, sell, purchase and comment on events
- Independently designed and constructed the database connection layer
- Participated in the development of front-end UI design and login/logout use cases

## TECHNICAL SKILLS

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**Languages:** Java, Python, C, C++, MATLAB, Cuda, JavaScript, TypeScript, HTML, CSS, PHP, R, Go

**Backend:** NodeJS, Express, Spring Boot, Django, Microsoft Azure, Google Cloud Platform

**Frontend:** React, React Native, Material UI, Tailwind CSS, Redux, Expo, Selenium, Beautiful Soup

**Database:** Spring JPA, MyBatis, MySQL, PostgreSQL, SPARQL, Ontotext GraphDB, MongoDB, Redis

**Developer Tools:** Git, Docker, Figma, CMake, Makefile, XDebug, MSVC, GCC, MinGW, Vite, VMware

**Technologies:** PyTorch, Scikit-learn, Numpy, Pandas, Scipy, Sklearn Surprise, Linux (Ubuntu)