Zhekai Jiang

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Education

McGill University Sep 2019 – May 2023 (Expected)

Bachelor of Software Engineering Montréal, Canada

- **Cumulative Grade Point Average:** 4.00 / 4.00
- **Course Highlights:**

  Software Engineering and Computer Science: Introduction to Software Engineering, Model-Based Programming (Top Performer), Algorithms and Data Structures, Programming Languages and Paradigms, Applied Machine Learning (In Progress), Software Requirements Engineering (In Progress), Computer Organization (In Progress)

  Mathematics: Discrete Structures (100%), Probability and Statistics for Engineers

  Economics and Finance: Engineering Economy, McGill Personal Finance Essentials (Non-Credit, Online)

  Languages and Communication: Communication in Engineering, Beginners' French 1 (In Progress)

  Other Personal Interdisciplinary Interests: Physics of Music, Introduction to Psychology (Advanced Placement)

Awards

Dean's Honour List for ranking in the top 10% of the Faculty of Engineering at McGill University

Engineering Class of 1983 Scholarship for my high academic standing and overall contribution to university life at McGill University

John V. Galley Scholarship for my distinguished academic standing at McGill University

Rio Tinto–Richard Evans International Exchange Award for my academic achievements, as well as leadership values of personal responsibility, integrity, accountability, and mutual respect, at McGill University

Award of Excellence for achieving distinction as a visiting student at the University of Hong Kong

Skills

Languages: English (Fluent), French (Basic), Mandarin Chinese (Native)

Programming and Scripting Languages: Java, C, JavaScript, Python, C++, OCaml, Bash, ARMv7-Assembly

Professional Software, Tools, and Frameworks:

Integrated Development Environments and Editors: Eclipse, Android Studio, Visual Studio Code, Vim

Version Control, Collaboration, and Continuous Integration: Git, GitHub, GitLab, Travis CI

Numeric Computing: MATLAB, Scilab

Frameworks: Gradle, Spring Boot, Vue.js, React, Node.js, Express.js, Flask

Database Systems: MongoDB, PostgreSQL

Software Modelling: Umple, UML Lab, Yakindu, Eclipse Modelling Framework

Miscellaneous: JUnit, Heroku, Docker, Cucumber

Operating Systems: macOS, Windows, Unix, Linux

Software Engineering Practice: Object-oriented development, Model-based engineering, Behaviour-driven development, Test-driven development, Agile project management

Experience

Research Assistant May 2021 – Present

Department of Electrical and Computer Engineering, McGill University Montréal, Canada

- Supervised by Prof. Dániel Varró, studying about model-based software and systems engineering, including design space exploration, partial models, and languages for model specification and graph query.
- Involved in an ongoing research project, developing an online platform that helps visualize partial models and the process of model generation based on a newly proposed specification language.

Tomlinson Engagement Awardee for Mentoring (TEAM Mentor) Sep 2020 – Present

Tomlinson Project in University-Level Science Education (T-Pulse), McGill University Montréal, Canada

- **Fall 2021 – MATH 133 Linear Algebra and Geometry**: Write extra reading materials and guiding questions on real-world applications of linear algebra in different areas of mathematics, computer science, and software engineering. Facilitate and moderate relevant discussions on the course discussion board.
- **Winter 2021 – ECSE 321 Introduction to Software Engineering**: Monitored the course discussion board and provided support for students on the semester-long full-stack group project (an application for an imaginary auto repair shop, including a backend, a website, and an Android application) and general course materials.

- **Fall 2020 – MATH 133 Linear Algebra and Geometry**: Held weekly office hours at the virtual $\overrightarrow{F}\,\mathrm{Re}(z)\,\mathrm{Ca}$ (First Year Residence Cafeteria tutorial program) via Microsoft Teams.

Grader Sep 2020 – Dec 2021

Department of Electrical and Computer Engineering, McGill University Montréal, Canada

- **Fall 2021 – ECSE 321 Introduction to Software Engineering**: Grade group project deliverables and quizzes.

Projects

À l'heure (Best AI for Commerce (Stonks) at MAIS Hacks 2021 by McGill Artificial Intelligence Society) Oct 2021

Application | Devpost Presentation | GitHub Repository

- In a team of four, trained a decision tree model to predict whether a flight will delay based on five parameters. Developed a frontend in HTML and CSS and a backend with Flask to store the model and process HTTP requests.
- Contributed to the ideation of the project. Developed and deployed the Flask backend and the HTML frontend onto remote servers. Conducted the oral presentation and live demonstration.

Be My Chef (Project at Morgan Stanley 2021 Code to Give MTL Hackathon) Sep 2021

BeMyApp Presentation | GitHub Repository

- In a team of six, analyzed requirements, identified features, designed software prototypes, developed functional components in React, and proposed recommendations on implementation and future work for a new software project of La Tablée des Chefs aimed at encouraging teenagers to create and share food recipes, learn about healthy eating, and encourage food sustainability.
- Contributed to ideation of requirements, features, and prototypes. Developed the page displaying information of recipes and a search-by-available-ingredients feature in JavaScript using React. Helped compile texts and graphics for documentations on GitHub and the hackathon's platform. Proposed recommendations for implementation.

Artizon (Course Project in ECSE 321 Introduction to Software Engineering) Sep 2020 – Nov 2020

GitHub Repository

- In a team of five, developed a software system in four sprints, including the backend, a website, and an Android application, for an imaginary local art gallery which was being impacted by the COVID-19 pandemic and transforming their mode of business online.
- The project is primarily programmed in Java, as well as HTML, CSS, and JavaScript for the web frontend, assisted by Git, GitHub, Gradle, Spring Boot, Vue.js, Travis CI, Heroku, JUnit, etc.
- Served as a primary designer of the domain model. Implemented part of the backend business service layer and RESTful APIs with respective unit and integration testing. Implemented part of the web and Android frontends. Contributed to configurations, deployments, and bug fixing throughout the development. Organized the backlog and documentation on GitHub.

The Best Hospital (Finalist at the International Mathematical Modeling Challenge (IMMC 2018) International Contest) Mar 2018 – Apr 2018

Published in journal Maths, Physics, and Chemistry for Middle School Students (in Chinese only)

- In a team of four, developed a mathematical model that uses various factors to measure the quality of hospitals and determine the best hospital. Wrote a memo that a person without much mathematical expertise or computing ability can use to choose a hospital.
- Invited for a live presentation and oral defence at the regional final of Greater China.
- Contributed to the overall design of the mathematical model. Developed all the computer programs in MATLAB and C++. Edited part of the solution paper for the contest and subsequent publication.

Education and Growth (Meritorious Winner at the International Mathematical Modeling Challenge (IMMC 2018) Regional Contest of Greater China) Feb 2018

Published in journal Mathematics Study and Research (in Chinese only)

- In a team of four, developed an econometric model to predict China's economic growth in the next 20 years, evaluated the role of education in economic growth, and proposed suggestions on government policies.
- Contributed to the overall design of the mathematical model. Developed all the computer programs in MATLAB and C++. Edited part of the solution paper for the contest and subsequent publication.