


# EDWARD JIWOOK KIM

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## EDUCATION

### University of Waterloo

 Sep 2017 - April 2024


Bachelor of Mathematics, **Applied Mathematics**, Honours, Co-operative Program, **Computing Option** with **Distinction**

**CGPA: 85.95 / 100** • All academic terms: **Excellent Standing** • 2 years of gap due to **mandatory military service**


**Relevant Coursework:** Applications of Deep Learning • Distributed Analytics • Management Information Systems • Algorithmic Problem Solving • Computational Statistics and Data Analysis • Databases • Data Structures • Statistics • Object-Oriented Programming

## PROFESSIONAL EXPERIENCE

### Royal Bank of Canada


 Sep 2022 - Apr 2023

#### Data Engineer - Internship

 Toronto, Canada

- Collaborated with auditors across the Chief Audit Executive (CAE) group departments to gather business requirements, refining and implementing 100+ Key Risk Indicator (KRI) metrics using **Python(Pandas, Numpy), R, and SQL**
- Automated 15+ **Extract-Transform-Load (ETL) data pipelines** using **Dataiku** for the Risk Assessment Planning Tool Organizer (RaptOR), facilitating monthly and quarterly **data ingestion** and metrics updates
- Analyzed End User Data Applications (EUDA) across two systems using **Natural Language Processing (NLP)** techniques, successfully restoring over 8.5%+ of lost data connections with 100% precision through **data analysis** and **modeling**
- Managed bugs and data quality checks within **agile development** for the RaptOR project, overseeing **data pipelines** through DEV, QA, UAT, and PROD stages, ensuring continuous feedback and iterative progress

### Wish (ContextLogic Inc.)


 Jan 2022 - Apr 2022

#### Data Scientist - Internship

 Toronto, Canada

- Conducted **Exploratory Data Analysis (EDA)** on sequential user behavior logs, identifying significant differences between fraudulent and normal user patterns using an **Long Short-Term Memory (LSTM)** model
- Consolidated 1,500+ user actions into 90 categories based on User Experience (UX) behavior chunks and automated the mapping process using **Airflow** cron jobs to enhance team insights

### Barcode of Life Data Systems

 May 2019 - Aug 2019


#### Programmer & Data Analyst - Internship

 Guelph, Canada

- Designed, planned, and implemented a comprehensive automated DNA barcode data workflow **dashboard** using **Google Apps API**, enhancing data management efficiency by streamlining processes and **data visualization**
- Compiled taxonomy **JSON** files to create and visualize responsive multi-node hierarchical trees using **D3.js**

## PUBLICATION

### Dilated SE-DenseNet for Brain Tumor MRI Classification

 Dec 2023 - Feb 2024

Contributed as **First Author** • Currently under **Scientific Reports - Nature** peer review progress

Enhanced the **DenseNet121 Convolutional DNN** architecture for classifying brain tumor types by integrating **dilation layers** and **SE (Squeeze-and-Excitation) modules**, resulting in an improved F1-score from 0.834 to 0.967.

## SKILLS

<b>Programming</b>	Python(Pandas, Numpy, PyTorch, Django, LangChain) • R • SQL • C++ • TypeScript • Bash
<b>BigData &amp; Tools</b>	Airflow • AWS • Dataiku DSS • GCP • Github • PowerBI • React • Spark • MS Office(Word, Excel, Access)
<b>Technical Skills</b>	GenAI/LLMs • ETL/ELT Data Pipelines • Machine Learning • Data Visualization • Data Analysis

## CERTIFICATES

Google Cloud Certified Professional Data Engineer

 Google Cloud  Jan 2024

HackerRank SQL (Advanced) Certificate

 HackerRank  Jun 2024

Information Processing Industrial Engineer

 HRD Korea  Jun 2021

+ 10 Additional Certificates in Information processing, **Linux**, **MS Word**, **MS Excel**, **MS Access**, **Accounting**, etc

June 6, 2024

To Whom It May Concern,

I am delighted to write this letter in strong support of Mr. Edward Jiwook Kim. As his instructor for the Deep Learning course (AMATH 495) at the University of Waterloo, I had the opportunity to observe his academic skill and dedication, and I am confident in his potential to excel in future research endeavors. The Deep Learning course (AMATH 495) is a new course at the University of Waterloo, offered to both undergraduate and graduate students. It explores a comprehensive range of deep learning methodologies, from the basics of convolutional and recurrent neural networks to the complexities of generative models. The course emphasizes practical application in scientific machine learning, equipping students with both theoretical knowledge and hands-on experience in addressing real-world scientific problems.

During this course, Edward consistently demonstrated an outstanding understanding and application of deep learning concepts. His assignments, presentations, and group projects were consistently of the highest quality. His final project, "Dilated SE-DenseNet for Radiographic Classification of Brain Tumors," was evidence of his ingenuity and technical skill, in applying sophisticated deep learning techniques to a pressing medical challenge. This project is currently under review in the Scientific Reports, highlighting its significance and quality. Edward's overall performance in the course earned him a perfect grade of 100%, reflecting his consistent excellence in all aspects of the course.

In addition to his academic achievements, he has gained valuable experience through various internships and projects. As a Data Engineer Intern at the Royal Bank of Canada, he collaborated with auditors to gather business requirements, refined and implemented over 100 Key Risk Indicator (KRI) metrics, and automated 15+ ETL data pipelines. At Wish (ContextLogic Inc.), he conducted exploratory data analysis on sequential user behavior logs and identified significant differences between fraudulent and normal user patterns using an LSTM model. Furthermore, during his internship at BOLD Systems, he designed and implemented an automated DNA barcode data workflow dashboard and enhanced the barcode sequencing instrument's file uploader UI. His commitment to continuous learning is evident from his pursuit of various certifications, including Google Cloud Certified Professional Data Engineer.

In summary, Edward is an exceptional individual whose academic excellence, practical experience, and dedication to learning make him an outstanding candidate for your group. His passion and proactive approach to problem-solving will undoubtedly make valuable contributions to your company.

Please feel free to contact me if you require any additional information or have any questions.

Sincerely,



Mohammad Kohandel  
Professor of Applied Mathematics  
Head of Mathematical Medicine Lab  
University of Waterloo

