

# David Guo

**Date of birth:** 26/05/2003 | **Nationality:** Canadian | **Phone number:** (+1) 6048259637 (Mobile) | **Email address:** [davidmy.guo@mail.utoronto.ca](mailto:davidmy.guo@mail.utoronto.ca) | **Address:** 15 Grenville St, 4908, M4Y0B9, Toronto, Canada (Home)

## ● ABOUT ME

Engineering Science student at the University of Toronto specializing in Machine Intelligence, with hands-on experience in AI, machine learning, and software development. I've contributed to advanced projects in AR, real-time data processing, and web applications through roles at ModiFace and other organizations. Passionate about building data-driven solutions, bringing a solid technical foundation in AI and a commitment to continuous learning and innovation.

## ● WORK EXPERIENCE

05/2024 – CURRENT Toronto, Canada  
**SOFTWARE DEVELOPER INTERN MODIFACE**

- Helped to develop an innovative AR application for makeup try-on, featuring real-time tracking and simulated makeup application.
- Assisted with engineering library code to effectively handle camera feeds and mask integration, optimizing performance for real-time applications.
- Integrated CMS and API solutions, ensuring smooth data connectivity and efficient content management while utilizing JSON for data interchange.
- Documented processes and technical specifications, contributing to clear communication and knowledge sharing within the team.
- Contributed to implementing Google Analytics to track user interactions and derive insights, informing future improvements and feature development.

05/2023 – 09/2023 Vancouver, Canada  
**SOFTWARE DEVELOPER DEALERVU**

- Full Stack experience with React, Azure .NET, and MS SQL Server
- Implemented localization functionality for the Super Order Managementsite using React
  - Utilized combination of custom tools, Moment, KendoReact, and CLDR
- Designed and created MVC-based report tools to predict part orders and returns, along with save and edit functionality
  - Consulted closely with users to formulate solutions unique to individual dealer's requirements

## ● EDUCATION AND TRAINING

09/2021 – CURRENT Toronto, Canada  
**B.A.SC. IN ENGINEERING SCIENCE - (MAJOR IN MACHINE INTELLIGENCE)** The University of Toronto

**Artificial Intelligence and Machine Learning:** Training in neural networks, machine learning techniques, probabilistic reasoning, and artificial intelligence applications, with a focus on data-driven models and algorithmic processes for intelligent systems.

**Software Development and Algorithms:** Coursework in computer programming, data structures, systems software, and digital computation, with an emphasis on algorithm design and optimization for efficient software solutions.

**Mathematics and Engineering Computation:** Studies in calculus, linear algebra, matrix optimization, and differential equations, applied to engineering and computational modeling for AI and ML systems.

**Engineering Fundamentals:** Background in structural engineering, thermodynamics, mechanics, and materials science, supporting an engineering approach to technical problem-solving.

**Professional Engineering Experience:** Practical experience through the PEY Co-op Program, including work terms with applications in engineering design, strategy, and applied problem-solving.

**Website** <https://www.engineering.utoronto.ca/> |

**Field of study** Electronics and automation , Electricity and energy , Software and applications development and analysis , Database and network design and administration

**Final grade** CGPA 3.83 | **Type of credits** FCE | **Number of credits** 17 | **Thesis** In Progress

## PROJECTS

08/2024 – CURRENT

### GAN augmentation of WM811K Silicon Wafer Map Dataset for Error Pattern Detection Training

In this on-going project, I am investigating the efficacy of using Wasserstein GANs with Gradient Penalty to generate images to balance the WM-811K silicon wafer map dataset. Being able to generate synthetic data will aid in training image detection models later on to improve fabrication efficacy.

**Link** <https://github.com/davidguo123456/wafer-defect-gan>

01/2024 – 05/2024

### Music Generation Using Autoencoders and Transformer Mixture Distribution Models

In this project, we developed a model for music generation using autoencoders and transformer mixture distribution models, implemented in TensorFlow. Building on techniques like variational autoencoders (VAEs) and transformers, our approach processes high-dimensional music data to create coherent compositions. By using a sliding window method and training the model on both diverse and classical music datasets, we aimed to capture melodic patterns effectively. While the model performs well at learning tonality, there are still challenges with rhythm and long-term structure. We're continuing to explore ways to enhance the model's rhythmic coherence and overall musicality.on...

**Link** <https://github.com/davidguo123456/ECE324>

## DIGITAL SKILLS

### Machine Learning

PyTorch, Keras | Generative Adversarial Networks | Transformer Learning | Variational Autoencoders (VAE) | Deep Neural Networks (CNNs, GANs) | Deep Learning (Tensorflow, Pytorch(basic), Jax/Flax(basic)) | Python | Pytorch,Tensorflow | Deep learning/Neural networks | ML Tools(Tensorflow,Keras) | Neural Networks in Python | Modeling: Linear and logistic regressions | Python (Spyder/Jupyter Notebook IDE) | Python, Scikit-Learn, Numpy, Matplotlib

### Web Development

CSS | Node.js, React.js | JavaScript | HTML

### General Software Development

Git

### Full Stack

C C++ C (C-Sharp) | ASP .net | SQL | SQL and MS-SQL

## HONOURS AND AWARDS

04/2022

### Ian and Shirley Rowe Innovation Award – The University of Toronto

The Ian and Shirley Rowe award is presented to the design team with the most innovative design solution during the Praxis design course's final showcase. My team and I received this award for our work on a redesigned beehive project which involved both CFD simulations of heat and airflow and working closely with local Toronto beekeepers to address issues with hives surviving harsh winters. The project called for a detailed and nuanced understanding of a problem that we initially had little experience with, and was deeply impactful. The experience demonstrated the importance of

understanding problems from not only an engineering perspective but also a more personal and inclusive perspective to better understand a client's needs.

## Dean's Honour List – The University of Toronto

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Semesters Recieved:

Year 1 Semester 1  
Year 1 Semester 2  
Year 2 Semester 1  
Year 2 Semester 2  
Year 3 Semester 1  
Year 3 Semester 2

2021

## UofT Scholar – The University of Toronto

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The University of Toronto Scholars Program provides recognition to U of T's outstanding students, at admission.

Outstanding domestic and international secondary school students are considered automatically for these awards on the basis of their average at the time of admission (applicants who have previously attended a post-secondary institution are not eligible for U of T Scholars consideration).

### ● LANGUAGE SKILLS

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Mother tongue(s): **ENGLISH**

Other language(s):

|                | UNDERSTANDING |         | SPEAKING          |                    | WRITING |
|----------------|---------------|---------|-------------------|--------------------|---------|
|                | Listening     | Reading | Spoken production | Spoken interaction |         |
| <b>CHINESE</b> | C2            | A2      | C2                | C2                 | A2      |

*Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user*