Sebastian Czyrny

Sebastian Czyrny | eResume (sebastian-czyrny.github.io)
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Skills

Programming	C, C++, C#, Java, Python, Javascript, Matlab
Web & Database	HTML & CSS, Bootstrap, SQL, MS SQL Management Studio, MongoDB
Frameworks	ASP.NET MVC Core (IIS), RESTful Interfaces, Entity Framework, Identity Framework, Git, AngularJS, React, ExpressJS, PyTorch, SciKit learn, Numpy, Springboot, Langchain, Streamlit, LlamaIndex
Environments	Microsoft Visual Studio, Visual Studio Code, Netbeans, Eclipse, Windows, Linux
Hardware & Digital Systems	Verilog, Intel Quartus Prime for FPGA Development, ModelSim, De1-SoC FPGA board, Keil uVision5, STM32 Nucleo-F446ZE Microcontroller, STM32 Cube IDE

Education & Interests

University of Toronto

Bachelor of Applied Science: Computer Engineering — **CGPA: 3.96**

Master of Applied Science: Electrical and Computer Engineering — *Expected Completion: Sept. 2026*

Interests

Reconfigurable systems, CAD for reconfigurable systems, FPGAs, CGRAs, front- & back-end web development, collaborative software/hardware projects, large-scale software systems, digital and embedded systems

Work Experience

University of Toronto, Digital Circuits (ECE241) – *Teaching Assistant*

Fall 2024

- **Facilitated** lab sessions for a second-year engineering course on Digital Circuits, providing hands-on guidance and support to students.
- Graded assignments, midterms, and lab reports, ensuring **timely** and **constructive** feedback to enhance student learning.
- **Collaborated** with fellow teaching assistants and faculty members in regular meetings to discuss student progress and course improvements.

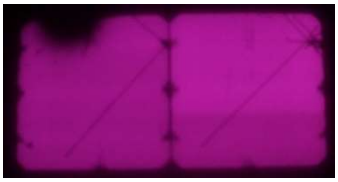
Sunnybrook Health Sciences Center, MyChart™ Program – *Student Web Application Developer*

May 2022-Present

- **Learned** about computer programming (writing software applications in a multitude of programming languages), computer security (how to make websites secure), computer networks (making HTTP requests and handling HTTP responses), and software architecture (designing scalable and responsive software applications).
- **Gained** experience in all software development phases: inception, elaboration, construction, and transition.
- **Developed** and managed the front-end of a health care information services provider using Javascript, HTML & CSS, and AngularJS, as well as a back-end using Java Springboot framework, ColdFusion Web Development Suite, and connected with a Microsoft SQL Server
- **Collaborated** alongside a small team of senior software engineers and business anaylsts to design and integrate web pages into the MyChart application
- **Improved** usability through intuitive table filters and pagination, PDF viewing, and data load indicators
- **Communicated** progress on software development through daily meetings and Scrums

Design Teams

Blue Sky Solar Racing Team – *Array and Electromechanical Sub-Teams* *Oct 2021- July 2022*



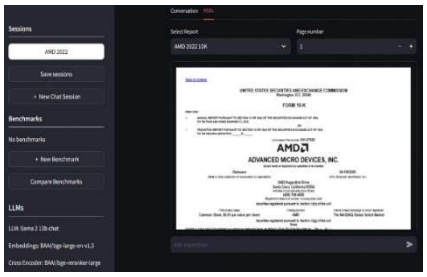
***Array*: Light curve tracing, Electroluminescent image rating algorithm** (Python). Designed a Python script to analyze and compare the brightness of solar cells. Images of solar cell electroluminescence were analyzed using the Python Image Library and run & tested in Visual Studio Code. The analysis allowed optimize placement of solar cells on a solar car such that the car receives a maximum power input.

Collaborative Experience

Team Leader, *LLM Agent For Shareholder Report Generation*, Capstone Project U of T *Sept 2023 – April 2024*

"A Large Language Model Agent for quick & efficient analysis of shareholder reports"

Source Code Demo Video

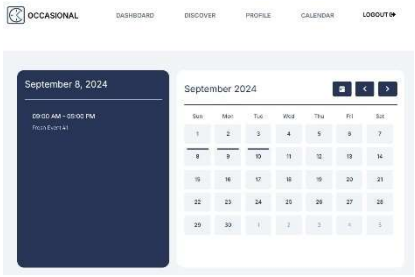


- **Collaborated** with a team of 4 to produce an application that utilizes LLMs (both OSS and API Inference) to chat with shareholder reports.
- **Concluded** that no prompting strategy dominates over any other and each has its own use case. The Re-Ranker retrieval strategy performs almost identically to OpenAI's ADA Embeddings Model©
- Underwent rigorous **Testing** of the LLM Agent accuracy through the comparison of human-generated responses with those of the LLM Agent under different prompting and retrieval strategies.
- **Innovated** current state-of-the-art prompting strategies with our very own Multi-Stage Prompting.
- **Researched** the Natural Language Processing pipeline and incorporated workflow into application.
- **Prepared** meetings by organizing an agenda beforehand, and completed each task for the meetings
- **Coordinated** meetings by following pre-planned agenda, ensuring the participation of all team members, and initiating discussions, through the inquiry of team members' work status

Team Leader, *Occasional (Web Application)*, Software Engineering U of T *Fall 2023*

"Web Application for UofT Event discovery"

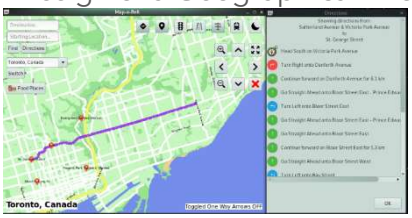
Source Code Demo Video Website



- **Collaborated** with a team of 6 to produce a responsive web app using Python Flask and MongoDB.
- **Performed** Unit, Performance, Regression, and End-To-End Tests to benchmark the application
- Design was **determined** through structured brainstorming and creating wireframes in Figma
- **Researched** UI/UX design principles and incorporated them into app.
- **Administered** MongoDB Cloud Database for data persistency.
- Implemented web **Security** via Bcrypt for password hashing.

Team Leader, *Geographical Information System*, Software Communication & Design U of T *Winter 2022*

"Design of a Geographical Information System"



Collaborated in a team of 3 to build a geographical information system in C++. Open Street Maps was used for data retrieval. Front- End was built using GTK & EZGL graphics libraries. Application was run under Linux OS and run & tested in Visual Studio Code and Netbeans. Valgrind was used for memory checking. Path finding algorithm done using Dijkstra's and A*.

- **Designed** the architecture of the system to use the Model View Controller Design Pattern
- **Coordinated** team meetings and **delegated** tasks to team members.
- **Led** the building of the Front-End user interface using EZGL & GTK graphics libraries
- **Researched** design choices made in user interfaces to be user-friendly and responsive. Research sources include Jakob Nielson's *Usability Engineering* book, and an article by Seo, Daeil, Yoo, Byounghyun, and Ko, Heedong on Levels of Detail Modeling from the *International journal of geographical information science*