

# David Chen

416-879-7536 | [davyhchen@mail.utoronto.ca](mailto:davyhchen@mail.utoronto.ca) | [linkedin.com/in/dayuhechen](https://www.linkedin.com/in/dayuhechen) | <https://digitalyoshixi.github.io>

## Technical Skills

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**Languages:** Java, Python, C, C++, Golang, JavaScript, HTML, CSS, PostgreSQL, Lua, Nix, Powershell, Bash, x86 Assembly

**Frameworks and Libraries:** ReactJS, ExpressJS, NextJS, Flask, Streamlit, 3JS, pandas, Tensorflow, BeautifulSoup, NetworkX

**Developer Tools:** VMWare, Virtualbox, QEMU, Git, Docker, Linux, VS Code, Visual Studio, Vim, AWS

**APIs:** Win32API, GTK4

## Education/Certifications

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**Honours Bachelor of Computer Science Candidate**

*University of Toronto*

Sep. 2024 – Jun 2029

*Toronto, ON*

**CompTIA A+**

Aug 2024

## Work Experience

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**Computer Science Instructor**

*RoboEDU*

Aug 2022 – Sep 2023

*Toronto, ON*

- **Taught Python, C, Lua and Robotics:** With interactive exercises and tutorial work for 30+ students. Fostered a inquiry-first teaching methodology for software and hardware design.
- **Led a Junior Robotics Team:** Acting as a mentor during the engineering process. Established tests for consistency and stability aswell as routine code audits.
- **Developed Neural Networks and Computer Vision Projects:** Guiding 5 students through the process of developing with Tensorflow and Sklearn.

**Automation Engineer Intern**

*Pathway Communications*

Mar. 2023 – Jun 2023

*Toronto, ON*

- **Automated Routine Device Configuration Process:** By writing periodic python scripts utilizing subprocessing to emulate terminal input. Scripts check for expired certificates, old passwords and unused ports. Has been used to monitor and update 100+ local firewalls and routers.
- **Integrated Elastic EDR Into Company Ecosystem:** By using EC2 cloud servers with production-equivalent environments to test run its endpoint defense and analysis capabilities.

## Extracurricular Roles

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**CTF Team Captain** BLIGHT BABIES CTF | *Reverse Engineering, Web*

Dec 2023 - Present

- **Won 3rd Place at ISSessionsCTF 2025:** Clearing the programming category and 4 Web exploitation challenges.
- **Playing Bi-weekly:** With a running total of 14 CTF events attended.
- **Wrote a recon reference for reversing ELF binaries:** Assisting in the static analysis phase. Effective for solving 10 challenges thus far.
- <https://ctftime.org/team/280084>

**Director of Technology** CSEC - UofT | *ReactJS, LLVM*

Sep 2024 - Present

- **Directed Workshops in Frontend Development:** By explaining the underlying concepts of ReactJS's transpilation and rendering engine.
- **Leading Bytecode Interpreter Development:** For an upcoming CSEC seminar about a LLVM-made interpreter for esoteric language germspeak.

**Web Scraper Lead** C.R.E.A.T.E - UofT | *Python, Flask, BeautifulSoup*

Sep 2024 - Present

- **Created a News Crawler:** Periodically parses 5 news outlets. Done by establishing bi-weekly meetings for group members to work out project requirements.
- **Led Webscraper, PostgreSQL and AWS Tutorial sessions:** Teaching many novice programmers how to setup development environments and use cloud services by example.

- **Led 7+ Workshops:** On linux, game design, 3D printing, woodworking and graphic design.
- **Established Partnerships Between Art Club:** Allowing for our collaborative sticker printing and graphic design workshops.
- **Managed Club Administration:** By developing budgets and recording existing club resources for future workshops months in advance.

## Projects

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### **Geminaut Browser** | *Go, ReactJS, NextJS, Electron*

Deerhacks 4 2025

- **Implemented the GEMINI Internet Protocol In Golang:** Creating APIs to retrieve page data to parse into a json representation of the DOM
- **Developed a Gemtext Parser:** With specific grammar rules for varying gemtext pages
- **Added tabbing, history and page rendering functionality** As Javascript functions using ReactJS states
- <https://dorahacks.io/buidl/21620>

### **PhishNet.work** | *AWS, ReactJS, NextJS, Twilio, SageMaker*

UoftHacks 12 2025

- **Built off Twilio API:** Making endpoints for outbound and inbound calls to be recieved and serialized for text interpreting.
- **Configured AWS Ecosystem:** With EC2 server setup, firewall rules and webhooks to connect Twilio and Sagemaker.
- **Setup Transcription to Scam Detection Pipeline:** By converting muVal audio data into text and then passing it into BERT classificaton for phishing weight.
- <https://dorahacks.io/buidl/21620>

### **Data Dam** | *ReactJS, Flask, Google Maps, Open-Meteo, IWLS, Sklearn*

CTRL+HACK+DEL 2024

- **Data-mining of Historical Climate Data:** By curating and sanitizing 2 online datasets used for training in the forest classification ML model for stream intensity.
- **Integrated Location APIs:** With Google maps. Open-Meteo and IWLS APIs to measure local temperature, humidity and water-levels from a user's IP address.
- <https://devpost.com/software/data-dam>

### **Room.IT** | *AWS, ReactJS, NextJS, NodeJS*

Hack The Student Life 2024

- **Deployed with AWS Amplify:** Used it to monitor API requests with AWS's API gateway.
- **Setup API Endpoints:** With NextJS to interface PrismaDB with custom defined CRUD operations.
- <https://devpost.com/software/room-it-zjpe16>

### **Scan2Donate** | *React, Flask, OpenCV, YOLO, PSQL, Openstreetmaps*

Hack The Valley 2024

- **Trained an Object-Detection Neural Network:** Using YOLO for detecting 20+ food items.
- **Setup Backend APIs:** For IP to location-finding and interfaces for between Flask and ReactJS.
- **Designed Scalable PostgreSQL Schema:** With automatic API calls to maintain entries.
- <https://devpost.com/software/scanforgood>

### **EcoNom-y** | *PostgreSQL, Streamlit, Flask, Gemini*

Terrahacks 2024

- **Created PostgreSQL Database:** With APIs for interface designed to query a large database of recipe data at low latency.
- **Developed APIs for Computer Vision and NLP resources:** Allowing for input results to be rendered naturally for the frontend application.
- **Workshopped and Designed the Front-End:** Created in Streamlit with templates for displaying recipes.
- <https://devpost.com/software/econom-y>

### **Indigenous Archive** | *Java, Jsoup, Processing*

- **Created a Fast Java Webscraper:** Which periodically parses Imgur and Pinterest for cultural art.
- **Integrated Internet Archive API:** For periodic archival of scraped images.
- <https://github.com/digitalyoshixi/indigenous-archive-test>

### **Winter Ocean** | *Python, Pygame, Git*

Bearhacks 2020

- **Created a World Generation Algorithm:** Using random noise for replayability.
- **Applied Linear Algebra:** For manipulated input vectors to achieve natural and precise character movement.
- Final project was praised for being highly addictive.
- <https://replit.com/@DavidChen98/hackingthon-ioindian-ocean-game>