

David Chen

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Technical Skills

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

Honours Bachelor of Computer Science & Statistics Candidate Sep. 2024 – Jun 2029
University of Toronto *Toronto, ON*
CompTIA A+ Aug 2024

Work Experience

Computer Science Instructor Aug 2022 – Sep 2023
RoboEDU *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 Mar. 2023 – Jun 2023
Pathway Communications *Toronto, ON*

- **Scripted and setup daemons:** For reviewing 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

CTF Team Captain BLIGHT BABIES CTF | *Reverse Engineering, Web* Dec 2023 - Present

- **Ranked 3rd in Canada**
- **Playing Bi-weekly:** With a running total of 30 CTF events attended.
- **Wrote a general reference for reversing binaries:** Assisting in the static analysis phase. Effective for solving 15+ 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.

Projects

- Proxmox Homelab** | *Proxmox, LXC, Docker, Kubernetes* Personal
- **Hardened Homelab Security:** Through microservice containerizing, restricting open services through a reverse proxy, strict firewall policies, and setting up a VPN for internal access.
 - **Implemented CI/CD:** Through Github actions runners monitoring live code and network changes, to modify DNS records and to publish site changes.
- 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>