NICHOLAS CHEN

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Education

University of Waterloo **Expected Graduation Date: April 2028**

Bachelor of Applied Science in Systems Design Engineering *Waterloo, Ontario*

- President's Scholarship of Distinction worth **$5000**
- Relevant Courses: Introduction to Design, Digital Computation, Elementary Engineering Math, Visual Communications

Technical Skills

Languages: Python, Java, C++, HTML/CSS, JavaScript, TypeScript, Kotlin, SQL, MATLAB

Developer Tools: VS Code, Eclipse, IntelliJ, Android Studio, Postico, Jupyter Notebook, Git, GitHub, Docker, Heroku, Jira, Confluence, AWS, CircleCI, Bash, Zsh, Kubernetes

Technologies/Frameworks: React, React Native, Node.js, Express.js, Nest.js, Supabase, Firebase, Flask, PostgreSQL, MongoDB, Redis, RabbitMQ, Jest, PyTorch, TensorFlow, Numpy, Pandas, REST APIs, Puppeteer, Tailwind CSS

Design: Figma, Procreate, Adobe Creative Suite, SOLIDWORKS, AutoCAD, Fusion 360

Experience

Royal Bank of Canada (RBCx) - Ownr **January 2025 – Present**

Software Engineer Intern *Toronto, Ontario*

- Developed and maintained **full-stack web applications** using **JavaScript** for the frontend and **Node.js**, **React**, **Express.js**, **Nest.js**, and **TypeScript** and **Python** for the backend, building scalable **REST APIs** and responsive user interfaces.
- Utilized **PostgreSQL** with **Postico** to manage over **200,000 entries**, optimizing queries to reduce response time by **30%**.
- Implemented **unit tests** and **integration tests** using **Jest**, **Supertest**, and **Puppeteer**, ensuring reliability and achieving **99.9% uptime** while supporting over **200 000+ active users**.
- Deployed applications on **Heroku** and leveraged **Docker** for development and deployment, improving environment consistency.
- Used **CI/CD pipelines** with **GitHub Actions** to automate testing and deployment, ensuring efficient delivery cycles.
- Collaborated on a microservices architecture leveraging **Redis** for caching and **RabbitMQ** for message queues, enhancing system performance and scalability.
- Used **Git** to contribute code changes to repositories on **GitHub** with over **100+ commits** across multiple branches.
- Managed containerized workloads using **Kubernetes**, deploying applications across multiple pods for high availability.

Royal Bank of Canada **July 2024 – August 2024**

Innovation Developer Intern *Toronto, Ontario*

- Developed a **machine learning model** using **linear regression** in **Python** with **NumPy** and **Pandas** to predict the volume of monthly sign-ins, enabling better resource allocation within the support team.
- Reduced support team work times by **30%** by accurately forecasting when **2 million** customers would bank online.
- Identified potential cost savings of over **$50,000** annually by predicting and preemptively managing peak support periods, reducing the need for overtime and additional resources.

Meta Hash Capital **March 2023 – August 2023**

UX Design Intern *Markham, Ontario*

- Collaborated closely with cross-functional teams to develop a comprehensive **design system**, streamlining the design-to-development process and reducing production time by **25%**.
- Designed and iterated on **wireframes**, **prototypes**, and high-fidelity **mockups** for both web and mobile applications using **Figma** and **Adobe Creative Suite**, ensuring a cohesive user experience across platforms.
- Conducted **usability testing** sessions, which resulted in a **20%** increase in user satisfaction and better user interface.

VolunTrack **March 2022 – October 2022**

UX/UI Design Intern *Richmond Hill, Ontario*

- Designed **20+ user interfaces** using **Figma** and **Adobe**, improving user engagement by **15%** and a total reach of **100 users**.
- Conducted **30+ usability tests**, leading to a **25% reduction** in user friction and enhancing navigation flow.
- Collaborated with **5+ developers** and **3 product managers** to implement design improvements, ensuring **100% of project deadlines** were met.

Projects

Fernando — 2nd Place @ Utra Hacks | *C++, Python, OpenCV, Arduino, CAD, Terraform* **Jan 2025**

- Built **Fernando**, a real-time posture-checking robot using **OpenCV** (**95% accuracy**) and **Arduino**-controlled servos.
- Programmed vision in **Python** for posture analysis and motor control in **C++** to adjust user posture dynamically.
- Developed a database website with **Terraform**, tracking **100+ sessions** and generating personalized analytics.
- Designed, iterated, and 3D-printed **5+ CAD prototypes** to create a durable, adjustable robotic frame.

Extracurriculars

University of Waterloo Alternative Fuels Team **September 2024 – Present**

Electrical and Mechanical Engineer *Waterloo, Ontario*

- Developed sustainable fuel technologies, achieving **12%** higher fuel efficiency. Assisted in prototyping systems, through modeling with **SOLIDWORKS** and **AutoCAD**.