Alex **Koen**

ENGINEERING PHYSICS STUDENT

North Vancouver, BC

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Summary

- Second-year Engineering Physics student at the University of British Columbia (average 92%).
- One year of experience designing and building web and mobile applications for the Vancouver General Hospital.
- Excels as part of a team, both in leadership and peer environments.
- Effectively communicates ideas, both interpersonally and in writing.
- Learns quickly and has a propensity for getting things done.

Work & Volunteer Experience

Head Designer & Software Developer   *Sept. 2019 - Aug. 2020*

MEDICAL APPLICATIONS IN SOFTWARE TECHNOLOGY - UBC BEST
- Built a web and mobile ambulance-tracking app using React for paramedics and radiologists at the Vancouver General Hospital.
- Completely redesigned the user interface to comply with Material Design guidelines.
- Implemented style guidelines and automatic code refactoring to standardize codebase.
- Was the only first-year student to be offered a full position out of more than 80 applicants.

Vice-Chair of Communications & Web Designer   *Oct. 2018 - Jun. 2019*

YOUTH COUNCIL OF JONATHAN WILKINSON, MINISTER OF THE ENVIRONMENT AND CLIMATE CHANGE
- Worked directly with Minister Wilkinson to promote our projects to the public.
- Built a responsive website from scratch to showcase our event, *Youth Visioning Our City's Future,* to the general public.

Ski Instructor   *Dec. 2016 – Apr. 2019 (Seasonal)*

GROUSE MOUNTAIN RESORTS
- Earned the Level 2 instructor certification within a year of employment and became one of the youngest within the company to do so.
- Taught in both English and French.
- Learned to communicate with anyone, work effectively in a large team, and teach challenging skills to clients of all ages.

Technical Projects

Augmented Reality for Surgical Robots   *Apr. 2020 - Present*

UBC ROBOTICS AND CONTROL LAB
- Currently developing a motion parallax system to provide surgeons with improved depth perception when operating using the DaVinci surgical robot.
- Built a high-performance face-detection and tracking algorithm using OpenCV's Deep Neural Network and Facemark modules.
- Developed a low-level graphics pipeline using OpenGL mathematics to determine a viewer's perspective in the real world and create a 3D effect.

Reflect: Stimulating Healthier Discourse on Social Media Using Neural Networks   *Aug. 2020*

COURSE PROJECT
- Created Reflect, a Python program that provides users with feedback on the likelihood that their comments will incite personal attacks on social-media before they are posted.
- Is the only software currently available that considers the context of the surrounding conversation.
- Built using ConvoKit, Cornell Univesity's natural language processing toolkit.
- Uses both supervised and unsupervised neural networks to calculate prediction scores and to identify linguitic markers of politeness and impoliteness in text.

Starfish Hydrogen Distribution   *Apr. 2020*

STANFORD CLEANTECH HACKATHON
- Proposed a novel H_2 distribution strategy in which the excess storage capacity of long-haul FCEV trucks is used to carry hydrogen to refuelling stations.
- Eliminates the need for pipelines, tankers, and onsite electrolysis.
- Worked remotely with Engineering students from Paris and experts at Ballard, Stanford, and Carbon Engineering to develop proposal.
- Created an 11-minute online presentation for judges at Shell New Energies.

Anki CLP *Jan. 2020*

UBC MATH
- Wrote a Python program to parse the LaTeX source code of UBC Math CLP textbooks and generate flashcards from the extracted questions.
- Leverages spaced repetition to automatically schedule problems based on the user's past performance.
- Includes questions, hints, answers, and solutions.
- Allows for a user-customizable learning schedule.

Education

University of British Columbia *Sep. 2019 - Apr. 2024 (expected)*

BASc in Engineering Physics *Vancouver, Canada*
- Cumulative average 92%

Skills & Interests

Software	Python, C++, JavaScript, React-[Native]
	Computer vision (OpenCV), graphics (OpenGL), Natural Language Processing
Tools	Git, Linux system administration, SOLIDWORKS
Languages	English, French
Certifications	CSIA Level 2, Red Cross First Responder
Interests	Rock climbing, mountaineering, improvisational piano, essay writing (https://alexkoen.com/writing), Emacs