

# Sophie Chang

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## TECHNICAL SKILLS

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**Programming Languages:** Java, C++, html, css, Visual Basic

**Tools:** SolidWorks, Rapid Prototyping/3D printing, Matlab, git, github, gitlab

**Languages:** English, French (DELF: B2)

**Soft skills:** Communication, Collaboration, Time Management, Problem Solving

## PROJECTS

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**Reach for the Top points counter** | C++, CLion

- Improved the documentation of Reach for the Top games to reduce the paper usage of coaches by creating a program that implemented object oriented programming strategies
- Added features to allow users to see the game history of players by implementing a file saving mechanism

**Checkers** | Java, Apache NetBeans

- Built a functional a 2-player checkers game, integrating win-state detection, board visualization, move validation and king promotion logic
- Developed a button based board GUI using java.swing and AWT to display the board in an intuitive fashion
- Tracked checker stones and king states and positions using a matrix based system to manage board logic
- Reduced code written by **50%** by implementing object oriented programming

## EXPERIENCE

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**Northern Student-Led Arctic Research Program (NorthSTAR)**

Sept 2023 – Aug 2025

*Kelvin High School*

*Winnipeg, MB*

- Collaborated with Dr. Waterman, Dr. McKinnon, Dr. Ross and other student researchers to collect data to analyse the body health index of **37 individuals** of the Western Hudson Bay polar bear population
- Found a downwards trend in polar bear health by analyzing **13 years of data** for health trends in the overall population using **3 different methods** to determine body condition
- Presented a poster comparing **3 methods** of assessing polar bear health at the Canadian Society for Ecology and Evolution 2024 (Vancouver) and the 2024 Manitoba Chapter Wildlife Society Annual Meeting (Winnipeg)

**Kelvin High School Mentorship Program Team Leader**

Jul 2024 – Aug 2025

*Kelvin High School*

*Winnipeg, MB*

- Tracked online finances for a walk-a-thon which raised over **\$15,000** for CancerCare Manitoba using Google Sheets
- Facilitated the academic success of **50+ freshmen** by collaborating with peers to encourage study habits
- Created a video shown to welcome **300+ freshmen** by working in the pre-production and production teams

**Mechanical Subteam Member**

Sept 2025 – Present

*Biomechatronics Design Team*

*Waterloo, ON*

- Collaboratively and iteratively designed a low-cost mechanic exoskeleton hand which **cost \$10** to aid people with low hand strength using SolidWorks
- Designed and modeled **1 degree of freedom** joints in SolidWorks to optimize parts spacing
- Rapidly prototyped a pin locking mechanism in SolidWorks to provide external structural support for the hand
- Communicated effectively so that handoffs are smooth and dimensions between parts are correct

## EDUCATION

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**University of Waterloo**

Waterloo, ON

*Bachelor of Applied Science in Biomedical Engineering | 3.9 GPA*

*Class of 2030*

- Courses: Data Structures and Algorithms, Digital Computation, Linear Algebra, Calculus I and II, Visual Communication in Engineering

## HOBBIES AND INTERESTS

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**Member:** Kelvin Highschool Reach for the Top team (won provincials, went to nationals)

**Volunteering:** Middle school hurdles coach, Angel Tree Christmas church coordinator, Festival du Voyageur

**Sports:** Ultimate Frisbee (UWaterloo and Canadian Junior Ultimate Nationals), Track and Field (4x provincials)