

# Raphael Koh

Mathematical Physicist | [Software Developer](#)

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## SKILLS

### Languages

Java, Python, JavaScript (ES6+),  
HTML, CSS, C, Scheme

### Frameworks/Tools

Node.js, Express.js, Flask, d3.js  
NumPy, Matplotlib

### Technologies

Android Studio, LaTeX, Azure, MySQL  
Bash, Firebase, Git, Heroku, MongoDB

## PROJECTS

### AstroJump — Java, Android Studio

Created and developed a jump-based **mobile** platformer that utilizes the accelerometer, and implemented game physics, such as fixing the “time-step” to accommodate varying framerates on different devices.

### MayBot — Python, Flask, MongoDB, Heroku, Kik API

Designed and prototyped a **chat bot** that connects hackathon participants to prospective teammates using the **Kik API**. Worked primarily on the conversational UI and logic behind the chat bot. Won the **Best Chat Bot** award for Fraser Hacks.

### PicFive — HTML, CSS, JavaScript, Node.js, Express.js, JQuery, Clarifai API, MongoDB, Heroku

Designed a web-based game built at UofTHacks IV that utilizes **machine learning** and **computer vision** via the **Clarifai API** to classify images uploaded by players. Worked on the integration of the Clarifai API and its datasets.

## EXPERIENCE

### Hack the North, University of Waterloo — Community Manager

FEBRUARY 2017 – PRESENT

- Spearheaded new community initiative by organizing and planning workshops and events for the Waterloo community.
- Part of the organizing team for the biggest hackathon in Canada with over 1,000 participants from all around the world.

### Waterloop, University of Waterloo — EM Systems Team Member

OCTOBER 2016 – PRESENT

- Assisted with design of the magnetic braking system for pod and conducted tests to optimize the efficiency of the brakes.
- Worked with mathematical modelling software, such as **NumPy** and **Matplotlib**, to plot data and predict test results.

### MathSoc, University of Waterloo — First Year Representative

OCTOBER 2016 – APRIL 2017

- Worked extensively with first year students in the Faculty of Mathematics to represent them on MathSoc Council.
- Organized three events geared towards helping first year students relax, adjust to campus life, and network with upper years to get insight on academic and career opportunities. Had massive turnouts of almost 150 students.

### Singapore Armed Forces, Singapore — Platoon Sergeant

FEBRUARY 2014 – MARCH 2016

- Trained a company of 264 recruits, by imparting soldier fundamentals, military knowledge, and instilling discipline.
- Planned the company’s training schedule and organized military exercises.

## EDUCATION

### University of Waterloo, Waterloo, ON — Bachelor of Mathematics, Honours, Co-op, 2B

SEPTEMBER 2016 – APRIL 2021

Cumulative Term average: 91.5%, Term Dean’s Honours List

## AWARDS & ACHIEVEMENTS

### School Sergeant Major Coin

DECEMBER 2015

Prestigious award given to selected specialists who have displayed outstanding leadership in training recruits and setting a role model for fellow commanders.

### Rotary Club of Oakville West Academic Excellence Award

2013

Awarded to students based on academic excellence, extracurricular activities, and community involvement.

### National AP Scholar

JUNE 2013

Attained a score of 5 on all 5 AP exams (AP Physics B, AP Biology, AP Chemistry, AP Calculus BC, AP Statistics)