

# Ken Etchells

## Contact

Email:  
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## Programming Languages

Strong Python  
R  
Java  
JavaScript  
TypeScript  
HTML

## Other Software

SQL  
Git  
JupyterLab  
Tableau  
Terminal  
Bash  
L<sup>A</sup>T<sub>E</sub>X  
MS Office

## Work Experience

- |           |  |  |
|-----------|--|--|
| 2021      | <b>ONDRI Lab</b><br><i>Statistician/Analyst</i><br>April-August <ul style="list-style-type: none"><li>Performed statistical analyses in R on data sets relating to concussions</li><li>Summarized findings and presented to researchers</li><li>Assisted researchers in interpreting the data and writing up the findings of the study</li><li>Ran several meetings during which results of the statistical analysis were presented</li><li>Participated in weekly meetings during which progress updates were given</li></ul> | <a href="#">ONDRI NIBS</a>                   |
| 2018-2019 | <b>UCC Summer Camps</b><br><i>Coding Camp Counselor</i><br>July - August (4 months total) <ul style="list-style-type: none"><li>Ensured the health and safety of the campers</li><li>Helped design a curriculum of basic Python for 10-15 year olds</li><li>Taught the campers basic Python up to user-defined functions and loops</li><li>Addressed questions and concerns from parents</li></ul>   | <a href="#">UCC Camps</a>                    |
| 2019      | <b>Market Four Seasons</b><br><i>Sales Associate</i><br>April - June <ul style="list-style-type: none"><li>Elicited customer needs</li><li>Showed products to customers and made recommendations based on their stipulations</li><li>Completed sales</li><li>Unloaded inventory from the truck to the store</li><li>Daily care of plants and flowers</li><li>Opening and closing</li><li>Inventory management and organization</li></ul>   | <a href="#">Market Four Seasons Facebook</a> |
| 2016-2017 | <b>iNAGO</b><br><i>Co-op Student</i><br>September - June <ul style="list-style-type: none"><li>Tested a personal assistant meant for use in cars</li><li>Improved conversational fluidity</li><li>Expanded library of possible user inquiries</li><li>Expanded library of assistant responses</li></ul>  | <a href="#">iNAGO</a>                        |

## Education

- |              |   |  |
|--------------|---|--|
| 2018–Present | <b>HBSc</b> Candidate in Physics and Astronomy <ul style="list-style-type: none"><li>Computing Option</li><li>Experience in PyTorch</li></ul> | <a href="#">University of Waterloo</a> |
|--------------|---|--|

## Hobbies

- |              |                                     |
|--------------|-------------------------------------|
| 2007–Present | <b>Piano</b>                        |
| 2007–Present | <b>Squash</b>                       |
| 2012–Present | <b>Taekwondo</b><br><i>Red Belt</i> |
| 2013–Present | <b>Basketball</b>                   |

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## Projects

- Solar System Simulator (Java)
  - Created an animation of the Solar System with accurate relative planet speeds.
  - Added several buttons that changed the simulation in different ways e.g. Turn the Sun into a black hole, make the relative sizes of the planets correct
  - Added text fields that allowed the user to type in the rotational period of any of the planets in a variety of units. The rotational speeds of the other planets would remain relatively correct at all times.
  - This was my final project for grade 12 computer science and I had a lot of fun making it.
- Gas in a box simulation (Python)
  - Created a class that produces a simulation of  $N$  gas particles, approximated as circles of radius  $r$ , trapped in a 2D box.
  - The simulation could be used to produce a visual simulation of the gas in the box.
  - The class had several attributes such as the mass of each particle, particle radius, temperature, or box size.
  - By varying these attributes and plotting the results, certain physical laws can be demonstrated, e.g. showing the particle velocities follow a Maxwell-Boltzmann distribution.
- Star simulation (Python)
  - Created functions that would enable us to solve the equations of stellar structure.
  - These results can be used to simulate several different types of star with the only argument required being the central temperature.
  - The `make_star` function can be run several times to produce a [Hertzsprung-Russell Diagram](#).
- Spectral Inference Networks (Python)
  - Combines spectral methods for solving differential equations and neural networks.
  - Can be used to approximate eigenfunctions of the Laplacian.
  - Potential future applications include solving quantum mechanics or fluid dynamic problems.
  - Worked with three others to create a new implementation in Jax based on [this paper](#).
- NBA Statistical Analysis (Python/SQL)
  - Created a web scraper in Python to obtain NBA statistics from basketball reference and store them in SQL tables.
  - Ended with a SQL database containing all major statistics since the 1950s and all play-by-play data since play-by-play data started being recorded.

Please contact me for references or a transcript  
This resume was made from a  $\text{\LaTeX}$ template by Lizhen Zhu