Sophie **Hoare**

School of Kinesiology · Data Analyst

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"The beautiful thing about learning is nobody can take it away from you."

Company Recruitment Team

November 13, 2022

School of Kinesiology,
Simon Fraser University,
Burnaby, British Columbia, Canada

Job Application for Data Analyst Position within the School of Kinesiology

Dear Dr. Wakeling,

About Me

My whole life, to this point, has revolved around sport. Physical activity has taken me all over New Zealand, and all over the world. Now I wish to allow it to take me to a whole new realm of professional success. Research and data interpretation is a way for us to advance our understanding and knowledge of the incredible world around us. Having the opportunity to apply my mathematical background to learn more from the human body means that I not only get to use my love of data, but also my love of movement, every day.

Why Kinesiology?

The School of Kinesiology has a mission to "study human structure and function and their relation to health and movement". My background in physical education would allow me to bring a fundamental understanding of the questions being asked, advancing my ability to draw conclusions from the data. As a Data Analyst for your department, I would be exposed to various trials, data, and methods for interpretation that would allow me to learn and grow as an analyst. My strengths in problem-solving and teamwork will pair well with the environment that takes place within an educational research facility. My mathematical background will advance my understanding of relevant trends, over an understanding of the biological concepts, to assist in answering the data driven research questions.

Why Me?

With an interest in working with large data sets, and relevant coursework on methods to process such data, I would be able to extend current capabilities of your research and add an additional layer of skill to your team. Based on my completed inferences from the data collected during the 2008 trail, *Neuromechanics of Muscle Synergies During Cycling*, I have shown that I can successfully investigate questions, in a data driven fashion, within the Kinesiology field. After reviewing my report, I hope you will see the potential I hold to succeed in this role. I believe I would be a perfect fit for this position, and with great determination, could give you everything you are looking for in a Data Analyst.

Sincerely,

Sophie Hoare

Attached: Curriculum Vitae

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Summary

Current Graduate student at Simon Fraser University, BC, Canada. In pursuit of a Master's degree in Applied and Computation Mathematics with expected graduation Spring 2023. Interested in implementation of Machine Learning, AI and Data Science concepts to advance the Sport Industry. Enjoy problem-solving for challenging tasks, and learning new concepts and tools within the technology sector.

Education

Georgia Gwinnett College — *Lawrenceville, Georgia, USA*

B.S. in Applied Mathematics — *August. 2016 - May. 2020*

- Summa Cum Laude, Cummulative GPA 3.975

Skills

Programming Languages: Python, SQL, Java, R. Also basic ability in C++, and Wolfram Language.

Academic Software Skills: Maple, MATLAB, Mathematica, and TeX at an intermediate level.

General Strengths: Good presentation skills, work well in a team, excellent communication skills, strong leadership style.

Experience

Simon Fraser University — *British Columbia, Canada*

Teaching Assistant — *Sep. 2021 - Dec. 2021*

- Offered support for students from a variety of undergraduate mathematics course through the Algebra Workshop. Reviewed material taught in class with individual students struggling with concepts covered. Worked with smaller groups of students for remedial teaching or assistance with assignments.

Summit Veterinary Referral Center — *Washington, USA*

Administrative Data Assistant — *Jan. 2021 - Jun. 2021*

- Data reporting and forecasting to improve scheduling and patient care. Implementation of automatic processes to allow for consistent, quality services across all specialty sectors. Supported upper level management through data driven decision making.

Sylvan Learning of Tacoma/ Silverdale — *Washington, USA*

Upper Level Math and Science Tutor — *Jul. 2020 - Dec. 2020*

- Use key concepts from my undergraduate degree to support growth and learning in students focusing on SAT prep, pre-calculus and calculus students.

Edwards-Pitman Environmental Inc. — *Georgia, USA*

Inspector Aid Intern, — *May. 2019 - Exp. Jul. 2019*

- Energetically supported professional staff to dramatically reduce errors on the worksite throughout a 9 week internship program. Focused on assisting and completing concrete testing, daily documentation of work site activities and, assisting in bridge cnstruction inspection.

Interests & Extracurricular Activity

Computer Algebra Group — *Simon Fraser University*

Member — *Sep. 2020 - Current*

- The Computer Algebra Group (CAG) at Simon Fraser University aligns students and faculty that hold a common primary interest in the area of Computer Algebra or Symbolic Computation. The group meets on a regular basis with researchers presenting new or improved methods for computational problems.

Georgia Gwinnett College — *Georgia, USA*

Student Athlete — *Aug. 2016 - May. 2020*

- Student-Athlete at Georgia Gwinnett College representing my country as the first 4-year athlete from New Zealand at this institution. Competed in the NAIA Women's Soccer Championship for 4 consecutive years earning various awards including AII Conference Women's Goalkeeper of the year, NAIA Champions of Character Award and AII Conference Tournament First Team Honors. Created history in being appointed GGC co-captain for three consecutive years, co-captain of the first GGC Women's soccer team to win the AII Conference Championship and co-captain of the first GGC Women's soccer team to make it to the NAIA National Championship.

Four Pillars Honors Society *Georgia Gwinnett College*

Member *Aug. 2019 - May 2020*

- Active member throughout 2019 and 2020, a student leadership program established with the goal of enhancing GGC's mission and vision through service, philanthropy and strong leadership of the wider campus community.

Council for Student Athlete *Georgia Gwinnett College*

President *Jan. 2017 - May. 2020*

- Secretary throughout 2017/2018 school year, vice-president 2018/2019 school year and president 2019/2020 school year, our mission was to enhance unity within the GGC student-athletes, encourage community events to establish bonds with GGC Athletics and surrounding communities and be the voice between student-athletes and Athletics administration.

Conferences

Maple Conference *November 2021*

Maple Conference *November 2022*

Notable Projects

Graduate Research Project:

Sparse Multivariate Black Box GCD Interpolation

- Presented the problem of computing the GCD of two polynomials both represented by a black box A and B. Successfully completed an implementation for the monic case using sparse polynomial interpolation. Currently implementing an algorithm for the non-monic case based on a variation of the algorithm for factoring non-monic polynomials represented by black boxes presented by Ph.D student Tian Chen in collaboration with Dr. Michael Monagan.

APMA935 Analysis and Computation of Models:

Scale-space and edge detection using anisotropic diffusion

- Investigated the anisotropic diffusion technique introduced by Perona and Malik (1990) to reduce the main drawback, blurring of edges, when eliminating noise via linear diffusion. Developed an interesting example of the ability for anisotropic diffusion to enhance edges and reduce noise while running forward in time.

Undergraduate Research Project

Sports Image Classification with Deep Learning

- Throughout this semester long project I studied the basics or Neural Networks and algorithm improvement methods, with supervision from Dr. Ding of Harvard University, in order to create a deep neural network to classify the 6 sports at Georgia Gwinnett College into 2 subcategories - upper body dominant vs lower body dominant.

Advanced Mathematical Modeling Project:

Utilizing Simulated Annealing to Find Optimal Routes

- In the 3rd year of my degree, I spent the summer working on a 13-mile long highway widening project. Due to the nature of the project, inspectors had to visit upward of 24 different work crews and active work sites within the project. Utilizing simulated annealing and R, I was able to successfully find the optimal route to visit all 24 work sites in the least number of miles.

References

Dr. Ivan Zak, Professional Reference: CEO Galaxy Vets *ivanzak@galaxyvets.com*

Dr. Michael Saum, Academic Reference: Georgia Gwinnett College Undergraduate Academic Advisor *msaum@ggc.edu*

Dr. Michael Monagan, Academic Reference: Simon Fraser University Graduate Academic Supervisor *mmonagan@sfu.ca*