

Sebastian Gay

Passionate about optimising industry through data

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Raised in Perth, Western Australia, living in Melbourne, and planning to settle in Romandie I am eager to continue to grow personally and professionally. A native speaker of English, speaking French at an advanced B1 level, and holding dual Australian/Swiss citizenship I am able to work in many countries. My goal is to contribute to organisations by providing a fresh perspective on existing problems while developing skills in solving them. I have completed a Bachelor's degree in Physics, and am now completing a diploma in Statistics remotely. After gaining industry experience I plan to concurrently undertake a master's degree of Data Science/Computational Science and Engineering.

Education

February 2019 - **Diploma of Mathematical Sciences (Statistics/Stochastic processes)**,
November 2021 University of Melbourne, Melbourne.

Remotely completing additional major sequence of undergraduate probability and statistics knowledge: stochastic modelling, rigorous probability theory, linear statistical modelling, common statistical tests and techniques, graph and spectral theory, combinatorics.

July 2015 **Bachelor of Sciences (Physics), 2nd Class Honours**,
- June 2019 University of Melbourne, Melbourne.

Key Learning outcomes:

- Quantitative problem-solving skills in a variety of contexts.
- Conventional undergraduate physics knowledge: quantum physics, statistical mechanics, electromagnetism, special relativity, hamiltonian/lagrangian mechanics, optics, real analysis and vector calculus.
- Computational and laboratory physics knowledge, both in conducting experiments and creating comprehensive reports. Additional coursework on numerical methods and scientific computing.
- Research and writing skills in humanities subjects (art history, education, philosophy and management).

2013 **West Australian Certificate of Education**, *Hale School*, Perth.
Australian Tertiary Admission Rank (ATAR) of 98.75th Percentile.

Work Experience

November 2018 **Research Intern to COSMO (Laboratory of Computational Science and Modelling)**,
- February 2019 *École Polytechnique Fédérale de Lausanne (EPFL)*, Lausanne, Switzerland.

Skills developed in this role:

- Creating software libraries and documenting them for other researchers to use in their work with the ANI-1 dataset. Composed of 22 million molecular structures, this required reducing its size to allow other researchers to work with a computationally efficient and representative subset.
- Independent learning through the implementation of machine learning techniques (Kernel Ridge Regression) to predict the properties of small organic molecules.
- Identifying feedback mechanisms with senior researchers that minimally affected their research while I completed a parallel project.
- Verbally presenting my results and analysis to the research group in a seminar.

June 2018 **Research Intern to the Advanced Nuclear Systems Group**,
- August 2018 *The Paul Scherrer Institute (PSI)*, Villigen, Switzerland.

Skills developed in this role:

- Writing software to automate and allow for frequent tweaks to the modelling of waste output of various nuclear fuel cycles and investigating methods of isotope extraction to minimise waste radiotoxicity and decay heat.
- Disposing of interpretive and personal biases while researching current scientific literature of contemporary theories for the stellar nucleosynthesis of heavy elements. Further, creating software tools using empirical data to aid in the testing of these theories.
- Understanding and adapting to the foreign workplace norms of colleagues - PhD or Postdoctoral researchers from diverse multicultural backgrounds.

Technical skills

Python	Intermediate, strong experience with scientific libraries (numpy, scipy, QUIP, ase, h5py, matplotlib).
LateX	Intermediate, experience typesetting mathematical documents, articles, and presentations.
Git	Intermediate, experience with both personal and collaborative use for version control.
R language	Beginner/Intermediate, moderate experience with statistical libraries.
MATLAB	Intermediate, strong experience with data visualisation.
Linux	Proficient, some experience with bash scripting.
Microsoft Office	Proficient (Word, Excel, Powerpoint)

Other Work Experience

April 2014 - Present	Private Tutoring, Self-Employed, Perth/Melbourne. Tutoring students aged 15-17 in Mathematics, Physics and Chemistry. Skills developed in this role: <ul style="list-style-type: none">Teaching through a wide spectrum of methods to students of various backgrounds and skill.Strategic planning based on a students' identified weaknesses and the time cost to improve them both during sessions in process and future sessions.
November 2019 - January 2020	Gardening labourer during language homestay, Le jardin de Gassin, Gassin, France. As part of continuing French education with Alliance Française
February 2016 - December 2018	Boarding House Supervisor, Caulfield Grammar School, Melbourne. Skills developed in this role: <ul style="list-style-type: none">Independent decision making while supervising up to 50 students (Male and Female, 14-18 years).Adhering to strict legislative protocols and confidentiality requirements mandated by working in schools.Working as a member of the supervisory team to ensure consistency in the behavioural expectations of students by demonstrating strong interpersonal skills while interacting with them.
March 2015 - July 2015	Temporary manager of Fruit and Vegetable department, IGA Glendalough, Perth. Skills developed in this role: <ul style="list-style-type: none">Personal grit while preparing produce and doing manual labour 8-12 hours per day, 7 days a week.Inventory management to meet changing customer demands, stock costs, and availability.Analysing customer behaviour to assist owners in restructuring the floor area based on their store vision.

Personal Values and Experiences

Resilience, Discipline and Persistence	Rowed competitively at a national level over a demanding five-year journey. This culminated in attending the 2014 and 2015 Australian National Rowing Championships, winning two Bronze Medals and competing for the West Australian State Team in both competitions.
Personal Vision	Dedication to bettering the world through Effective Altruism. Member of Effective Altruism University of Melbourne (2019) and Effective Altruism Lausanne (2018-2019). My primary focus area is Global Development and I hold further interest in existential risk management.
Community engagement	Coach and Vice President Melbourne University Quidditch Club (August 2016-December 2017), Volunteer University of Melbourne Bike Co-op (2017, 2020), Volunteer rowing coaching of junior athletes at Swan River Rowing Club (2014).

Languages

English	Native speaker. Able to communicate at academic and professional level with ease both verbally and in writing.
French	Ongoing education, with current level assessed by Alliance Française as advanced B1.

References

Available on request