

# Keiran Rowell | Résumé

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## Employment

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### Postdoctoral Research Associate

*School of Chemistry USYD*

2020–current

Preparing research papers. Mentoring PhD students. Multiconfigurational quantum chemistry calculations.

### Casual Science Teacher

*Matrix Education*

2016–2020

Student experience questionnaire 2-year average : **4.7/5**

Top quality HSC tuition. Classroom & online (Matrix+) lessons, quiz marking, 'Max Series' workbooks.

### Postgraduate Teaching Fellow & Tutor

*School of Chemistry UNSW*

2016–2018, 2019–2020

1<sup>st</sup> year tutorials, 3<sup>rd</sup> year instructional resources, mentoring, exam marking, outreach, 'Rising Star' award.

### Laboratory Demonstrator

*School of Chemistry UNSW*

2014–2015, 2020

Laboratory teaching, supervision, and marking, for 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> year chemistry students.

## Education

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### PhD - Computational Chemistry

*University of New South Wales*

2016–2020

Thesis Title: [Structure–Activity Relationships for Carbonyl Photolysis](#)

Supervisors: Prof. Scott Kable, Prof. Meredith Jordan

Assessment: **A,A** — All categories 'Outstanding' — Nominated for a Dean's Award

Thesis summary: Used high performance computing to simulate the reactions of atmospheric molecules with UV sunlight. Developed a framework of structure–activity relationships that allow accurate, no-cost estimates of photoreaction energies based upon molecular structure.

### B.Sc. (Adv.) - Chemistry - Honours Class 1 - Angyal Prize

*University of New South Wales*

2011–2014

## Programming Experience

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### Python

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- Developed instructional resources for Python and Jupyter notebooks in 3<sup>rd</sup> year chemistry
- Created custom scripts for data exploration and visualisation with Pandas and Matplotlib
- Wrote code to search large output files and plot 1000s of pair-wise DNA interaction energies

### High Performance Computing

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- 5+ years experience in Linux and high performance computing environments
- Bash scripting, scheduling, command line tools, regular UNSW ResTech seminar attendee

### C

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- Bioinformatics (BINF3020, **HD**), Comp. sci. (COMP1917, **DN**), data structures & algorithms

### Fortran

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- Worked on in-house Fortran code, compilation, debugging, variable modification

### Version Control

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- Initiated and implemented GitHub Enterprise codebase migration for the Jordan research group

## Teaching and Mentorship Highlights

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- 3<sup>rd</sup> year physical chemistry – class demonstrator and coding facilitator — **satisfaction rose 65% to 94%**
- 1<sup>st</sup> year chemistry – tutor and laboratory demonstrator — tutor feedback form average **4.6/5**

- o Mentored many Honours and PhD students in research, writing, and computing skills

## Presentation Highlights

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**Group and 'Super-group' organiser:** Organised weekly group meetings, and monthly 'super-group' meetings, sourcing academic speakers, coordinating schedules. Ran masterclasses on computing and visualisation.

**APATCC 2019** (*volunteer, poster*) USYD - Sydney  
Sep. 2019  
*Asia-Pacific Association of Theoretical and Computational Chemists*

**ISTCP-X** (*poster*) UiT - Tromsø  
Jul. 2019  
*10<sup>th</sup> Triennial Congress of the International Society of Theoretical Chemical Physics*

**ACCOMC 2018** (*poster*) CSIRO - Aspendale  
Dec. 2018  
*Atmospheric composition & modelling conference for Australasian region*

## Award Highlights

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**Rising Star - PhD Casual Teacher** 2018  
*UNSW Faculty of Science*  
Awarded to two casual PhD tutors who have demonstrated educational excellence in a single year

**Poster presenter prize** 2015  
*Association of Molecular Modellers of Australia*  
Best Honours-level poster presenter

**Angyal prize** 2014  
*School of Chemistry UNSW*  
Top mark in Chemistry Honours

**Bosworth prize** 2013  
*School of Chemistry UNSW*  
Equal 1<sup>st</sup> in third year Physical Chemistry

## Publications (refer to my [Google Scholar](#) page)

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## Computer Skills

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**Programming:** Python, Bash, C, Fortran  
**Documents:** Word, L<sup>A</sup>T<sub>E</sub>X, Overleaf

**Analysis:** Excel, Python, Pandas  
**Graphics:** Matplotlib, Inkscape, GNU IMP

## References (details upon request)

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### Supervisors

- o Prof. Scott Kable (Supervisor - HoS Chem UNSW)
- o Prof. Meredith Jordan (Co-supervisor - USYD)
- o Dr Kim Lapere (Teaching Fellow Coordinator)

### Tutoring Employment

- o Dr Alex Argyros (Head of Science)
- o Dr Peter Jurd (Head of Junior Science)
- o Vivian Law (Head of Chemistry)