

# Aaron Jordan Kaw

## Curriculum Vitae

Ocean Acoustics Modeller  
NW Sydney, NSW, Australia

✉ aaronjkaw@gmail.com

📄 <https://github.com/kapple19>

## Employment

2017–Current **Ocean Acoustics Modeller**, *Thales Underwater Systems*, Rydalmere Australia.

Projects include:

- Maintenance, performance analysis and reverse-engineering of existing ocean acoustics simulators in C++, producing professional documentation including derivations and analysis of the implemented models
- Developing a Matlab library of classes and functions which implement theoretical and empirical studies for ocean acoustics propagation, producing simulations in complex ocean environments
- Mathematical analysis of potential submarine performances for company bids, including sonar ranging and accuracy of a variety of sonar arrays
- Production of graphical user interfaces to increase accessibility of high performance computational models for at sea and pre-and-post trial analyses for scientists, engineers, and operators

2015–17 **Self Employed Tutor**, teaching primary and high-school students in multiple subjects, including practical piano, musical theory and mathematics.

## Education

2012, **Bachelor of Science (Advanced Mathematics) (Honours Class II-A)**, *University of New South Wales, Australia*.

2015–2017 Thesis: **Diffusion of Proteins on Cell Membranes** with A. Prof. Adelle Coster as supervisor

Honours research involved:

- Modelling protein motion with partial differential equations on a variety of manifolds
- Running a high-level simulation on a cluster computer program

Courses include:

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|--|--------------------------------------|
| ○ Fluids, Oceans and Climate           | ○ Computational Mathematics          |
| ○ Physics                              | ○ Mathematical Modelling             |
| ○ Atmosphere and Ocean Dynamics        | ○ Computing                          |
| ○ Mathematical Biology                 | ○ Mathematical Computing             |
| ○ Differential Equations               | ○ Several Variable Calculus          |
| ○ Probability and Stochastic Processes | ○ Linear Algebra                     |
| ○ Ergodic Theory                       | ○ Theory of Statistics               |
| ○ Applied Functional Analysis          | ○ Topology and Differential Geometry |
| ○ Linear Models                        | ○ Information, Codes and Ciphers     |
| ○ Complex Analysis                     | ○ Discrete Mathematics               |

2006–2011 **Higher School Certificate**, *Patrician Brothers' College, Fairfield*, Australia, ATAR: 90.70.

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## Programming

### Languages & Tools

Proficient  $\text{\LaTeX}$ , Matlab, Julia, Visual Studio Code, Git, GitHub  
Competent C++, Visual Studio

### Projects & Puzzles

- Package development of ocean acoustics model implementations suite
- Cellular membrane protein diffusion with TIRF microscopy analysis
- Advent of Code

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## Interests

### Piano Performance

- Australian Music Examinations Board: 8<sup>th</sup> Grade Practical
- Australian Music Examinations Board: 4<sup>th</sup> Grade Theory
- International Convention Centre, audience of 8000, accompanying a professional violinist, 25 minute performance
- Ryde Eisteddfod Inc. Competition, 1<sup>st</sup> Place

### Julia Programming

- Learning via tutorials, projects, and puzzles
- Growing list of personal projects

### Other Interests

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|--|---------------------|
| ◦ Hiking                                 | ◦ Escape Rooms      |
| ◦ Electric Skateboarding                 | ◦ Reading (Science) |
| ◦ Skiing                                 | ◦ Puzzles           |
| ◦ Surfing                                | ◦ Party Games       |
| ◦ Religious Service (Mission: 2013–2015) | ◦ xkcd              |

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## References

### Profession

Patrick Cooper  
Patrick.Cooper@thalesgroup.com.au

### Academia

Prof. Adelle Coster  
A.Coster@unsw.edu.au

### Musicianship

Adam Aalders  
AaldersAJ@ldschurch.org

### Personal

Heisun Ma  
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