

Aaron Jordan Kaw

Curriculum Vitae

Ocean Acoustics Modeller
NW Sydney, NSW, Australia

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📄 <https://github.com/kaple19>

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.

Programming

Languages & Tools

Proficient \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

Interests

Piano Performance

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

References

Profession

Patrick Cooper
Patrick.Cooper@thalesgroup.com.au

Academia

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

Musicianship

Adam Aalders
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Personal

Heisun Ma
HeisunMa@gmail.com