Yao Ming (Brian) Chan

Personal Information

Mobile: +44 7818 638 289
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Date of birth: November 17th 1999
Place of birth: Ipoh, Malaysia
Nationality: Australian
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Education

10/2023–Now   **DPhil Mathematics**
University of Oxford
Supervisor: Professor Stuart White

03/2021–11/2022   **MSc. Master of Science (Mathematics and Statistics)**
University of Melbourne
Major: Pure Mathematics
Thesis: Wedge product matrices and applications

Wedge product matrices are developed as a generalisation to the determinant of a square matrix with entries in a commutative ring. In tandem with a method Robert Steinberg used to prove a variant of the Bruhat decomposition, the two ideas were applied to various problems in linear algebra. Notably, they were used to generalise the eigenvector-eigenvalue identity and the notion of a quasideterminant in a non-commutative ring. They were also applied to the construction of representatives of two different matrix orbit spaces.

Supervisor: Professor Arun Ram

03/2018–11/2020   **BSc. Bachelor of Science**
University of Melbourne
Major: Mathematics and Statistics
Specialisation: Pure Mathematics

Achievements

2021-2022	**Mathematics and Statistics Masters Scholarship**
	Three payments of $2000 corresponding to the first three semesters of the Master of Science degree.
2018, 2019	**Dean's Honours List**
	Awarded for an average mark which lies in the top 3% of students in the Bachelor of Science degree.
2018	**Melbourne National Merit Scholarship**
	A payment of $5000 in recognition of academic achievement during Year 12, the final year of high school.
2017	**2017 Yuroke Award**
	Awarded for outstanding academic achievement, leadership and service. In particular, it was awarded for my mentoring of students in mathematics, ranging from Year 12 Mathematical Methods to first year university calculus and linear algebra.
2015, 2016	**Distinction in the Australian Science Olympiad (Chemistry)**
	Awarded for placing in the top 20% of participants in the Australian Science Olympiad for chemistry.
2014	**Prize in the Australian Mathematics Competition**
	Awarded for placing in the top 0.3% of participants in the intermediate division for the Australian Mathematics Competition.

Skills

	Coding experience in Python
2021	**Quantum chemistry project for the subject COMP90072**
	Used NumPy to implement the Hückel method in order to model the energy levels, electron densities and bond orders of conjugated organic molecules. The Hartree-Fock method was also implemented to compute the orbital

energies of small atoms with occupied 1s and 2s orbitals and diatomic molecules comprised of these atoms.

Preprints and publications

1.   Y. Chan. *Wedge product matrices and orbits of principal congruence subgroups*, 2023, https://arxiv.org/pdf/2306.12615.pdf.

Languages

English (Native)

References

Professor Arun Ram (MSc supervisor)
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