

Luke G.M. Oakden

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EDUCATION

University of Queensland

Bachelor of Mathematics / Bachelor of Computer Science

Mathematical physics major + physics minor / machine learning major

Brisbane, QLD

January 2021 - June 2025

ACADEMIC INTERESTS

My academic interests are rooted in pure mathematics, with a growing focus on its application to complex, real-world systems through computational and data-driven methods. I am particularly drawn to mathematical approaches that involve modeling systems, designing efficient algorithms, and extracting structure from data. My interest in physics further supports this trajectory by deepening my understanding of how mathematical frameworks underpin physical phenomena. I aim to contribute to research that connects deep mathematical theory with computational techniques to solve challenging problems in science and engineering.

TECHNICAL & MATHEMATICAL COMPETENCIES

Advanced Mathematical Modeling & Analysis: Leveraging deep theoretical knowledge (Linear, Abstract & Lie Algebra, Applied, Mathematical & Functional Analysis, Differential Geometry, Ordinary & Partial Differential Equations) to construct rigorous mathematical models for physical systems analysis and prediction.

Numerical Simulation & Scientific Computing: Developing and implementing robust numerical simulations using Python (SciPy, NumPy) and MATLAB; proficient in initial value problem and boundary value problem solvers, efficient algorithm design, and complexity analysis.

Data-Driven Insights & Machine Learning: Applying comprehensive machine learning and deep learning techniques (PyTorch, TensorFlow, JAX, scikit-learn) for pattern recognition, predictive modeling, and performance analysis from complex datasets. Expertise includes regression, classification, clustering, reinforcement learning, CNNs, Transformers, and generative models.

Optimisation & Decision Support: Utilising operations research methodologies (Linear Programming, Integer Programming, Dynamic Programming) and tools (Gurobi, Python) to identify optimal solutions for design parameters, resource allocation, and strategy.

Programming & Tools: Python, Java, MATLAB, R, C (embedded systems), Gurobi, PyTorch, TensorFlow, JAX, scikit-learn, Pandas, NumPy, SciPy, Mathematica.

EXPERIENCE

IT Systems Migration Technician

DWW Engineering

November 2024 – Present

Darra, Queensland

- Planned and managed full migration from Windows SBS 2011 and Exchange Server 2010 to Microsoft 365, including Exchange Online and SharePoint.
- Configured and deployed SharePoint sites for document management, user access, and team collaboration.
- Transferred all company data to cloud infrastructure (company data to SharePoint sites, personnel files to OneDrive), enabling server decommissioning.
- Provided end-to-end IT support, including remote troubleshooting, user onboarding, account management & recovery, and security configuration.
- Installed and configured secure wireless access points (WAPs) across workshop sheds to extend reliable network coverage.
- Provided ongoing remote IT support and systems administration across Windows workstations and cloud services.

Java Software Developer – Sail Design Tools

UK Sailmakers

June 2023 – July 2023

Draper, Queensland

- Collaborated with sail designers to tailor features for practical use in racing sail production.
- Migrated legacy Objective-C codebase of PlotMaker by SailScience to Java for improved maintainability and cross-platform support.
- Integrated Java application with industrial laser cutting hardware to automate the plotting and cutting of high-performance sail fabrics with precision.

- Redesigned and extended the user interface to support advanced sail geometry layouts, nested plotting, and optimized material usage.
- Implemented geometric data handling and path-optimisation routines using Bezier curve manipulation and pathfinding algorithms to minimise material waste and cutting time.

IT Support Technician

June 2022 – January 2023

Wiredlans

Woolloongabba, Queensland

- Contributed to Microsoft 365 onboarding for new clients, including domain consolidation, email & Office migration, and Teams integration.
- Managed cloud migration tasks involving user accounts, mailboxes, and shared drives to Exchange Online and SharePoint.
- Delivered Azure-related support, including virtual machine provisioning, physical-to-cloud migration, and basic tenant configuration.
- Handled technical support tickets via Jira across a wide range of issues including: Office 365 application errors (Outlook, Teams, Excel, etc.), printer and peripheral troubleshooting, other software licensing and access errors, SharePoint access and permission issues
- Conducted employee onboarding/offboarding: device provisioning, email/account setup, login credential issuance, and deprovisioning.
- Installed and configured IT infrastructure solutions including Wi-Fi networks, routers, VoIP systems, and client communications setups.
- Provided remote and on-site support for hardware, OS, and network issues across Windows and Linux environments.

High School Maths Tutor

August 2021 – October 2021

Casual

Brisbane, Queensland

- Provided one-on-one tutoring for Year 12 students in Mathematical Methods and Specialist Mathematics in preparation for QCE external examinations.
- Delivered conceptual and problem-solving support aligned with the QCAA senior mathematics curriculum, including calculus, probability, and statistics (Mathematical Methods); and vectors, complex numbers, functions and graph sketching, calculus, statistical inference and proof construction (Specialist Mathematics).
- Tailored explanations and practice to individual learning styles to improve understanding and exam readiness for ATAR assessments.
- Helped students build mathematical intuition and methodical problem-solving through targeted feedback, structured revision, and exam simulation strategies.

EXTRACURRICULAR

Australian Nacra 15-17 Class Association

September 2020 – April 2022

Vice-President

- Participated in organisation of the state and national racing calendar for Nacra 15 and Nacra 17 class boats, coordinating event schedules, logistics, and participation across multiple regions.
- Acted as point of contact for association members and non-members, addressing inquiries related to class rules, event participation, and junior training opportunities.
- Facilitated communication between members, event organisers, and sponsors to ensure smooth operations and the successful execution of events.
- Played a key role in promoting youth development and junior training initiatives to encourage participation in the Nacra 15 and 17 classes.

SPORTING RESULTS

NACRA 15 Catamaran Australian National Championships

January 2024

Vice Champion

Formula 18 Catamaran Australian National Championships

January 2023

Youth Champion

Formula 16 Catamaran Australian National Championships

January 2023

Vice Champion

NACRA 17 Australian Open Championships

January 2022

4th place

State Competitions

2020 – 2024

- Champion 2023 QLD Formula 16 State Championships
- Champion 2022 QLD Formula 16 State Championships
- 4th Place 2022 NSW Formula 16 State Championships
- 3rd Place 2022 VIC Formula 16 State Championships
- Vice Champion 2022 QLD NACRA 15 State Championships
- Vice Champion 2021 QLD NACRA 15 Youth Week
- Vice Champion 2021 QLD NACRA 15 State Championships
- Vice Champion 2020 QLD NACRA 15 State Championships
- Vice Champion 2020 NACRA 15 Sail Brisbane
- 5th Place 2020 NSW NACRA 15 State Championships