






PERSONAL INFORMATION **Alif Aqsha**

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EDUCATION

September 2023 – Present **CDT in Mathematics of Random Systems**

Mathematical Institute, University of Oxford
Also a student researcher at the Oxford-Man Institute of Quantitative Finance
Research group: Stochastic Analysis, Mathematical and Computational Finance
Supervisors: Leandro Sánchez-Betancourt & Álvaro Cartea
Current research project(s): stochastic game and filtering between broker and informed traders with asymmetrical partial information

August 2021 – October 2022 **Master of Science in Mathematics** CGPA 4.00/4.00

Bandung Institute of Technology (ITB), Indonesia
Joint bachelor's/master's fast-track programme
Courses taken (excluding compulsory courses) including:

- Measure and Probability
- Functional Analysis
- Financial Mathematics
- Financial Econometrics
- Computational Finance
- Fourier Analysis
- Numerical Analysis

Master thesis: A model of banking's dynamics using a system of deterministic differential equations with sensitivity and stability analysis
Supervisor: Novriana Sumarti

August 2017 – July 2021 **Bachelor of Science in Mathematics** CGPA 3.97/4.00

Bandung Institute of Technology (ITB), Indonesia
Courses taken (excluding compulsory courses) including:

- Mathematical Statistics
- Advanced Linear Models (Generalized Linear Models)
- Life Insurance (Actuarial Mathematics) I & II
- Cryptography
- Partial Differential Equations
- Measure and Lebesgue Integration

Undergraduate thesis: The boundedness of wavelet decomposition operator in Morrey spaces
Supervisors: Wono Setya Budhi & Denny Iwanal Hakim

EXPERIENCES (RESEARCH & OTHERS)

January 2024 – March 2024 **Teaching Assistant**

Mathematical Institute, University of Oxford

Teaching assistant for B8.2 Continuous Martingales & Stochastic Calculus

Main responsibility: marking students' works, assisting the Tutor & presenting the solution of one problem for each class session

June 2022 – August 2022 **Future Research Talent**

The Australian National University

Research experience studying stochastic calculus & differential equations (specifically Doss-Sussman method & Wong-Zakai approximation for regime-switching SDEs) under the supervision of Dr Pierre Portal

Report link: <https://muhammadalifaqsha.github.io/research-projects/FRT%202022%20Report%20-%20Muhammad%20Alif%20Aqsha.pdf>

February 2022 – July 2023 **Research Assistant**

Bandung Institute of Technology: Industrial and Financial Mathematics Research Group

Research assistant for P2MI (Research, Community Service & Innovation) ITB programme under Novriana Sumarti

Topic: Banking dynamics

January 2022 – May 2023 **Teaching Assistant**

Bandung Institute of Technology

Courses: Calculus 1A, Calculus 2A, Introduction to Stochastic Calculus

For Calculus 1A & 2A, my main responsibility is teaching on a weekly tutorial sessions.

For Introduction to Stochastic Calculus, I was helping with grading, material preparation & presentation as well as partaking in class discussions.

February 2021 – June 2021 **Research Assistant**

Bandung Institute of Technology: Analysis and Geometry Research Group

Research assistant for P2MI (Research, Community Service & Innovation) ITB programme under Marcus Wono Setya Budhi & Denny Ivanal Hakim

Topic: Fourier analysis, wavelets and Morrey spaces

September 2020 – May 2023 **Grader Assistant**

Bandung Institute of Technology

Courses: Calculus 1A, Introduction to Real Analysis, Linear Algebra, Introduction to Complex Analysis, Introduction to the Theory of Interest, Microeconomics

August 2020 – December 2020 **Numerical Mathematics Laboratory Assistant**

Bandung Institute of Technology

Assisted students in Numerical Mathematics Python programming sessions

AWARDS & COMPETITIONS

August 2021 **First Prize in International Mathematics Competition (IMC) for University Students**

Link: <https://www.imc-math.org.uk/?act=results&by=sum&year=2021>

The International Mathematics Competition for University Students is an annual mathematics competition open to all undergraduate students of mathematics where they try to solve problems from the fields of algebra, analysis (real and complex), geometry and combinatorics. The IMC is primarily a competition for individuals, although most participating universities select and send one or more teams of students. The First Prize is awarded to the top 27% students.

August 2021 **Ganesha Talent Assistantship (GTA) 100 2021-2022**

GTA 100 is a merit-based scholarship awarded by Bandung Institute Technology (ITB) to their postgraduate students in the form of full tuition waiver.

September 2020 **Gold Medal in KN MIPA-PT for Mathematics**

KN MIPA-PT (National Mathematics and Natural Sciences Competition for higher educational institutions), formerly ON MIPA-PT, is an annual event for college students to compete and participate in solving mathematical and natural sciences problems. It is held by the Ministry of Education, Culture, Research and Technology of Indonesia. The event is held in three stages: university/institution, regional/provincial, and national level. I was ranked 2nd out of 50 participants at the national level.

February 2020 **Honorable Mention in Interdisciplinary Contest in Modelling (ICM)**

Link: https://www.comap.com/undergraduate/contests/mcm/contests/2020/results/2020_ICM_Problem_E_Results.pdf

Team number: 2021115

The Interdisciplinary Contest in Modelling is a mathematical modelling competition held by Consortium for Mathematics and Its Applications (COMAP) as part of larger MCM/ICM event. My team selected Problem E: Drowning in Plastic, in which we built a model on the cycle of plastic waste, estimated the parameters using real data, analysed plastic waste condition in regions grouped by lower, lower-middle, upper-middle and high income countries, and proposed feasible solutions to resolve plastic waste accumulation.

May 2019 **Silver Medal in ON MIPA-PT for Mathematics**

Ranked 7th out of 64 participants at the national level.

October 2017 **BPSDM Aceh Merit Scholarships 2017-2021**

BPSDM Aceh (provincial government body responsible for human resources development in Aceh) Merit Scholarships is awarded to 20-30 of Aceh's high-achieving, recently-graduated high school students to study at national universities.

PERSONAL SKILLS

Languages

- Indonesian (mother tongue)
- English

Computer skills

- Programming (Python, R, MATLAB, MySQL)
- Microsoft Excel