

# Jackie Lok

CURRICULUM VITAE

LAST UPDATED OCTOBER 2023

Email: [jackie.lok@princeton.edu](mailto:jackie.lok@princeton.edu)  
Website: <https://jackielok.github.io/>  
Address: Princeton University, 98 Charlton Street  
Sherrerd Hall, ORFE Department  
Princeton, NJ 08544, USA

## EDUCATION

---

<b>Princeton University</b> , <i>Princeton, NJ, USA</i> PhD in Operations Research and Financial Engineering Adviser: <a href="#">Elizaveta Rebrova</a>	2021–Present
<b>UNSW Sydney</b> , <i>Sydney, Australia</i> Bachelor of Science (Honours) in Pure Mathematics with First Class Honours and the University Medal Supervisor: <a href="#">Catherine Greenhill</a> WAM: 97.16/100	2020
<b>UNSW Sydney</b> , <i>Sydney, Australia</i> Bachelor of Actuarial Studies (Co-op) in Mathematics with Distinction WAM: 95.65/100	2016–2019
<b>Wharton School, University of Pennsylvania</b> , <i>Philadelphia, PA, USA</i> International Exchange Semester, GPA: 4.00/4.00	2017

## RESEARCH INTERESTS

---

My research lies broadly at the interface of mathematics and data science. I study the properties and behaviour of random mathematical structures and algorithms, and use these insights to develop tools and models that are supported by theoretical guarantees and allow us to better work with and understand large-scale, complex data.

My research interests include high-dimensional and discrete probability, random matrices, randomised algorithms, and numerical linear algebra. I am also interested in the applications of these areas to statistics, computer science, and machine learning.

## AWARDS & HONOURS

---

– Quad Fellowship, Schmidt Futures	2023
– Richard Stillwell '21 *24 and Agnes Newhall Stillwell Fellowship, Princeton University	2021
– University Medal in Pure Mathematics, UNSW Sydney	2020
– H.C. & M.E. Porter Memorial Scholarship, UNSW Sydney	2020
– The Faculty of Science Prize for Honours Year Science, UNSW Sydney	2020
– The George Szekeres Prize, UNSW Sydney	2019
– The Head of School's Prize, UNSW Sydney	2019
– UNSW Co-op Scholarship in Actuarial Studies	2016–2019
– UNSW Scientia Scholarship	2016–2019
– Harry Manson International Exchange Scholarship, UNSW Sydney	2017

## PUBLICATIONS

---

### Preprints

- [1] Jackie Lok and Elizaveta Rebrova. *A subspace constrained randomized Kaczmarz method for structure or external knowledge exploitation*. 2023. arXiv: [2309.04889](#) [[math.NA](#)].

## TALKS AND PRESENTATIONS

---

### Expository talks

- Graduate student probability reading group, Princeton University: “Matrix Concentration Inequalities via the Method of Exchangeable Pairs” (November 2022), “Concentration for Random Matrix Products” (October 2023)

## TEACHING EXPERIENCE

---

### Princeton University, Princeton, NJ, USA

#### Assistant in Instruction, ORFE Department

Responsible for delivering weekly precepts, holding office hours, grading problem sets and exams, and general course admin.

- [ORF 363: Computing and Optimization](#) Fall 2023
- [ORF 350: Analysis of Big Data](#) Spring 2023
- [ORF 387: Networks](#) Fall 2022

### University of Melbourne, Melbourne, Australia

#### Academic Tutor, School of Mathematics and Statistics

Responsible for the delivery of weekly tutorials and assessment marking.

- MAST20004: Probability Semester 1 2021

### UNSW Sydney, Sydney, Australia

#### Academic Tutor, School of Risk and Actuarial Studies

Responsible for the delivery of weekly tutorials, examination and assessment marking, development of course materials, student consultations, and providing general course support.

- ACTL3162: General Insurance Techniques Term 3 2020
- ACTL2102: Foundations of Actuarial Models Term 2 2020
- ACTL2111: Financial Mathematics for Actuaries Term 1 2020
- ACTL1101: Introduction to Actuarial Studies Term 3 2019
- ACTL2102: Foundations of Actuarial Models Term 2 2019
- ACTL3141: Actuarial Models and Statistics Term 1 2019

## OTHER ACTIVITIES

---

### Mentoring

- ReMatch mentor, *Princeton University* 2023
- ORFE Senior Thesis Writer’s Group co-leader, *Princeton University* 2022–2023
- Drop-in Centre tutor, *School of Mathematics and Statistics, UNSW Sydney* 2020

## WORK EXPERIENCE

---

**icare**, Actuarial Services Intern, *Sydney, Australia*

Aug 2018–Feb 2019

Supported the provision of actuarial advice and analysis for the NSW state insurer. Assisted with the reporting and valuation of outstanding claims liabilities, scenario analysis, preparation of financial budgets, claims experience monitoring, and the assessment of data quality and integrity.

**Suncorp Group**, Natural Perils Pricing Intern, *Sydney, Australia*

Feb 2018–Aug 2018

Collaborated in the research and development of a new natural peril pricing model in Python using analytical and machine learning techniques with insurance and geospatial datasets. Developed interactive tool using SAS and Python to identify and visualise exposure concentration risks as part of an automated monitoring pipeline.

**MetLife Australia**, Capital and Valuation Intern, *Sydney, Australia*

Nov 2016–Feb 2017

Assisted with financial reporting, reserving and scenario analysis for group life insurance.

## LANGUAGES AND SKILLS

---

### Languages

- English (native), Cantonese (fluent), Mandarin (beginner), German (beginner)

### Computing

- Proficient with Python and R. Experience with other programming languages and statistical software including Julia, Java, MATLAB, SQL, and SAS.
- Competent with  $\text{\LaTeX}$ .
- Experience with Microsoft Excel, Word, and PowerPoint.

### Online courses

- [Probabilistic Graphical Models Specialization](#) (Coursera, Stanford University), 2021
- [Deep Learning Specialization](#) (Coursera, DeepLearning.AI), 2021
- [Machine Learning](#) (Coursera, Stanford University), 2018