Cecilia Li

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Education

Sep 2019 – Present **Columbia University**, United States of America.
PhD in Decision, Risk and Operations.
Doctoral program in Operations Research, with a full fellowship funded by Columbia Business School.
Relevant Coursework: Foundations of Optimization, Foundations of Stochastic Modeling, Real Analysis, Probability Theory, Econometrics and Statistical Inference, Machine Learning.

Mar 2014 – Nov 2017 **The University of Sydney**, Australia.
Bachelor of Science (Advanced Mathematics), Honours Class I (Applied Mathematics).
Honours Thesis: "A Discrete and Continuous Dictionary", Supervised by Professor Robert Marangell.
Bachelor Degree Majors: Mathematics, Computer Science. Studied at The University of Nottingham (UK) as an exchange student from Sep 2015−Jan 2016.
Relevant Coursework: Calculus, Linear Algebra, Discrete Mathematics, Differential Equations, Introduction to Programming, Data Structures, Formal Languages and Logic, Artificial Intelligence.

Research & Teaching

Sep 2020 – Present **Columbia University**, United States of America.
Teaching Assistant, Columbia Business School.
Supervising review sessions, writing assignment problems and marking assessments for the courses:
- Foundations of Optimization (B9118); Fall, 2020.
- Foundations of Stochastic Modeling (B9119); Spring, 2021.

Jun 2020 – Present **Columbia University**, United States of America.
PhD Student (Supervised by Professors Carri Chan and Jing Dong), Columbia Business School.
- Currently performing an empirical investigation in an attempt to infer the system-based and/or severity-based factors that lead to nurses being overworked in hospitals, and better understand the effect of nurse staffing levels on patient outcomes and hospital service quality.
- Research is being conducted on data provided by The Columbia University Irving Medical Center and New York Presbyterian Hospital.

Nov 2018 – Jun 2019 **The University of Sydney**, Australia.
Research Assistant (Supervised by Professor Irena Koprinska), School of Computer Science.
- Assisted in writing a working paper about using machine learning techniques to automate the process of diagnosing patients with respiratory diseases, such as asthma and COPD.
- Research was conducted in conjunction with Dr. Mark Read from the Charles Perkins Centre (The University of Sydney), and Professor Cindy Thamrin and Dr. Chinh Nguyen from the Woolcock Institute of Medical Research.

Feb 2017 – Nov 2017 **The University of Sydney**, Australia.
Academic Tutor, School of Mathematics and Statistics.
Supervised weekly tutorials and marked assessments for the courses:
- Linear Algebra (MATH1002); Semester 1, 2017.
- Discrete Mathematics (MATH1004); Semester 2, 2017.

Honours Student (Supervised by Professor Robert Marangell), School of Mathematics and Statistics.
- Attempted to explain the reasons behind connections between fundamental results pertaining to second order linear difference equations and second order linear ODEs, and used our findings to obtain approximations of solutions to periodic ODEs using orthogonal polynomials; the solutions of which are typically difficult to obtain otherwise.

Work Experience

Nov 2016 – Aug 2019 **Deloitte Australia**, Sydney.

Analyst, M&A Analytics (Financial Advisory).

- Wrote monthly functional updates for the iDeal M&A Analytics platform using Dynamic SQL.
- Constructed a random forest model for a global private equity firm targeting acquisition of shopping malls in Australia; predicted malls with the most potential for revenue uplift based on socioeconomic census data and credit card transactional data from a major Australian bank.
- Constructed a regression model for a debt collection client; predicted the period after which collections may not be profitable in comparison to the purchase amount of the debt ledger.
- Established a training program to allow non-technical colleagues the opportunity to learn about the basics of programming, databases and machine learning.
- Volunteered as a graduate student representative, answering questions from STEM students interested in applying to Deloitte Australia through the graduate program.

Intern, Strategic Capabilities (Internal Client Services).

- Developed Tableau visualization templates and analytic frameworks that could be automated in SQL, and wrote unit tests for these analytics using the tSQLt framework.
- Worked on the back end development of the Deloitte Input Tax Accelerator by programming APIs in Dynamic SQL that retrieved and altered data depending on specific user permissions.
- Wrote revision quizzes testing basic programming skills and SQL syntax knowledge that eventually contributed to the team's new starter training program.
- Contributed to the team's "Tuesday Tutorials" initiative by giving presentations about the potential applications of data mining and machine learning algorithms in the Audit industry.

Dec 2011 **CSIRO**, Lindfield.

Research Assistant Intern.

- Assisted in performing experiments and collecting data for Dr. Jia Du's research on superconductivity, terahertz radiation and terahertz imaging.
- Gave a presentation to Du's research group about the applications of semiconductor and superconductor devices, SQUIDs and RF receivers for wireless communication.

Miscellaneous

Programming Skills.
Java, LaTeX, MATLAB, Python, R, SQL, Wolfram Mathematica.

Technology Stack.
Alteryx, Git, SSIS, Tableau, Weka.

Awards & Honors.
Columbia Business School Doctoral Fellowship (2019−Present); Eleanor Sophia Wood Postgraduate Research Traveling Scholarship (2019−2021);
Chris Cannon Prize awarded for the best Applied Mathematics Honours Seminar presentation (2018); K.E. Bullen Scholarship No. III awarded to the female student who shows the greatest proficiency in senior units of study prior to enrolling in Applied Mathematics Honours (2017);
University of Sydney School of I.T. Summer Research Scholarship (2016−2017); University of Sydney Academic Merit Prize (2016); Dean's List of Excellence in Academic Performance (2016); Sydney Abroad International Exchange Scholarship (2015−2016); Participant in the University of Sydney Science Faculty's Talented Student Program (2014−2015).

Extracurricular Activities.
Girls' Programming Network Tutor (2016−2019); National Computer Science School Challenge Tutor (2018); University of Sydney Exchange Program Mentor and Representative (2015−2016); Participant in the Sydney Genesis Start-Up Program (2016); Sydney University Mathematics Society (2014−2016); Sydney University Information Technology Society (2014−2016); Associate in Music Australia Diploma for Piano Performance (AMusA AMEB, 2010).