(Nick) Jin Sean **Lim**
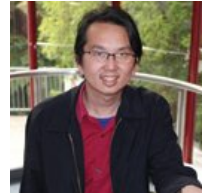
POSTDOCTORAL RESEARCH FELLOW

51 Graham Street, Hamilton East, 3216 Hamilton

☐ (+64) 22-358-7043 | ✉ me@nicklim.com | ⌂ www.nicklim.com

 nlim-uow | nicklimjinsean

Post-Doctoral Fellow looking for Lecturership

ENERGY AND ENTHUSIASM

- I have demonstrated that I am passionate about my teaching, and this is reflected in my good feedback scores in all the teaching assessments.
- I demonstrated that I am willing to go above and beyond what is expected of me, being often the first to volunteer in the various community engagement work.

VERBAL COMMUNICATION SKILLS

- I also received good feedback scores on my teaching for the teaching assessments I was eligible for, demonstrating my ability to communicate my lessons clearly in a classroom setting.
- As a community ambassador, I had to present the mathematical, statistical and machine learning concepts in an interesting and simple-to-understand manner to the general public who do not have the necessary background.

PROBLEM SOLVING

- In recognition of flexibility and problem-solving skills, I was part of a skunkworks-type team to automate the design migration from different semiconductor processes. I was awarded a Division-Level award in recognition of my contributions to the team.
- I caught the Cougarpoint Serial ATA interface over-voltage design issue when I was reviewing my replacement's training. Unfortunately, the subsequent hotfix was undone during my sabbatical, and the resulting design bug cost Intel 300 million USD in direct recall costs and 400 million USD in product delay.
- I am recognised as a technical expert among my peers. A recent example of this is in my contribution to the Refugee Orientation Centre Trust as a computing and networking consultant.

Research ─────────────────────────────────

My research interest includes the mathematical and statistical modelling, simulation and optimization of complex systems.

University of Waikato   *Hamilton, New Zealand*

POSTDOCTORAL RESEARCHER   *February 2020 - present*

- My research primarily focuses on the explainability of deep learning algorithms. I focus on applying weak supervision methods for object localization classifiers, with application on detecting invasive predator species in images. I also researched uncertainty estimation and explainability in time-series forecasting with focus on predicting river stage level using environmental sensors.

PH.D. IN STATISTICS   *May 2015 - August 2019*

- My research primarily focuses on ensemble classifiers, namely on the impact of random subspace projection as a diversity inducer on the accuracy of classifiers, as well as the different ensemble schemes. During my research, I've work on the norm preservation properties of low dimension projection (Johnson-Lindenstrauss Lemma) and it's application on convolution neural networks. I've looked into applications of the norm preserving properties of random subspace projections in compressive sensing.

M.SC (RESEARCH) IN MATHEMATICS   *February 2013 - March 2015*

- My research focuses primarily on the decomposition of bipartite graphs. I've worked on deterministic algorithms for decomposition of bipartite graphs into stars. I also looked into probabilistic proofs to show the existence of a decomposition.

Intel Microelectronics   *Penang, Malaysia*

DESIGN AUTOMATION ENGINEER   *May 2004 - February 2011*

- During my employment, my research focuses primarily on improving the performance in transistor-level simulations. My responsibilities also includes improving the accuracy of simulation with respect to physical measurements. I also looked into the automatic sizing of transistors via multi-variable numerical optimizations and translating ASIC design into corresponding Norton/Thevenin equivalent models.

Teaching Experience

University of Waikato   *Hamilton, New Zealand*

POSTDOCTORAL RESEARCH FELLOW   *Feb. 2020 - Present*

- **Co-Lecturer for COMPX310 (Machine Learning)**
- Responsibilities includes designing, supervising and grading student's lab, test and exam assessments.
- In supervisory panel for Masters of Science candidate Daniel Bull for the research topic "Super-resolution of Satellite Imagery" (Final Grade: A). PhD Supervision panel for Eduardo Penna Silva (in progress) and Gong Zixuan, 5 honours thesis and 1 summer research project

University of Waikato   *Hamilton, New Zealand*

SESSIONAL ASSISTANT   *Feb. 2014 - Nov 2019*

- **Tutor for General/Management Mathematics, Introduction to Statistical Methods/Statistics for Science, Practical Data Mining**
- Responsibilities includes teaching first-year undergraduate students; grading assignments and tests and provide test supervision for both first-year and second-year undergraduate papers for the Mathematics and Statistics Department.
- Provide 1:1 Tutorials on request from Disability Office and Pacific-Aid Scholarship Office.
- Worked as a Community Ambassador for the faculty during the University open days from 2015-2018 and presented mathematical concepts in an interesting manner and explain the concepts in simple to understand manner for people without mathematical background.

Penang Design Centre, Intel   *Penang, Malaysia*

DESIGN AUTOMATION ENGINEER   *May. 2004 - Feb. 2011*

Methodology development for transistor-level fast SPICE Simulators for complex System-on-chip designs. (2005-2007, 2010)
Responsible for developing the design methodology to verify the functionality. and electrical and signal compliance of custom System-on-chip designs.
- Work closely with design engineers to resolve simulation issues, meet design deadlines, and automate tasks through scripts and improvement on engineering workflow
- Top recipient of peer-level recognition awards for attentiveness to internal customers within department. Assisted design engineers in debugging unexpected results in their simulations and catching design issues, including the $USD700 million Cougarpoint PCH SATA recall.

Methodology Development and maintenance of transistor-level optimization for Process migration of System-on-Chip design (2007, 2009-2011)
- Member of 'skunkworks' team, to develop the methodology and automate the translation of circuit design between process nodes.
- Developed a common framework for multi-variable, multi-objective optimization of transistor designs.
- Recipient of division-level award for the project

Development and maintenance of IBIS (I/O Buffer Information Specification)/.LIB models (mathematical model) generation for signal integrity noise and timing analysis. (2007-2010)
- Responsible for developing an automated methodology to convert complex I/O drivers to an equivalent Thevenin or Norton circuit.
- Closing the mismatch between the complex transistor design and the 'simple' mathematical models while working within the limitations of the specifications

Graduate Intern trainer and Department Trainer(2007-2010)
- Responsible to prepare new graduate hires in the understanding of the Intel design flow, knowledge in circuit design and simulations, as well as soft skills including writing reports and up-selling themselves to the managers and their internal customers.
- Provided department-level training on the Basics of UNIX computing and the proprietary computing environment.

Public Tutorials

2024 - **AI Hackathon**, AI Hackathon Bootcamp, *University of Waikato*

2023 - **Indigidata Aotearoa Wanaga**, Scikit-Learn for Beginners, *University of Waikato*

2023 - **Waikato Regional Council**, Machine Learning for Flood Practioners, *University of Waikato*

Publications

G Cassales; S Salekin; N Lim; D Meason; A Bifet; B Pfahringer; E Frank, A comparative study of four deep learning algorithms for predicting tree stem radius measured by dendrometer: A case study, *Ecological Informatics, 103014* (2025)

S Cheng; Q Shi; N Lim; A Bifet, AA-RPN: Adaptive Anchor-based Region Proposal Network for Remote Sensing Object Detection, *31st International Conference on Neural Information Processing* (2024)

JL König; J Penaredondo; N Lim; A Hinze; J Bowen, The Impact of Data Aggregation: Advocating for Individualized Analysis in Wearable Sensor Research, *36th Australian Conference on Human-Computer Interaction* (2024)

AYS Koh; A Bifet; KR Bryan; G Cassales; O Graffeuille; NJS Lim; P Mourot; D Ning; B Pfahringer; V Vetrova; HM Gomes, Time-evolving data science and artificial intelligence for advanced open environmental science (TAIAO) programme, *International Joint Conferences on Artificial Intelligence (IJCAI)* (2024)

A Dwivedi; N Lim; A Bifet; E Frank; B Pfahringer, Enhancing Aerial Imagery Analysis: Leveraging Explainability and Segmentation, *International Conference on Machine Intelligence for Geoanalytics and Remote Sensing* (2024)

N Lim; A Bifet; D Bull; E Frank; YZ Jia; J Montiel; B Pfahringer, Showcasing the TAIAO Project: Providing Resources for Machine Learning from Images of New Zealand's Natural Environment, *Journal of the Royal Society of New Zealand* (2023)

P Mourot, N Lim, B Pfahringer, A Bifet, A regional flood impact prediction tool using machine learning to manage flood risk in real-time. A case study in New Zealand., *European Geoscience Union* (2022)

Y Zhang, B Pfahringer, E Frank, A Bifet, NJS Lim, Y Jia, A simple but strong baseline for online continual learning: Repeated augmented rehearsal, *Advances in Neural Information Processing Systems* (2022)

D Bull, N Lim, E Frank, Perceptual improvements for Super-Resolution of Satellite Imagery, *36th International Conference on Image and Vision Computing New Zealand* (2021)

Y Jia, E Frank, B Pfahringer, A Bifet, N Lim, Studying and exploiting the relationship between model accuracy and explanation quality, *Machine Learning and Knowledge Discovery in Databases. Research Trac* (2021)

Lim, N.; Durrant, R.J., A Diversity-aware Model for Majority Vote Ensemble Accuracy, *Internation Conference on Artificial Intelligence and Statistics* (2020)

Lim, N, Ensemble learning of high dimension datasets, *University of Waikato* (2019)

Lim, N.; Durrant, R.J., Pseudosaccades: A simple ensemble scheme for improving classification performance of deep nets, *Preprint* (2018)

Lim, N. ; Durrant, R.J., Linear Dimensionality Reduction in Linear Time: Johnson-Lindenstrauss-type Guarantees for Random Subspace, *Preprint* (2017)

Lim, J.S., Star Decompositions of Bipartite Graphs, *University of Waikato* (2015)

Yeoh, K.L.; Lim, J.S.; Goh, K.L.; Tee, S.M., Custom digital cell generation flow for 65nm processes, *SoC Design Conference (ISOCC)* (2009)

Tan, F.N; Pang, S.G; Sasidaran, D.;Lee, C.S; Lim, J.S.; Ooi, P.L; Yong, L.K, Core Excitation Modeling Methodology for Efficient Power Delivery Analysis, *Electronics Packaging Technology Conference* (2008)

Tan, F.N; Chai,Chai, A,; Pang, S.G; Sasidaran, D.; Ng, K.H; Deo, S.C; Lee C.S.; Lim, J.S.; Ooi, P.L; Loke, C.N,; Lim, M.C, Transient current modeling & power delivery analysis for next gen chipset core, *Electronic Materials and Packaging* (2007)

Education

University of Waikato   *Hamilton, New Zealand*

Ph.D. in Statistics   *Conferred - November 2019*

- My research topic for my doctoral studies is on the "Ensemble Learning in High Dimension Datasets" under the supervision of Dr. Robert Durrant
- Awarded Best Conference Presenter for the New Zealand Mathematics and Statistics Postgraduate Conference 2017 for talk titled "Meeting the Modern Prometheus: An introduction to Deep Learning from a Mathematics and Statistics Perspective"
- Recipient of the "University of Waikato, Doctoral Scholarship"

University of Waikato   *Hamilton, New Zealand*

M.Sc (Research) in Mathematics   *Conferred - March 2015*

- My dissertation topic for my masters is on "Star Decompositions of Bipartite Graphs" under the supervision of Dr. Nicholas Cavenagh
- Recipient of the "A Zulauf Scholarship" for the year 2014.
- Completed my masters with a First-Class Honours, and a GPA of 8.25/9.00.

Multimedia University   *Cyberjaya, Malaysia*

B.Eng (Electronics) Majoring in Telecommunications   *Conferred - April 2004*

- Placed in the Dean's Lists in recognition of academic aptitude
- Completed my Bachelor's degree with a First-Class Honours, and a GPA of 3.69/4.00.

References

Included with application