BOON HOW LOW

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Education

Nanyang Technological University	Aug 2021 - May 2025

Bachelor of Science in Chemistry and Biological Chemistry, Honors (Distinction)
Areas of interest: Evolution, generative models, multi-omics

Research Experience

Research Assistant — Aug 2025 – Present
School of Chemistry, Chemical Engineering and Biotechnology, NTU — *Prof Dan He*
- Generate novel metal-binding proteins through structural deletions and insertions using ESM-3

iGEM 2025 Computational Team Lead — Jun 2025 - Present
School of Chemistry, Chemical Engineering and Biotechnology, NTU — *Prof Meng How Tan*
- Utilize conserved domains in proteins for *de novo* protein design with Protein Language Models

Research Intern — Aug 2024 - Jun 2025
*Computational Biology & Omics Lab, Bioinformatics Institute, A*STAR* — *Prof Kumar Selvarajoo*
- Explored generative models with ovarian cancer datasets for generating synthetic data
- Utilized machine learning and statistics to highlight areas of improvements in current generative models

Global Research Immersion Program for young Scientists (GRIPS) — Jul 2024 - Aug 2024
Computational Biology Group, Nanjing University — *Prof Dijun Chen*
- Utilized deep learning for denoising data in single cell transcriptomics
- Assessed improvements in data quality through computational methods

Research Intern — Jul 2023 - Jun 2024
Centre for Biomedical Informatics, Lee Kong Chian School of Medicine, NTU — *Prof Bernett Lee*
- Assisted in developing machine learning methods for analysis of binding motifs in epigenomics
- Designed novel use of epigenomics markers (H3K4me3 and DNase) to stratify patterns in transcriptomics

Undergraduate Research Attachment — Sep 2022 - Jun 2023
Centre for Biomedical Informatics, Lee Kong Chian School of Medicine, NTU — *Prof Bernett Lee*
- Analyzed differences between epigenomic markers (H3K4me3 and H3K4me1) in gene regulation
- Completed attachment as part of the Undergraduate Research Experience on Campus (URECA) program

Student Researcher — Jun 2022 - Aug 2022
Chemistry & Biological Chemistry, School of Physical and Mathematical Sciences, NTU — *Dr Yunpeng Lu*
- Developed a no-code GUI enabling chemists to apply machine learning to experimental datasets without programming

Publications

Low, B. H., Rashid, M. M., & Selvarajoo, K. (2025). Machine learning differentiates between bulk and pseudo-bulk RNA-seq datasets. *BioRxiv*. https://doi.org/10.1101/2025.06.27.661895

Low, B. H., Kaliskar, K. K., Perna, S., & Lee, B. (2025). Cross-cellular analysis of chromatin accessibility markers H3K4me3 and DNAse in the context of detecting cell-identity genes: an "all-or-nothing" approach. *Journal of Bioinformatics and Computational Biology*. https://doi.org/10.1142/s0219720025400025

Oral Presentations

"Denoising scRNA-seq annotations using deep learning" — Zhejiang University, Aug 2024
GRIPS Closing Ceremony 2024

"Cross-cellular analysis of DNAse and H3K4ME3 in the context of highly expressed genes: an "all-or-nothing" approach" — Nanyang Technological University, Nov 2023
GIW ISCB-Asia 2023

Awards

A*STAR Research Internship Award	Bioinformatics Institute, Aug 2024
GRIPS Academic Poster Presentation (Distinction)	Zhejiang University, Aug 2024
President Research Scholar (Merit)	Nanyang Technological University, Jul 2023
Summation Program for Talent	SGInnovate, Jul 2023

Other Work Experience

SGInnovate Summation Program for Talent   Jul 2023 - Dec 2023
Xinterra
- Designed and implemented high throughput synthesis and testing capabilities for new materials through the Opentrons systems
- Implemented interface to fully automate Opentrons workflows through Google Sheets, removing the need for coding expertise

Communication Coach   Dec 2021 - Aug 2023
Language and Communicate Center CommCube, Nanyang Technological University
- Trained School of Humanities in writing techniques and pedagogy
- Coached over 40 undergraduates from different courses and nationalities in writing assignments

Competitions

ST Engineering Hackathon   Apr 2024
Silver
- Conducted a case study on cataract operations to evaluate potential areas for optimization in surgical inventories
- Prototyped an interface to support surgical decisions through interpretable machine learning outputs

Accenture Case Competition   Mar 2024
Finalist
- Collaborated in a multidisciplinary team to develop a comprehensive decarbonisation plan for a client company targeting net-zero carbon emissions by 2050

NTU School of Biological Science Hackathon   May 2023
Bronze
- Developed machine learning models to identify factors of variability in obesity

Skills

Advanced proficiency in designing bioinformatics pipelines for data processing and machine learning using R, Python, Linux

Intermediate proficiency of UI/UX for designing websites and GUI using Python, HTML, CSS, Javascript
Intermediate proficiency of generative models

References

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Director, Centre for Biomedical Informatics
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Asst/P Dan He
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