

Qisheng Pan

+61 401-937-290 | qisheng.pan@uq.net.au | [website](#)

RESEARCH INTEREST

I studied human genetic variants, investigating the relationship between protein mutations and pathogenic phenotypes. Leveraging computational biophysical measurements and machine learning, my research focuses on providing a guideline of the interpretation of current methods, and the development of new approaches to better characterise the effect of variants.

EDUCATION

University of Queensland	Brisbane, Australia
• Doctor of Philosophy (Computational Biology)	Jan 2022 - now
University of Melbourne	Melbourne, Australia
• Master of Science (Bioinformatic)	2019-2021
South China Normal University	Guangzhou, China
• Bachelor of Science (Biotechnology)	2015-2019

PUBLICATIONS

1. **Pan Q**, Portelli S, Nguyen TB et al. Characterization on the oncogenic effect of the missense mutations of p53 via machine learning, *Brief Bioinform* 2023;25.
2. Serghini A, Portelli S, Troadec G et al. Characterizing and predicting ccRCC-causing missense mutations in Von Hippel-Lindau disease, *Hum Mol Genet* 2023.
3. Jessen-Howard D, **Pan Q**, Ascher DB. Identifying the Molecular Drivers of Pathogenic Aldehyde Dehydrogenase Missense Mutations in Cancer and Non-Cancer Diseases, *Int J Mol Sci* 2023;24.
4. Zhou Y, **Pan Q**, Pires DEV et al. DDMut: predicting effects of mutations on protein stability using deep learning, *Nucleic Acids Res* 2023;51:W122-W128.
5. Boer JC, **Pan Q**, Holien JK et al. A bias of Asparagine to Lysine mutations in SARS-CoV-2 outside the receptor binding domain affects protein flexibility, *Front Immunol* 2022;13:954435.
6. **Pan Q**, Nguyen TB, Ascher DB et al. Systematic evaluation of computational tools to predict the effects of mutations on protein stability in the absence of experimental structures, *Brief Bioinform* 2022;23.
7. Han YY, Jin K, **Pan QS** et al. Microglial activation in the dorsal striatum participates in anxiety-like behavior in Cyld knockout mice, *Brain Behav Immun* 2020;89:326-338.

TEACHING EXPERIENCES

Instructors , University of Queensland	Nov 2023
• Advanced Data Visualisation with ggplot2 : This workshop is the one that I designed, prepared, and delivered, focusing on practical skills on presenting data using <i>R</i> and <i>ggplot2</i> package.	
Teaching Assistant , University of Queensland	Sept 2022
• Computing4lifescience Series (Sept 2022)	

MENTORSHIP

Research Supervisor (UG: undergraduate, MS: master's)
Georgina Becerra Parra (UG, 2022, UQ), Dana Jessen-Howard (MS, 2023, UQ), Joshua Khoo (MS, 2024, UQ)

HONOURS & AWARDS

• Travel Awards of MM2023 conference	<i>Dec 2023</i>
• SCMB Award for Outstanding Contribution to Research (Group Awards)	<i>Nov2023</i>
• Student Prize in the CTCMS Seminar	<i>Mar 2023</i>
• Comprehensive Student Scholarship	<i>Sept 2016</i>

COLLABORATIONS

Jeniffer Boer and Magdalena Plebanski, Royal Melbourne Institute of Technology, Australia	<i>2022 - 2023</i>
• Investigating the variants of the Spike protein in Omicron SARS-CoV-2 virus	

RESEARCH EXPERIENCES

Characterising the pathogenic effect of missense mutations via machine learning	<i>2022 - now</i>
• Leveraged different computational biophysical measurements to annotate missense variants.	
• Developed machine learning models to classify phenotypes of mutations.	
Benchmarking computational biophysical measurements in the absence of experimental structures	<i>2022 - now</i>
• Built high-throughput pipeline to generate protein homology models and AlphaFold models.	
• Used different metric to assess the predictive performance of various machine learning models.	

PRESENTATIONS

1. Poster presentation in the Lorne Protein Conference 2024 (Australia)	<i>Feb 2024</i>
2. Oral and poster presentations in the MM2023 conference (Australia)	<i>Dec 2023</i>
3. Poster presentation in the ABACBS 2023 conference (Australia)	<i>Dec 2023</i>
4. Research Talk in the 22 nd International Conference on Bioinformatics (Australia)	<i>Nov 2023</i>
5. Lighting talk in the GenGen seminar (UQ)	<i>Apr 2023</i>
6. Oral presentations in the CTCMS seminar (UQ)	<i>Mar 2023</i>
7. Poster presentations in the Lorne Protein Conference 2023 (Australia)	<i>Feb 2023</i>
8. Poster presentation in the 18 th Annual Research Student Symposium (UQ)	<i>Nov 2022</i>
9. Oral presentations in the Joint Biomolecular and Medicinal Chemistry Theme Symposium (UQ)	<i>Apr 2022</i>

TECHNICAL SKILLS

Programming: Python, R, Linux Bash, JavaScript
Software: BLAST, MODELLER, PyMol, AutoDock Vina, GALAXY, etc.
Machine learning: Random Forest, Neural Network, Feature selection, etc.

REFEREES

David B. Ascher	Professor, University of Queensland	d.ascher@uq.edu.au
Thanh-Binh Nguyen	Research Fellow, University of Queensland	thanhbinh.nguyen@uq.edu.au
Stephanie Portelli	Research Fellow, University of Queensland	s.portelli@uq.edu.au
Douglas E.V. Pires	Senior lecturer, University of Melbourne	douglas.pires@unimelb.edu.au
Cheng Long	Professor, South China Normal University	longcheng@m.scnu.edu.cn