

Pisanu (Ize) Buphamalai, PhD

Principal Scientist · ML & Systems Biology for Target Discovery

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Computational biologist working at the interface of high-throughput experiments and machine learning. I build graph-based and multimodal approaches to understand disease biology and find next-generation therapeutic targets, currently in inflammation and immunology.

research areas

Multimodal & multiscale modelling

Perturbation prediction & interpretation

Target prioritization

Agentic workflows in biology

Single-cell transcriptomics

Machine learning

experience

	Graph Therapeutics · Vienna, AT
Mar 2025 – Present	Principal Scientist - Machine learning and multimodal data integration for target discovery in inflammation and immunology. - Working closely with experimental teams to close the loop between high-throughput experiments and models.
Oct 2023 – Feb 2025	Exscientia / Recursion · Vienna, AT
May 2022 – Sep 2023	Senior Scientist, Multimodal Discovery Lab Computational Research Scientist, Translational Bioinformatics Exscientia became part of Recursion in Nov 2024. - Built a patient-first framework on primary multimodal data, from understanding cancer biology to discovering next-gen targets. - Optimised efficient learning loops with bench scientists in sample-constrained settings.
Sep 2016 – Apr 2022	CeMM & Max Perutz Labs · Vienna, AT
	Predocctoral Fellow with Jörg Menche (supervisor) - Developed graph-based tools that maximise context relevance of multiple data resources before integration. - Improved rare disease gene prioritisation and linked genotype to phenotype through multiplex gene networks. [Thesis]
Feb 2016 – Jul 2016	Saez-Rodriguez Lab · RWTH Aachen, DE
	Master's Research Student — Transporter repertoires as determinants of cellular cancer drug response. [thesis]
May 2015 – Jul 2015	Probabilistic Machine Learning Group · Aalto University, FI
	Graduate Intern — Group Factor Analysis for latent variables in mixed continuous/discrete multi-omics data. · with Samuel Kaski , Pekka Marttinen

education

2017 – 2022	Medical University of Vienna · Vienna, AT PhD, Medical Informatics & Complex Systems
2014 – 2016	KTH Royal Institute of Technology & Aalto University · Stockholm, SE / Helsinki, FI MSc (Tech), Computational Systems Biology — Erasmus Mundus scholar
2009 – 2013	Mahidol University · Bangkok, TH BSc Physics, First Class Honours

selected publications

2025	A non-enzymatic role of Nudix hydrolase 5 in repressing purine de novo synthesis T.A. Nguyen*, J.G. Lin*, A.M.C. Marques*, ..., P. Buphamalai , ..., S. Kubicek · <i>Science</i> 390(6778): 1143–1150
2021	Network analysis reveals rare disease signatures across multiple levels of biological organization P. Buphamalai , T. Kokotovic, V. Nagy, J. Menche · <i>Nature Communications</i> 12(1): 6306
2019	Network Medicine P. Buphamalai* , M. Caldera*, F. Müller, J. Menche · In <i>Analyzing Network Data in Biology and Medicine</i> (ed. N. Pržulj), ch. 10, pp. 414–458 · Cambridge University Press
2019	MTHFD1 interaction with BRD4 links folate metabolism to transcriptional regulation S. Sdelci, A.F. Rendeiro, P. Rathert, ..., P. Buphamalai , ..., J. Menche, ..., S. Kubicek · <i>Nature Genetics</i> 51(6): 990–998
2017	Interactome-based approaches to human disease M. Caldera*, P. Buphamalai* , F. Müller, J. Menche · <i>Current Opinion in Systems Biology</i> 3: 88–94

* equal contribution. Full list: izepb.github.io/publications

talks & posters

Sep 2026	Target Validation – In the Era of Genomics, Big Data, and AI · Wellcome Genome Campus, UK poster Quantifying ex vivo model realism for novel target discovery in inflammatory diseases [summary] [full poster]
Nov 2025	CytoData 2025 poster Decoding the functional and molecular niche of immune-mediated disease for iterative target discovery [summary]
Feb 2025	TechBio Transformers Vienna Meetup · Vienna, AT organizer [post]
Jul 2023	ISMB/ECCB 2023 · Lyon, FR poster A computational framework for discovering novel targetable pathways by integrating functional and multi-omics data from primary model systems
Apr 2018	EMBO Workshop: Integrating Systems Biology · Heidelberg, DE ★ Best Poster Award poster

honours

2019	Winning team, CytoData 2019 hackathon — Compound target and MoA prediction from cellular morphology.
2019	Lindau Nobel Laureate Meeting (Physics) — Nominated by the Austrian Academy of Sciences.
2018	Outstanding Poster Award, EMBO Workshop on Network Biology — EMBL Heidelberg.
2014	Erasmus Mundus Master's Scholarship — European Commission, full scholarship.

community

2025	Regional Lead, Vienna — TechBio Transformers
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press

2021	Multiplex network maps all genes and interactions on multiple levels to help understand rare disease mechanisms — GEN
2021	Gen-Netzwerk erleichtert Suche nach seltenen Krankheiten (German) — ORF