HELLO,

this is my resumé

Budi Permana, PhD

Bioinformatics | Microbial genomics | Data visualisation

Profile

I am a bioinformatician by training with experience in microbial genomics, genomic epidemiology, and web-based visualisation tools research and development. My research focuses on understanding the genomic epidemiology of multi-drug resistant bacteria in healthcare settings. In the last six years, I have constantly worked with large-scale bacterial genome datasets using various bioinformatics tools and pipelines. I am proficient in JavaScript programming and comfortable with High-Performance Computing, Unix commands, R, and Python programming. I am incredibly interested in data analysis and visualisation, mainly in translating genomic research for better healthcare products and services.

Personal Details

Name	Budi Permana
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Qualifications

Doctor of Philosophy **2018 - 2022**

School of Chemistry and Molecular Biosciences, University of Queensland, Australia.

Thesis title: New approaches in visualising genomic data for surveillance and control of drug-resistant bacteria in healthcare settings.

Thesis main chapters:

1. HAIviz: An interactive healthcare-associated infection visualisation tool for integrating and communicating genomic epidemiological information of local outbreaks.
2. Using genomics to investigate the epidemiology of Vancomycin- resistant *Enterococcus faecium* ST78 at a large tertiary hospital in Queensland.
3. Genomic analysis of diversity, population structure, and epidemiology of Vancomycin-resistant *Enterococcus faecium* among tertiary hospitals in Queensland.
4. GraphSNP: Using graph approach to investigate outbreak cluster and transmission in a web browser.

Master of Bioinformatics **2016 - 2017**

School of Chemistry and Molecular Biosciences, University of Queensland, Australia.
Cumulative GPA: 6.11 / 7.

Bachelor of Science **2008 - 2013**

School of Life Sciences and Technology, Institut Teknologi Bandung, Indonesia.
Cumulative GPA: 3.44 / 4.

Key Skills and Strengths

Research

- Microbial genomics
- Bioinformatics
- Phylogenetics
- Genomic epidemiology
- Data visualisation tools development

Programming

- HTML, CSS, and JavaScript (JS)
- R
- Python
- Unix shell scripting
- JS libraries: D3.js and React.js

Employment

University of Queensland (UQ), Australia
Casual Academic Teaching Assistant, Course: Advanced Genome Informatics, 2018 - current

- Assist Lecturers in the lectorials.
- Provide support for students on online discussion board.

UQ Centre for Clinical Research, Australia
Casual Bioinformatician, May 2022 - current

- Process and analyse bacterial genome datasets derived from hospitals.
- Implement automatic cluster detection and additional features on a real-time cluster visualisation platform: Cluster Analysis Tool for Healthcare-Associated Infections (CATHAI).
- Perform research on machine learning methods for outbreak cluster and transmission.

University of Queensland, Australia
Casual Research Assistant, Jul 2021 - April 2022

- Performed comparative genomics and phylogenetic analysis on bacterial genomes.

MarkAny - PT. DagoIT, Indonesia
Operational Officer, 2013-2015

- Coordinated an Official Development Assistance (ODA) project between the Korea International Cooperation Agency (KOICA) and the Ministry of Research, Technology and Higher Education of Indonesia (RISTEK-DIKTI).

Publications

Research articles:

Muhammad Shafiq, Mi Zeng, **Budi Permana**, Hazrat Bilal, John Anderson, Fen Yao, Abdelazeem Mohamed Algammal, Xin Li, Yumeng Yuan and Xiaoyang Jiao (2022). "Co-existence of *bla NDM-5* and *tet(X4)* in international high-risk *E. coli* clone ST648 of Human origin in China". (in press)

Budi Permana, Scott A. Beatson, Brian M. Forde. "GraphSNP: an interactive and easy-to-use SNP distance viewer for investigating outbreak cluster and transmission using graph approach". (submitted).
The tool is available at: https://graphsnp.beatsonlab.com/

Budi Permana, Patrick N. A. Harris, Naomi Runnegar, Margaret Lindsay, Belinda Herderson, Geoffrey Playford, David Paterson, Scott A. Beatson, Brian M. Forde. "Using genomics to investigate the epidemiology of Vancomycin-resistant *Enterococcus faecium* ST78 at a primary care hospital in Queensland". (submitted).

Budi Permana, Patrick N. A. Harris, Leah W. Roberts, Thom Cuddihy, David Paterson, Brian M. Forde, Scott A. Beatson "HAIviz: An Interactive Healthcare-Associated Infection Visualization Tool for Integrating and Communicating Genomic Epidemiological Information of Local Outbreaks". The tool is available at: https://haiviz.beatsonlab.com/

Cuddihy,T., P.N.A Harris, **B. Permana**, S.A. Beatson, B.M. Forde (2022). "CATHAI: cluster analysis tool for healthcare-associated infections". Bioinformatics Advances, **2**(1). The tool is available at: https://cathai.fordelab.com/

Roberts, L. W., B. M. Forde, T. Hurst, W. Ling, G. R. Nimmo, H. Bergh, N. George, K. Hajkowicz, J. F. McNamara, J. Lipman, **B. Permana**, M. A. Schembri, D. Paterson, S. A. Beatson and P. N. A. Harris (2021). "Genomic surveillance, characterization and intervention of a polymicrobial multidrug-resistant outbreak in critical care." Microbial Genomics **7**(3).

Permana, A. D., **B. Permana**, B. Sahari, R. E. Putra and I. Kinasih (2017). "Estimating numbers of oil palm (*Elaeis guineensis*) pollen grains using image analysis and processing." Journal of Oil Palm Research **29**(3): 311-317.

Book:

Budi Permana (writing as Nalar Akmal BP) (2009). "Step by Step be Creative with Adobe Photoshop CS4". PT. Elex Media Komputindo Indonesia".

Conferences, workshops and seminars

As Committee

- ASEAN Cyber Kids Camp 2015 held by Institut Teknologi Bandung (ITB) and Ministry of Information and Communication Indonesia (MENKOMINFO).
- Indonesia-Korea Cyber Security Conference 2013 and 2014 held by ITB, KOICA and MENKOMINFO.

As Presenter

- American Society of Microbiology Conference on Rapid Applied Microbial Next Generation Sequencing and Bioinformatic Pipelines, USA, 2018.
- International Conference on Genome Informatics, Sydney, 2019.
- School of Chemistry and Molecular Biosciences Research Symposium 2018 - 2020, Australia, 2020
- Applied Bioinformatics and Public Health Microbiology (Virtual Conference). Wellcome Genome Campus, UK, 2021.
- The Australian Society for Microbiology National Meeting, Melbourne, Australia, 2021.
- ASM-Queensland Nancy Millis Awards Night, Australia, 2021.
- The Australian Society for Microbiology National Meeting, Sydney, Australia, 2022.

As Participant

- Winter School in Mathematical and Computational Biology 2018, Institute of Molecular Bioscience, Australia, 2018.
- Microbiology in Moreton, ASM-Q, Australia, 2018-2020.
- UQ Graduate Career Development Framework, 2018.
- The Australian Bioinformatics And Computational Biology Student Society (COMBINE).

Professional memberships

American Society for Microbiology and Australian Society for Microbiology.

Scholarships and Awards

Australian Government Research Training Program (RTP) Scholarship (2018 - 2021)

A four-year scholarship to pursue a doctoral degree at UQ.

Indonesia Endowment Fund for Education (2016 - 2017)

A one and half-year scholarship to pursue a postgraduate degree at UQ.

ITB USM Scholarship (2008 - 2012)

A four-year scholarship to pursue an undergraduate degree at Institut Teknologi Bandung.

Dean's Commendation for Academic Excellence, Faculty of Science, UQ (2017)
An acknowledgement for outstanding achievement in research course.

First prize for best poster presentation at Applied Bioinformatics and Public Health Microbiology Conference, Wellcome Genome Campus, UK (2021).

First prize for best poster presentation at School of Chemistry and Molecular Biosciences Research Symposium 2019, UQ (2019).

Referees:

Available upon request.