

dr. philippbayer

postdoctoral researcher

contact

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github.com/philippbayer
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languages

German: mother tongue
English: fluent
French & Japanese:
advanced

programming

Python
Go, Perl, Bash, Java
Ruby on Rails, HTML

research

Genomics of complex
traits in canola and
wheat

statistics

Citations: 492
h-index: 7
i10-index: 6

education

- 2012–2015 **PhD** Applied Bioinformatics University of Queensland, Brisbane
Working in the Applied Bioinformatics group on the use of genotyping by sequencing to improve the genome assembly of canola.
Thesis submission date: 23rd September 2015. Date of acceptance: 4th May 2016.
- 2010–2012 **Master** of IT Bond University, Gold Coast
Graduated with Honours
- 2006–2009 **Bachelor of Science** Biology University of Münster, Germany
Thesis: Analysis of splicing in two populations of marine plants using bioinformatic approaches

publications

- Bayer, Philipp E**, Bhavna Hurgobin, Agnieszka A Golicz, Chon-Kit Kenneth Chan, Yuxuan Yuan, HueyTyng Lee, Michael Renton, Jinling Meng, Ruiyuan Li, Yan Long, et al. "Assembly and comparison of two closely related *Brassica napus* genomes" *Plant biotechnology journal* (2017)
IF: 6.09, JCR Plant Sciences 11/209 (Q1), Altmetric score: 11
- Yuxuan Yuan, **Bayer, Philipp E**, Jacqueline Batley, and David Edwards "Improvements in Genomic Technologies: Application to Crop Genomics" *Trends in Biotechnology* (2017). *Elsevier Current Trends*
IF: 12.06, JCR Biotechnology & Applied Microbiology 3/161 (Q1), Altmetric score: 7
- Juan D Montenegro, Agnieszka A Golicz, **Bayer, Philipp E**, Bhavna Hurgobin, HueyTyng Lee, Chon-Kit Kenneth Chan, Paul Visendi, Kaitao Lai, Jaroslav Doležel, Jacqueline Batley, et al. "The pangenome of hexaploid bread wheat" *The Plant Journal* (2017)
IF: 5.46, JCR Plant Sciences 13/209 (Q1), Altmetric score: 52
- Parwinder Kaur, **Bayer, Philipp E**, Zbyněk Milec, Jan Vrána, Yuxuan Yuan, Rudi Appels, David Edwards, Jacqueline Batley, Phillip Nichols, William Erskine, et al. "An advanced reference genome of *Trifolium subterraneum* L. reveals genes related to agronomic performance" *Plant biotechnology journal* (2017)
IF: 6.09, JCR Plant Sciences 11/209 (Q1), Altmetric score: 15
- Katarzyna Gacek, **Bayer, Philipp E**, Iwona Bartkowiak-Broda, Laurencja Szala, Jan Bocianowski, David Edwards, and Jacqueline Batley "Genome-wide association study of genetic control of seed fatty acid biosynthesis in *Brassica napus*" *Frontiers in Plant Science* 7 (2016). *Frontiers Media SA*
IF: 4.49, JCR Plant Sciences 15/209 (Q1)
- Agnieszka A Golicz, **Bayer, Philipp E**, Guy C Barker, Patrick P Edger, HyeRan Kim, Paula A Martinez, Chon Kit Kenneth Chan, Anita Severn-Ellis, W Richard McCombie, Isobel AP Parkin, et al. "The pangenome of an agronomically important crop plant *Brassica oleracea*" *Nature Communications* 7 (2016). *Nature Publishing Group*
Citations: 5, IF: 11.32, JCR Multidisciplinary Sciences 3/63 (Q1), Altmetric score: 50
- James K Hane, Yao Ming, Lars G Kamphuis, Matthew N Nelson, Gagan Garg, Craig A Atkins, **Bayer, Philipp E**, Armando Bravo, Scott Bringans, Steven Cannon, et al. "A comprehensive draft genome sequence for lupin (*Lupinus angustifolius*), an emerging health food: insights into plant-microbe interactions and legume evolution" *Plant biotechnology journal* 15.3 (2017) pp. 318–330

Citations: 6, IF: 6.09, JCR Plant Sciences 11/209 (Q1), Altmetric score: 15

Mark Barash, **Bayer, Philipp E**, and Angela van Daal “Candidate gene scan for Single Nucleotide Polymorphisms involved in the determination of normal variability in human craniofacial morphology” *bioRxiv* (2016) p. 060814. *Cold Spring Harbor Labs Journals*

Altmetric score: 9

HueyTyng Lee, Agnieszka A Golicz, **Bayer, Philipp E**, Yuannian Jiao, Haibao Tang, Andrew H Paterson, Gaurav Sablok, Rahul R Krishnaraj, Chon-Kit Kenneth Chan, Jacqueline Batley, et al. “The genome of a southern hemisphere seagrass species (*Zostera muelleri*)” *Plant Physiology* (2016) pp–00868. *American Society of Plant Biologists*

Citations; 3, IF: 6.28, JCR Plant Sciences 8/209 (Q1), Altmetric score: 6

Bayer, Philipp E “Genomics of Salinity” (2016) pp. 179–194. *Springer New York*

Paul Visendi, Paul J Berkman, Satomi Hayashi, Agnieszka A Golicz, **Bayer, Philipp E**, Pradeep Ruperao, Bhavna Hurgobin, Juan Montenegro, Chon-Kit Kenneth Chan, Helena Stařková, et al. “An efficient approach to BAC based assembly of complex genomes” *Plant methods* 12.1 (2016) p. 2. *BioMed Central*

IF: 3.4, JCR Plant Sciences 30/209 (Q1)

Annaliese S Mason, Mathieu Rousseau-Gueutin, Jérôme Morice, **Bayer, Philipp E**, Naghmeh Besharat, Anouska Cousin, Aneeta Pradhan, Isobel AP Parkin, Anne-Marie Chèvre, Jacqueline Batley, et al. “Centromere locations in brassica A and C genomes revealed through half-tetrad analysis” *Genetics* 202.2 (2016) pp. 513–523. *Genetics*

Citations: 8, IF: 4.6, JCR Genetics & Heredity 29/166 (Q1)

Bayer, Philipp E “Skim-Based Genotyping by Sequencing Using a Double Haploid Population to Call SNPs, Infer Gene Conversions, and Improve Genome Assemblies” *Plant Bioinformatics: Methods and Protocols* (2016) pp. 285–292. *Springer New York*

Bayer, Philipp E, Pradeep Ruperao, Annaliese S Mason, Jiri Stiller, Chon-Kit Kenneth Chan, Satomi Hayashi, Yan Long, Jinling Meng, Tim Sutton, Paul Visendi, et al. “High-resolution skim genotyping by sequencing reveals the distribution of crossovers and gene conversions in *Cicer arietinum* and *Brassica napus*” *Theoretical and Applied Genetics* 128.6 (2015) pp. 1039–1047. *Springer Berlin Heidelberg*

Citations: 14, IF: 3.9, JCR Agronomy 5/83 (Q1)

Agnieszka A Golicz, **Bayer, Philipp E**, and David Edwards “Skim-based genotyping by sequencing” *Plant Genotyping: Methods and Protocols* (2015) pp. 257–270. *Springer New York*

Citations: 6

Kaitao Lai, Michał T Lorenc, Hong Ching Lee, Paul J Berkman, **Bayer, Philipp E**, Paul Visendi, Pradeep Ruperao, Timothy L Fitzgerald, Manuel Zander, Chon-Kit Kenneth Chan, et al. “Identification and characterization of more than 4 million intervarietal SNPs across the group 7 chromosomes of bread wheat” *Plant biotechnology journal* 13.1 (2015) pp. 97–104

Citations: 17, IF: 6.09, JCR Plant Sciences 11/209 (Q1)

Boulos Chalhoub, France Denoeud, Shengyi Liu, Isobel AP Parkin, Haibao Tang, Xiyin Wang, Julien Chiquet, Harry Belcram, Chaobo Tong, Birgit Samans, et al. “Early allopolyploid evolution in the post-Neolithic *Brassica napus* oilseed genome” *Science* 345.6199 (2014) pp. 950–953. *American Association for the Advancement of Science*

Citations: 384, IF: 34.6, JCR Multidisciplinary Sciences 2/62 (Q1), Altmetric score: 175

Annaliese S Mason, Jacqueline Batley, **Bayer, Philipp E**, Alice Hayward, Wallace A Cowling, and Matthew N Nelson “High-resolution molecular karyotyping uncovers pairing between ancestrally related *Bras-*

sica chromosomes" *New Phytologist* 202.3 (2014) pp. 964–974. *Wiley Online Library*

Citations: 16, IF: 7.21, JCR Plant Sciences 5/209 (Q1)

Bastian Greshake, **Bayer, Philipp E**, Helge Rausch, and Julia Reda "OpenSNP—a crowdsourced web resource for personal genomics" *PLoS One* 9.3 (2014) e89204. *Public Library of Science*

Citations: 26, IF: 3.057, JCR Multidisciplinary Sciences 11/63 (Q1), Altmetric score: 61

Emanuela Dattolo, Jenny Gu, **Bayer, Philipp E**, Silvia Mazzuca, Ilia Anna Serra, Antonia Spadafora, Letizia Bernardo, Lucia Natali, Andrea Cavallini, and Gabriele Procaccini "Acclimation to different depths by the marine angiosperm *Posidonia oceanica*: transcriptomic and proteomic profiles" *Frontiers in plant science* 4 (2013) p. 195. *Frontiers*

Citations: 16, IF: 4.495, JCR Plant Sciences 15/209 (Q1)

experience

- 2017–Current **Hacky Hour Founder** UWA, Perth
Founded the Hacky Hour at UWA, a weekly get-together of researchers and staff working with programming and data, doubles as a help-desk for students with programming problems.
- 2017–Current **Mozilla Open Science Leadership mentor** UWA, Perth
Mentoring open source programmers and researchers on how to streamline and grow open source and open science projects under the umbrella of Mozilla.
- 2016–Current **EMBL-ABR Head of Nodes member, Open Science Special Interest Group member** UWA, Perth
EMBL-ABR is an Australian-wide network supporting the technical needs of life sciences researchers. Members of the group of Head of Nodes meet monthly to discuss the way forward for the organisation. The Open Science Special Interest Group meets bimonthly to discuss how EMBL-ABR can advance open science in Australia.
- 2016–Current **Postdoctoral researcher** UWA, Perth
Researching the genetics of complex plants with a focus on canola and wheat. Working closely with industry partners to improve their breeding programs. Preparing, writing, and publishing research. Currently supervising two interns, co-supervising four PhD students and one MSc student. Supervising the local computational infrastructure and data management. Assisting other researchers. Started and continue to run the group's journal club.
- 2013–Current **Software Carpentry and Data Carpentry instructor** Australia
Certified Software Carpentry and Data Carpentry instructor. Software Carpentry is a Mozilla/Alfred P. Sloan Foundation funded non-profit organization which teaches best programming practices (structured programming, reproducible research, version control etc.) in bootcamps to scientists around the world. Data Carpentry is a sister-organisation that focuses on teaching best data management practices.
- 2012–2012 **Research exchange** at Bayer CropScience Ghent, Belgium
For 4 weeks, worked on the assembly of the *Brassica napus* genome. Learned to work in a corporate science environment. Still regularly involved with Bayer CropScience and continue to collaborate with the company on many projects.
- 2011–Current **Co-founder openSNP.org** Germany/Australia
A project for costumers of genotyping companies like 23andMe to share their data with scientists around the world, for free. Partially wrote and still maintain the site's Ruby on Rails code-base, interact and manage with the community of 5000 users, administration of the site's servers, and supervision of contributors.

awards

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| 2014 | GRDC Travel Award \$4000 travel cost scholarship | GRDC |
| 2014 | SAFS Travel Award \$2500 travel cost scholarship | University of Queensland |
| 2011–2014 | Two postgraduate scholarships For the work on genotyping by sequencing, covers tuition and living costs. | University of Queensland |
| 2012 | First place in PLOS/Mendeley Binary Challenge Won first prize in a competition aimed towards the advancement of open science | Won with openSNP.org |
| 2009–2011 | Master IT 5x Top of class, 3x Vice-Chancellor's List for Academic Excellence, 1x IT Award Academic Excellence. Graduated with honours. Recipient of John Oglethorpe Medal for highest GPA of all IT students graduating that semester | Bond University |

teaching

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| 2017 | Teaching Software Carpentry Introduction to version control | Curtin University, Perth |
| 2017 | Teaching Software Carpentry Introduction to data manipulation using Python | Research Bazaar, Curtin University, Perth |
| 2016 | Teaching and hosting Data Carpentry Hosted, planned, and set up the first Data Carpentry workshop at UWA, taught best data management practices | UWA, Perth |
| 2016–Current | University teaching Co-teach and co-supervise SCIE4002, computational analysis for biology and biomedical MSc students. Set up and maintain the computational infrastructure needed for practicals. | UWA, Perth |
| 2016 | Teaching Software Carpentry Taught introduction to Python | Research Bazaar, Murdoch University, Perth |
| 2016 | Teaching and hosting Software Carpentry Hosted, planned, and set up the first Software Carpentry workshop at UQ. Taught introduction to programming. | UQ, Brisbane |
| 2013–2014 | Teaching Software Carpentry Assisted Software Carpentry bootcamp in Adelaide, taught basic to intermediate Python as well as documentation and assisted at bootcamp in Melbourne. | Adelaide/Melbourne |
| 2009–2011 | Tutoring Tutored students in Intro to Programming (Java), Database Management (Oracle/MySQL) and Networks & Applications, held several all-day refresher courses before exams | Bond University |

public speaking

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| 2017 | Presentation | COMBINE event, Perth |
| | Title: Towards better plant breeding at UWA | |
| 2017 | Presentation | Plant And Animal Genome conference, San Diego |
| | Title: Improving Plant Breeding using KNetMiner | |
| 2016 | Presentation | CCDM, Curtin University |
| | Title: Towards a canola pan-genome: cautionary tales from the assembly bench | |
| 2015 | Presentation | Plant And Animal Genome conference, San Diego |
| | Title: Assessing and validating the amphidiploid genome of <i>Brassica napus</i> using genotyping by sequencing | |
| 2014 | Presentation | University of Queensland, GenGen Seminar Series |
| | Title: Assembling and validating the genome of the <i>Brassica napus</i> using skim-based genotyping by sequencing | |
| 2013 | Poster | Plant And Animal Genome conference, San Diego |
| | Title: Genome Assembly Validation and Trait Association using Skim Based Genotyping by Sequencing in Canola | |
| 2012 | Presentation | 28th Chaos Communication Congress, Berlin |
| | Presented the work on openSNP, talked about the future of personal genomics and privacy implications | |