# Xabier Vázquez-Campos, PhD

Computational biologist | Environmental microbiologist

# **EDUCATION**

2015 2011

PhD in Environmental Engineering

The University of New South Wales

- Sydney, Australia
- · Thesis: "Geomicrobiological aspects of the (bio)leaching of weathered low-grade uranium ore". 60
- · Supervisors: Prof. T. David Waite, Prof. Brett A. Neilan.
- · Co-supervisors: Dr. Richard N. Collins. Dr. Andrew S. Kinsela.

2008 2007

### MSc in Microbiology

Autonomous University of Madrid

Madrid, Spain

- · Thesis: "Set-up of molecular ecology methodologies for the monitoring of microbial populations in an indirect reactor for the bioleaching of Zn from polymetallic sulfide concentrates" [in
- · Supervisor: Prof. Ricardo Amils.

2007 2002

## Licenciate in Biology

University of Vigo

♥ Vigo, Spain

- · 5 years degree (300 ECTS).
- · Equivalent to BSc in Biology and MSc in Biotechnology.

## RESEARCH EXPERIENCE

Current 2023

Research assistant (casual)

School of Biotechnology and Biomolecular Sciences

The University of New South Wales

2023

**Bioinformatics scientist** 

MINIMUM bio

Sydney, Australia

2023

Visiting fellow

School of Biotechnology and Biomolecular Sciences

The University of New South Wales

2022

Senior research associate / Postdoctoral fellow

NSW Systems Biology Initiative. School of Biotechnology and Biomolecular Sciences

The University of New South Wales

- · Bioinformatics support / consulting.
- · Consulting for the Ramaciotti Centre for Genomics, and its customers, esp. amplicon, metagenomics and Oxford Nanopore applications.

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# CONTACT

- **¥** XabiVC
- xvazquezc
- xvazquezc
- **in** LinkedIn
- R<sup>6</sup> ResearchGate
- **8** Google Scholar
- **(D)** 0000-0003-1134-5058
- **R** E-4772-2013

# **▼**COMPUTATIONAL **BIOLOGY**

- · Amplicon data analysis (16S, 18S and ITS).
- · Genome-based metagenomics.
- · Phylogenetics and phylogenomics with maximum likelihood methods.
- · Assembly and annotation of (meta)genomes, including eukaryotes.
- · Experience with short and long read data.
- · Structural modelling of proteins and protein complexes. Protein model evaluation.

## >\_ CODING SKILLS

- · Main languages: BASH and R. Some SQL and AWK.
- · Reproducible reporting with Rmarkdown.
- · Environment management with Conda.
- · Experienced HPC user.
- · Data visualisation and integration.

Made with the R package pagedown.

The source code is available on my datadrivency-academic repository.

Last updated on 2023-06-20.

2021 2017

### Research associate / Postdoctoral fellow

NSW Systems Biology Initiative. School of Biotechnology and Biomolecular Sciences

The University of New South Wales

- · Consulting for the Ramaciotti Centre for Genomics.
- · Collaborative bioinformatics reasearch as part of a team including the users of the Ramaciotti Centre for genomics.

2017 2015

#### Research associate / Postdoctoral fellow

BioGEMS group. Water Research Centre and School of Civil and **Environmental Engineering** 

The University of New South Wales

- · Study of microbial communities in a burial ground containing mixed radioactive waste (Pu, Am).
- · Metagenomics of and groundwater and soil. Reconstruction of microbial genomes from metagenomic data.
- · Management of the PC2 microbiology laboratory and management support for the Radiation laboratory.

2011

### Research assistant (casual)

BioGEMS group, School of Civil and Environmental Engineering The University of New South Wales

2011 2010

#### Research assistant

Bioprocesses Group, Faculty of Chemistry

University of Vigo

- · DRACORE project: DRAgado + COnfinamiento + REvalorización (Dredging + Containment + Revaluation).
- $\cdot$  Testing of heavy metal resistance; testing of aliphatic and polycyclic hydrocarbons as sole carbon sources and biodegradation; HPLC operation; microorganism isolation;...

2007 2006

#### Research assistant

Bioprocesses Group, Faculty of Chemistry

University of Vigo

· Introduction to research grant from the Spanish Science and Education Ministry.

2006

### Teaching assistant

Faculty of Biology

University of Vigo

- · Lecturer's support in the Bologna process.
- · Grant provider: University of Vigo.



# TEACHING EXPERIENCE



# Courses 2

2020

#### CVEN9855 - Water & Wastewater Analysis

School of Civil and Environmental Engineering.

The University of New South Wales

· Term 1. Section on microbiology of wastewater

# **♣** Invited Lectures

2012

Uranium heap leaching: Microbiological aspects

School of Civil and Environmental Engineering.

The University of New South Wales



2019

EMBL-ABR: Phylogenetic trees for beginners

EMBL-ABR (Sydney node).

The University of New South Wales

· Node organiser and facilitator.

EMBL-ABR: Implementing Scalable Bioinformatic Workflows in Snakemake & Nextflow

EMBL-ABR (Sydney node).

The University of New South Wales

· Facilitator.

2018

EMBL-ABR: 16S Metagenomics with Galaxy Australia

EMBL-ABR (Sydney node).

♥ University of Sydney

· Facilitator.

Long-read Data Analysis Workshop

NSW Systems Biology Initiative.

The University of New South Wales

· Organiser, trainer, facilitator.

2011

Hands on Zotero, a free alternative to EndNote

Bioprocesses group.

University of Vigo

- · Organiser, sole trainer.
- · Group's internal workshop.

# **Supervision**

Current 2019

**Kevin Yonathan** 

PhD. Role: External supervisor.

University of Technology, Sydney

Study of the response of microbial communities to silver nanoparticles through metagenomics.

I have also informally supervised, supported, mentored, or collaborated with a total of 21 students across multiple levels (1 Course project, 7 Honours, 12 PhD, and 1 Practicum).



## GRANTS

2021 2020 Bioplatforms Australia / NSW Department of Industry RAAP -NCRIS NSW Co-investment Support Shared Grant

School of Biotechnology and Biomolecular Sciences / Ramaciotti Centre for Genomics at The University of New South Wales

- · Total amount: AU\$600,000
- · Role: investigator. Cl: Prof. Marc Wilkins

BABS sequencing grant 2020 Investigation of a phage capable of species cross-infection School of Biotechnology and Biomolecular Sciences / Ramaciotti Centre for Genomics at The University of New South Wales · AU\$5,000 for sequencing · Role: co-Cl with Dr. Dragica Damnjanović and Dr. Melissa Harvey **ResTech Support Scheme** 2020 OTUreporter pipeline coding project 2019 The University of New South Wales · AU\$15.000 · Role: project lead. Cl: Prof. Marc Wilkins Postdoctoral writing Fellowship Grant 2015 School of Civil and Environmental Engineering at The University of New South Wales · 0.4 FTE salary for 12 weeks **UNSW Tuition fee scholarship** 2015 Graduate Research School at The University of New 2011 South Wales · Tuition fees for PhD program · Supervisors: Prof. T. David Waite and Prof. Brett A. Neilan Australian Postgraduate Award (Industry) 2015 • Australian Federal Government 2011 · AU\$27,651.00 per year for 3.5 years · Supervisors: Prof. T. David Waite and Prof. Brett A. Neilan **AWARDS** SRAP Laureate 2020 2020 Spanish Researchers in Australia-Pacific TRAINING AND PROFESSIONAL DEVELOPMENT I have completed about 90 h of *Courses* training in courses and workshops in the last two years Differential Expression Analysis with limma in R 2022 alone. **Q** Online DataCamp. R Programming - Skill Track (updated) Online DataCamp. Importing & Cleaning Data with R - Skill Track Online DataCamp. Data manipulation with R - Skill Track Online DataCamp.

|      | • | <b>Data Visualization with R - Skill Track</b> DataCamp.  | <b>♥</b> Online |
|------|---|---|-----------------|
| 2021 | • | Intermediate Tidyverse Toolbox Track - Skill Track DataCamp.  | <b>♥</b> Online |
| 2020 | • | <b>SQL Fundamentals - Skill Track</b> DataCamp.   | <b>♥</b> Online |
|      |   | <b>R Programming – Skill Track</b> DataCamp.  | <b>♥</b> Online |
|      |   | <b>Python Fundamentals - Skill Track</b> DataCamp.  | <b>♥</b> Online |
|      |   | <b>Tidyverse Fundamentals with R - Skill Track</b> DataCamp.  | <b>♥</b> Online |
| 2018 |   | Introduction to Git for Data Science DataCamp.  | <b>♥</b> Online |
|      | • | <b>Jekyll: make fast, secure static sites and blogs with Jekyll</b> Udemy.                            | <b>♥</b> Online |
| 2016 | • | <b>Introduction to Python for Data Science (DAT208x)</b> Microsoft.                                   | <b>♥</b> Online |
|      |   | Introduction to R for Data Science (DAT204x) Microsoft.   | <b>♥</b> Online |
| 2015 |   | <b>Astrobiology and the Search for Extraterrestrial Life</b> The University of Edinburgh.             | <b>♥</b> Online |
|      | • | HTML & CSS Codecademy.  | <b>♥</b> Online |
|      | • | <b>Introduction to Genomic Technologies</b> Johns Hopkins University.                                 | <b>♥</b> Online |
|      | • | Workshops   |                 |
| 2021 |   | Viral metagenomics with Hecatomb ABACBS2021 Conference.   | <b>♥</b> Remote |
|      |   | Using containers in bioinformatics Australia BioCommons.  | <b>♥</b> Remote |
|      | • | <b>Path Forward for Naming the Uncultivated</b> SeqCode2021 committee.                                | <b>♥</b> Remote |
| 2018 | • | JAMS 2018 TOAST Workshop  Joint Academic Microbiology Seminars.  ◆ University of Technology, Seminary | ydney, AUS      |

Resolving Microbial Communities At Strain-Level Resolution **♀** University of Exeter, GBR A. Murat Eren et al.. Genome annotation using Apollo 2017 Remote Monica Munoz-Torres / EMBL-ABR. The Omics Analysis Sydney Tutorial (TOAST) 2016 Joint Academic Microbiology Seminars. Australian Museum, Sydney, AUS Anvi'o workshop University of Montreal, CAN A. Murat Eren et al.. Bioinformatics for microbial ecology and genomics 2015 Australian Society for Microbiology. • Australia National University, Canberra, AUS **PUBLICATIONS** Under Review Effect of standardized ginger root powder on gastrointestinal 2022 bacteria composition, gastrointestinal symptoms, mental health, fatigue, and quality of life: A double-blind placebo-controlled trial Journal of the Academy of Nutrition and Dietetics, JANDJRL-S-22-00854. M. Crichton, S. Marshall, W. Marx, E. Isenring, X. Vázquez-Campos, S. L. Dawson & A. Lohning. Journal Articles Cross-linking mass spectrometry discovers, evaluates, and 2023 corroborates structures and protein-protein interactions in the human cell

Proceedings of the National Academy of Sciences 120(17), e2219418120. <sup>♠</sup>

T. K. Bartolec, X. Vázquez-Campos, A. Norman, C. Luong, M. Johnson, R. J. Payne, M. R. Wilkins, J. P. Mackay & J. K. Low.

Evidence for a putative isoprene reductase in *Acetobacterium* wieringae

mSystems 8(2), e00119-23. 49

2022

M. Kronen, **X. Vázquez-Campos**, M. R. Wilkins, M. Lee & M. J. Manefield.

 Contaminant release, mixing and microbial fluctuations initiated by infiltrating water within a replica field-scale legacy radioactive waste trench

Science of The Total Environment 851(Part 1), 158241.

A. S. Kinsela, T. E. Payne, M. W. Bligh, **X. Vázquez-Campos**, M. R. Wilkins, M. J. Comarmond, B. Rowling & T. D. Waite.

Metaproteomics reveals methyltransferases implicated in dichloromethane and glycine betaine fermentation by 'Candidatus Formimonas warabiya' strain DCMF

Frontiers in Microbiology 13, 1035247.

S. I. Holland, X. Vázquez-Campos, E. Haluk, R. J. Edwards, M. J. Manefield & M. Lee.

The interplay between use of biological therapies, psychological state, and the microbiome in IBD

Frontiers in Medicine 9, 788992.

P. Tavakoli, U. Vollmer-Conna, D. Hadzi-Pavlovic, **X. Vázquez-Campos** & M. C. Grimm.

• Characterisation of bacteriophage vB\_SmaM\_Ps15 infective to Stenotrophomonas maltophilia clinical ocular isolates

Viruses 14(4), 709.

D. Damnjanović, **X. Vázquez-Campos**, L. Elliot, M. Willcox & W. J. Bridge.

Genomic insights into the *Archaea* inhabiting an Australian radioactive legacy site

Frontiers in Microbiology 12, 732575.

X. Vázquez-Campos, A. S. Kinsela, M. W. Bligh, T. E. Payne, M. R. Wilkins & T. D. Waite.

Biogeochemical mobility of contaminants from a replica radioactive waste trench in response to rainfall-induced redox oscillations

Environmental Science & Technology 55(13), 8793-8805.

A. S. Kinsela, M. W. Bligh, **X. Vázquez-Campos**, Y. Sun, M. R. Wilkins, M. J. Comarmond, B. Rowling, T. E. Payne & T. D. Waite.

Biocrust cyanobacterial composition, diversity, and environmental drivers in two contrasting climatic regions in Brazil

Geoderma 386, 114914. 🍪

N. M. Machado de Lima, M. Muñoz-Rojas, **X. Vázquez-Campos** & L. H. Branco.

• Community-led, integrated, reproducible multi-omics with anvi'o

Nature Microbiology 6(1), 3-6.

A. M. Eren, E. Kiefl, A. Shaiber, I. Veseli, S. E. Miller, M. S. Schechter, I. Fink, J. N. Pan, M. Yousef, E. C. Fogarty, F. Trigodet, A. R. Watson, Ö. C. Esen, R. M. Moore, Q. Clayssen, M. D. Lee, V. Kivenson, E. D. Graham, B. D. Merrill, A. Karkman, D. Blankenberg, J. M. Eppley, A. Sjödin, J. J. Scott, X. Vázquez-Campos, L. J. McKay, E. A. McDaniel, S. L. Stevens, R. E. Anderson, J. Fuessel, A. Fernandez-Guerra, L. Maignien, T. O. Delmont & A. D. Willis.

2021

2020 • Shed Light in the DaRk LineagES of the Fungal Tree of Life—STRES

2018

2015

Life 10(12), 362.

L. Selbmann, Z. Benkő, C. Coleine, S. de Hoog, C. Donati, I. Druzhinina, T. Emri, C. L. Ettinger, A. S. Gladfelter, A. A. Gorbushina, I. V. Grigoriev, M. Grube, N. Gunde-Cimerman, Z. Á. Karányi, B. Kocsis, T. Kubressoian, I. Miklós, M. Miskei, L. Muggia, T. Northen, M. Novak-Babič, C. Pennacchio, W. P. Pfliegler, I. Pòcsi, V. Prigione, M. Riquelme, N. Segata, J. Schumacher, E. Shelest, K. Sterflinger, D. Tesei, J. M. U'Ren, G. C. Varese, X. Vázquez-Campos, V. A. Vicente, E. M. Souza, P. Zalar, A. K. Walker & J. E. Stajich.

Bacteriophage genotyping using BOXA repetitive-PCR

BMC Microbiology 20, 154.

D. Damnjanovic, **X. Vázquez-Campos**, D. L. Winter, M. Harvey & W. J. Bridge.

 Disentangling the drivers of functional complexity at the metagenomic level in Shark Bay microbial mat microbiomes

The ISME Journal 12, 2619-2639.

H. L. Wong, R. A. White III, P. T. Visscher, J. C. Charlesworth, **X. Vázquez-Campos** & B. P. Burns.

• Response of microbial community function to fluctuating geochemical conditions within a legacy radioactive waste trench environment

Applied and Environmental Microbiology 83(17), e00729.

X. Vázquez-Campos, A. S. Kinsela, M. Bligh, J. J. Harrison, T. E. Payne & T. D. Waite.

Uranium extraction from a low-grade, stockpiled, non-sulfidic ore:
 Impact of added iron and the native microbial consortia

Hydrometallurgy 167, 81-91.

X. Vázquez-Campos, A. S. Kinsela, R. N. Collins, B. A. Neilan & T. D. Waite.

• Uranium binding mechanisms of the acid-tolerant fungus *Coniochaeta fodinicola* 

Environmental Science & Technology 49(14), 8487-8496.

X. Vázquez-Campos, A. S. Kinsela, R. N. Collins, B. A. Neilan, N. Aoyagi & T. D. Waite.

• Acidotolerant genus *Fodinomyces* (Ascomycota: *Capnodiales*) is a synonym of *Acidiella* 

Czech Mycology 67(1), 37-38.

M. Kolařík, M. Hujslová & X. Vázquez-Campos.

Fodinomyces uranophilus gen. nov. sp. nov. and Coniochaeta 2014 fodinicola sp. nov., two uranium mine inhabiting Ascomycota fungi from northern Australia Mycologia 106(6), 1073-1089. X. Vázquez-Campos, A. S. Kinsela, T. D. Waite, R. N. Collins & B. A. Neilan. Isolation of novel benzo[a]anthracene-degrading microorganisms 2012 and continuous bioremediation in an expanded-bed bioreactor Bioprocess and Biosystems Engineering 35(5), 851-855. E. Rosales, A. Pérez-Paz, X. Vázquez, M. Pazos & M. Sanromán. Technical Reports A WHO collaborative study to evaluate the candidate 1st WHO 2022 International Reference Reagents for Gut Microbiome analysis by **Next-Generation Sequencing** C. Sergaki, S. Anwar, J. Hassall, A. Logan, P. Rigsby, S. Rijpkema, G. Amos & . study participants. WHO Publication, p. 63. Biogeochemical controls of uranium heap leaching 2015 A. Kinsela, X. Vázquez-Campos, R. Collins, B. Neilan & T. Waite. Project Completion Report to ERA, p. 87. CONFERENCE CONTRIBUTIONS 🗗 Oral Presentations Unusual DPANN Archaea from a radioactive legacy site 2019 Australian Microbial Ecology Conference (AusME 2019). 💩 Perth, WA, Australia X. Vázquez-Campos, A. S. Kinsela, M. W. Bligh, M. R. Wilkins, T. E. Payne & T. D. Waite. Metagenomic and geochemical changes following rainfall at a legacy 2017 radionuclide waste disposal site Australian Microbial Ecology Conference (AusME 2017). 💩 Melbourne, VIC, Australia X. Vázquez-Campos, A. S. Kinsela, T. E. Payne & T. D. Waite. The isolation of fungi from low-pH, high ionic strength uranium 2012 mine process water

6th International Symposium on Biohydrometallurgy. 💩

X. Vázquez-Campos, A. Kinsela, B. Neilan, R. Collins & T. Waite.

Falmouth, UK

# **2** Posters

2019 • OTUreporter: amplicon to report in a single command

Joint 30th International Conference on Genome Informatics (GIW) & Australian Bioinformatics and Computational Biology Society (ABACBS) Annual Conference (GIW/ABACBS 2019). 

• Sydney, NSW, Australia

X. Vázquez-Campos, D. McFarlane, A. M. Chilton, J. R. Koval & M. R. Wilkins.

OTUreporter: an automated pipeline for the analysis and report of amplicon sequencing data

ABACBS-2018 National Conference.

Melbourne, VIC, Australia

X. Vázquez-Campos, A. Chilton, J. Koval, J. J. Tree & M. R. Wilkins.

New Archaea lineages from a radioactive legacy site

Molecular biology of archaea: From mechanisms to ecology (MoBA6).

Vienna, Austria

X. Vázquez-Campos, A. S. Kinsela, M. W. Bligh, M. R. Wilkins, T. E. Payne & T. D. Waite.

OTUreporter: a modular automated pipeline for the analysis and report of amplicon data

X. Vázquez-Campos, A. Chilton, J. Koval, J. J. Tree & M. R. Wilkins.

2017 Phylogenomics of a radioactive legacy site reveals new Archaea phyla of unknown function

Sydney Bioinformatics Research Symposium 2017. 

◆ Sydney, NSW, Australia

**X. Vázquez-Campos**, A. S. Kinsela, M. R. Wilkins, T. E. Payne & T. D. Waite.

Rainfall-mediated biogeochemical changes at a legacy radionuclide waste disposal site

X. Vázquez-Campos, A. S. Kinsela, J. J. Harrison, K. Wilsher, S. Thiruvoth, B. Rowling, T. E. Payne & T. D. Waite.

Biogeochemical changes during experimental column leaching of a weathered uranium composite

15th International Symposium on Microbial Ecology (ISME15).

© Seoul, South Korea

X. Vázquez-Campos, A. Kinsela, T. Waite, R. Collins & B. Neilan.

# Co-Authored Contributions

2014

Contributed abstracts presented by co-authors at conferences.

2022

Exploring the human structural proteome, complexome and interactome with deep, large-scale crosslinking mass spectrometry

27th Annual Lorne Proteomics Symposium.

• Lorne, VIC, Australia

T. K. Bartolec, M. Johnson, A. Hawken, A. Norman, R. J. Payne, X. Vázquez-Campos, M. R. Wilkins, J. P. Mackay & J. K. Low.

2020

Nanosilver in the aquatic environment: impact on microbial communities

22nd EMBL PhD Symposium "The Roaring 20s: A New Decade for Life Sciences".

**♀** EMBL Heidelberg, Germany

K. Yonathan, X. Vázquez-Campos, R. Mann, K. R. Mahbub & C. Gunawan.

2019

The impact of repeated redox cycling events on the biogeochemistry of a simulated legacy radioactive waste trench

17th International Conference on the Chemistry and Migration Behaviour of Actinides and Fission Products in the Geosphere. **♀** Kyoto, Japan

A. S. Kinsela, M. W. Bligh, X. Vázquez-Campos, T. D. Waite, T. E. Payne, M. J. Comarmond & B. Rowling.

2018

Microbial profiling of the Himalayan Puga geothermal system: towards an astrobiological model

Astrobiology Australasia Conference 2018.

• Rotorua, New Zealand

A. M. Chilton, X. Vázquez-Campos, L. Steller, T. Djokic & M. J. Van Kranendonk.

2017

Understanding oat stem rust pathogen genome by PacBio sequencing

Sydney Bioinformatics Research Symposium 2017.

Sydney, NSW, Australia

C. Dong, X. Vázquez-Campos, N. Deshpande, P. Zhang, M. R. Wilkins & R. F. Park.

# 🔁 INVITED TALKS

2019

Current trends in academia: online presence, community service and openness

Water Research Centre research seminar series.

• Water Research Centre, Kensington, Australia

2017

Assembly and annotation of Puccinia graminis f. sp. avenae, 'oat stem rust'. Lessons about the process and some results

Invited talk at the Plant Breeding Institute.

Plant Breeding Institute, Cobbitty, Australia

Metagenomic and geochemical changes following rainfall at a legacy radionuclide waste disposal site

Joint Academic Microbiology Seminars (JAMS). @

Sydney, Australia

# SERVICE

#### Institutional Service

- · University of New South Wales
- Postgraduate student representative at the OH&S Committee of the School of Civil and Environmental Engineering (2013–2015).

### Professional Affiliations

- · American Society for Microbiology
- · Regular member (2015–Current).
- · Australian Bioinformatics and Computational Biology Society
- · Regular member (2018–Current).
- · Australian Society for Microbiology
- · Regular member (2015–Current).
- · International Society for Microbial Ecology
- · Regular member (2014–Current).
- · Spanish Researchers in Australia-Pacific
- · Co-founder (2014).
- · Board member and web/IT coordinator (2014–2020).
- · Regular member (2021–Current).

# Conferences

- · Australian Microbial Ecology conference 2022 (AusME2022)
- · Plenary chair and poster judge (2022).
- · 6th Australia-Spain Research Forum: Big Data
- · Event registration (2020).
- · 5th Australia-Spain Research Forum: 5 years Bridging Australia and Spain in Research and Academia
- · Website (2019).
- · 4th Australia-Spain Research Forum: Earth
- · Website (2018).
- · 3rd Australia-Spain Research Forum: Air
- $\cdot$  Website and event registration (2017).
- · 2nd Australia-Spain Research Forum: Light
- · Website (2016).
- · Australia-Spain Water Forum
- · Website and event photography (2015).

## Peer Reviews

Reviewer for >10 different journals since 2016, including leading journals in their own fields, e.g., *Astrobiology, Environmental Science and Technology*, or *Microbiome*.

For a full record as reviewer, consult my public ResearcherID profile.