MARIA IZABEL CAVASSIM ALVES

Bioinformatician; focus in Population Genetics and Evolution

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EXPERIENCE

💼 Postdoctoral Researcher
Dpt. of Ecology and Evolutionary Biology, UCLA

📅 01/11/2020   📍 Los Angeles, CA, USA

- The impact of dominance on the distribution of fitness effects.
- Supervisor: Kirk Lohmueller

📖 Teaching Assistant
Science and Technology, Aarhus University

📅 2016 – 2020   📍 Aarhus, Denmark

- Next Generation Sequencing
- Tree of life 1 and 2 (developed material)
- Learning from Genome Data
- Genome Variation and Human Health
- Population genetics on genomes (developed material)

✈ Visiting PhD Student
deCODE genetics

📅 09/2018   📍 Reykjavik, Iceland

- Project: Development of *de novo* mutation variant calling pipeline using Graphtyper.
- Supervisor: Mikkel Schierup and Agnar Helgason

✈ Visiting Research Scholar
Dpt. of Biological Sciences, Columbia University

📅 01 – 07/2019   📍 New York, NY, USA

- Project: The evolution and co-evolution of PRDM9 directed recombination across vertebrates.
- Supervisor: Molly Przeworski

PROJECTS

The QCBio Collaboratory
UCLA

📅 Since August 2021

Providing computational research support to projects initiated by experimentalists at UCLA while also training researchers in Bioinformatics and population genetics.

The stdpopsim Consortium
UCLA, University of Oregon, University of Arizona

📅 Since November 2020

Contributing to the development of a standard library of population genetic models.

EDUCATION

🎓 PhD in Bioinformatics
Bioinformatics Research Centre, Aarhus University

📅 07/2016 – 10/2020   📍 Aarhus, Denmark

- In-depth experience with population genetics (applied to bacteria and vertebrates).
- Thesis title: Recombination and horizontal gene transfer through the lens of phylogenomics and comparative genomics
- Co-supervisors: Mikkel H. Schierup and Stig U. Andersen

🎓 Masters in Bioinformatics
Bioinformatics Research Centre, Aarhus University

📅 08/2015 – 06/2018   📍 Aarhus, Denmark

- Thesis title: Population genetics of *Rhizobium leguminosarum* bv. *trifolii*
- Supervisors: Mikkel Schierup and Stig U. Andersen

✈ Stay abroad (Undergrad)
Department of Computer Science, Royal Institute of Technology

📅 01 – 07/2014   📍 Stockholm, Sweden

- Courses: Bionanothecnology; Energy and Environment; Omic Data and System Biology; Algorithmic Bioinformatics

🎓 Bachelor in Agriculture Engineering
Escola Superior de Agricultura Luiz de Queiroz, University of São Paulo

📅 2011 – 2015   📍 São Paulo, Brazil

- Thesis title: Kinship coefficient calculation in a panel of 141 sugarcane genotypes using SNPs
- Supervisors: Antonio Augusto Franco Garcia

KEY SKILLS

Pop. Genetics   Data Analysis   Evolution   Bioinformatics   Recombination   Creative   Independent   Social   Hard-working

PUBLICATIONS

📄 Journal Articles and Preprints

- Cavassim, M. I. A., Andersen, S. U., Bataillon, T., & Schierup, M. H. (2021). Recombination Facilitates Adaptive Evolution in Rhizobial Soil Bacteria. *Molecular Biology and Evolution*.
- Cavassim, M. I. A., Baker, Z., Hoge, C., Schierup, M. H., Schumer, M., & Przeworski, M. (2021). Prdm9 losses in vertebrates are coupled to those of paralogs zcwpw1 and zcwpw2. *bioRxiv*.
- Young, J. P. W., Moeskjær, S., Afonin, A., Rahi, P., Maluk, M., James, E. K., … Perry, B. J., et al. (2021). Defining the rhizobium leguminosarum species complex. *Genes*, *12*(1), 111.
- Cavassim, M. I. A., Moeskjær, S., Moslemi, C., Fields, B., Bachmann, A., Vilhjálmsson, B. J., … Andersen, S. U. (2020). Symbiosis genes show a unique pattern of introgression and selection within a rhizobium leguminosarum species complex. *Microbial genomics*, *6*(4).
- Skov, L., Macià, M. C., Lucotte, E., Cavassim, M. I. A., Castellano, D., Mailund, T., … Munch, K. (2018). Strong selective sweeps before 45,000 bp displaced archaic admixture across the human x chromosome. *bioRxiv*, 503995.

ACADEMIC EXPERIENCE

Population Genetics Summer course
08/2018

📍 University of Copenhagen, Denmark

Analyses of genotyping and sequencing data in medical and population genetics

Statistical Genetics Summer Institute
07/2017

📍 Uni. of Washington, Seattle, USA

- Association Mapping
- Mixed Modules in Quantitative Genetics
- GWAS and Sequencing Data
- Integrative Genomics

Computational Genomics Summer Institute
07/2017

📍 UCLA, Los Angeles, CA, USA

SCHOLARSHIPS

🏆 **Scholarship (Undergrad)**
2014, University of São Paulo, Piracicaba, Brazil

Full 6 months scholarship based on academic performance to study abroad (Sweden).

🏆 **Tuition waiver and scholarship (Masters)**
2015, Aarhus University, Aarhus, Denmark

Full tuition waiver and scholarship to follow the Masters degree programme in Bioinformatics.
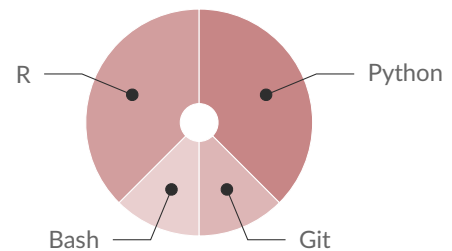
🏆 **Other scholarships (PhD)**
2017-2020, Aarhus University, Aarhus, Denmark

- 800 USD of financial support to participate at SMBE -2017 (Oticon)
- 2970 USD of financial support to research abroad - 2019 (GSST)

PRESENTATIONS

- The genomic architecture of introgression among sibling species of *Rhizobium leguminosarum*, **European Nitrogen Fixation Conference, Stockholm, Sweden**, 07/2018
- The evolution and co-evolution of PRDM*9* across vertebrates, **QCBio Research Seminar, UCLA, USA**, 02/2021

CODING EXPERIENCE

LANGUAGES

Portuguese	●●●●●
English	●●●●●
Spanish	●●●○○
Danish	●●●○○

VOLUNTEERING

Portuguese language café coordinator
KTH, Royal Institute of Technology

🗓 2014   📍 Stockholm, Sweden

Genetics Dpt. student representative
University of São Paulo

🗓 2014   📍 Piracicaba, Brazil

Youth Goodwill Ambassador of Denmark
Aarhus University

🗓 2017   📍 Aarhus, Denmark

REFEREES

Prof. Mikkel Schierup
@ Aarhus University, Bioinformatics Research Centre
✉ mheide@birc.au.dk

Prof. Molly Przeworski
@ Columbia University, Dept of Biological Sciences
✉ mp3284@columbia.edu

Prof. Thomas Bataillon
@ Aarhus University, Bioinformatics Research Centre
✉ tbata@birc.au.dk