Pedro Carvalho

Geneticist, Bioinformatician, Developer

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SKILLS

Bioinformatics	Cytogenetics	Molecular Genetics
●●●●●	●●●●○	●●●●○
Python	**Data Analyst**	**R**
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- **Bioinformatics:** Sequencing (RNA-seq), spatial transcriptomics, systems biology, assembly of genomes and transcriptomes, microtranscriptome analysis, alignment, phylogeny, processing and management of biological data
- **Molecular Genetics:** Sequencing, genotyping
- **Cytogenetics:** Fluorescent Hybridization
- **English proficiency:** Scoring 627 (C1) by TOEFL-ITP Level 1
- **Cloud:** AWS, Azure
- **Others:** C++, HTML, CSS, SQL, JavaScript, Bash, Groovy, Kotlin, Docker, Conda, Nextflow, Snakemake, Son of Grid Engine (SGE), Portable Batch System (PBS)

WORK EXPERIENCE

PhD Scholarship 2023 – **Current**

Universidade de São Paulo

- Plant Breeding Laboratory of the Center of Nuclear Energy in Agriculture of the Luiz de Queiroz College of Agriculture - Universidade de São Paulo (LAMP/CENA/ESALQ-USP)
- Grant by São Paulo Research Foundation (FAPESP)
- Grant by Coordination of Improvement of Higher Education Personnel (CAPES)

RIA-FAPESP Doctorate Internship 2025 - 2026

The University of Queensland (Australia)

- Queensland Alliance for Agriculture and Food Innovation (Brisbane, Australia)

- Grant by Scholarships abroad - Research Internship - Doctorate - São Paulo Research Foundation (RIA-FAPESP)

Reviewer 2023 – 2026
Journal Human Gene

- ISSN: 2773-0441

Reviewer 2023 – 2026
Journal Gene

- Online ISSN: 1879-0038P
- Print ISSN: 0378-1119

Master's Scholarship 2018 – 2020
Universidade Estadual de Campinas

- Human Cytogenetics Laboratory in the Department of Translational Medicine of the Faculty of Medical Sciences of the Universidade Estadual de Campinas (LCH/DM/FCM-UNICAMP)
- Grant by São Paulo Research Foundation (FAPESP)
- Grant by Coordination of Improvement of Higher Education Personnel (CAPES)
- Grant by Teaching, Research and Extension Support Fund (FAEPEX)

RIA-FAPESP Masters Internship 2017
Universitätsklinikum Jena (Germany)

- Molecular Cytogenetics Laboratory at Universitätsklinikum Jena (Jena, Germany)
- Grant by Scholarships abroad - Research Internship - Scientific Initiation - São Paulo Research Foundation (RIA-FAPESP)

Scientific Initiation Scholarship 2016 - 2017
Universidade Federal de São Carlos

- Fish Cytogenetics Laboratory of the Department of Genetics and Evolution in the Center for Biological and Health Sciences of the Universidade Federal de São Carlos (LCP/DGE/CCBS-UFSCar)
- Grant by São Paulo Research Foundation (FAPESP)

EDUCATION

PhD in Agronomy (Genetics and Plant Breeding) 2023 – **Current**
Universidade de São Paulo

- Grant by São Paulo Research Foundation (FAPESP)

- Grant by Coordination of Improvement of Higher Education Personnel (CAPES)

Master of Science (Medical Genetics) 2018 - 2020
Universidade Estadual de Campinas

- Grant by São Paulo Research Foundation (FAPESP)
- Grant by Coordination of Improvement of Higher Education Personnel (CAPES)
- Grant by Teaching, Research and Extension Support Fund (FAEPEX)

Bachelor of Science in Biological Sciences 2013 - 2017
Universidade Federal de São Carlos

- Grant by São Paulo Research Foundation (FAPESP)
- Grant by Scholarship abroad (RIA-FAPESP) as a Researcher at the Molecular Cytogenetics Laboratory at Universitätsklinikum Jena (Jena, Germany)

DEVELOPMENT

Poly Pipeline 2026

- A data analysis pipeline for STOmics data tailored to polyploid organisms

NCBI Database Analysis 2025

- Complete meta-analysis of NCBI SRA database for sugarcane under water deficit

Protein To Position Pipeline (PTPP) 2025

- A pipeline developed for the analysis of chromosome position of target protein sequences

Nextflow pipeline for sequencing data 2024

- Nextflow pipeline collaboration for sequencing data analysis automation

Investment Android APP 2024

- Development of Android APP Cafinvest

Investment Website 2022

- Development of website Cafinvest

RNA-seq pipeline 2021

- Development of RNA-seq data analysis pipeline

MacroTrends Scraping 2021

- Development of financial data scraping tool

PUBLICATIONS

- Carvalho, P. C., Millsteed, T., and Henry, R. J. (2026). Spatial transcriptomics uncovers exclusive functions of wheat seed tissues, and crease-specific expression of milling quality associated genes with fasciclin-like arabinogalactan proteins.*Food Chemistry*.
- Carvalho, P. C., Bombardelli, R. G. H., Contiliani, D. F., Creste, S., Monteiro-Vitorello, C. B., and Figueira, A. (2026). Candidate gene prioritization through integration of public transcriptomic data and network analysis in sugarcane under water deficit.*Frontiers in Plant Science*.
- Carvalho, P. C., Millsteed, T., & Henry, R. J. (2026). Poly pipeline: a polyvalent spatial transcriptomics workflow validated across polyploid and diploid organisms. *Gigabyte*.
- Carvalho, P. C., Sgardioli, I. C., Bonadia, L. C., Spineli-Silva, S., Viguetti-Campos, N. L., Gil-da-Silva-Lopes, V. L., & Vieira, T. P. (2021). Further evidence for lack of association of PRDM9 polymorphisms and 22q11.2 deletion syndrome. *Meta Gene, 29*, 100927.
- Carvalho, P. C., De Oliveira, E. A., Bertollo, L. A., Yano, C. F., Oliveira, C., Decru, E., ... & Cioffi, M. D. B. (2017). First chromosomal analysis in Hepsetidae (Actinopterygii, Characiformes): Insights into relationship between African and Neotropical fish groups. *Frontiers in genetics, 8*, 203.
- Carvalho, P. C., Contiliani, D., Bombardelli, R. G. H., Creste, S. A., Monteiro-Vitorello, C. B., Figueira, A. V. de O. (2025). The 'Sweet Thirsty Spider': Building a Drought-Related Sugarcane Gene Network. In Proceedings of the 21st Brazilian Congress on Bioinformatics (X-Meeting)
- Carvalho, P. C., Bombardelli, R. G. H., Monteiro-Vitorello, C. B., & Figueira, A. V. de O. (2023). Standardization of Transcriptome Analysis Improves Gene Selection for Sugarcane (Saccharum spp.) Breeding. In *XXII Interunit Graduate Program in Bioinformatics Workshop - USP | 2023* - Abstract Book (p. 12–12). Zenodo.
- Carvalho P. C., Vieira T. A. P., Melaragno M. I., Maciel-Guerra A. T., Campinas UE de. (2020). Investigação de fatores de susceptibilidade à deleção 22q11.2. UNICAMP.
- Carvalho, P. C.; Vieira, T. A. P. ; Campos, N. L. V. ; Spineli Silva, S. ; Sgardioli, I. C. ; Gil Da Silva Lopes, V. L. . Fatores de susceptibilidade à microdeleção 22q11.2: Investigação da origem parental: Resultados preliminares. In: *VI Reunião Brasileira de Citogenética e Citogenômica, 2020*, Goiânia. Anais da VI Reunião Brasileira de Citogenética e Citogenômica, 2020.
- Carvalho P. C., Cioffi M. B., Oliveira E. A. . (2017). Inter-relações evolutivas da família Erythrinidae (Teleostei, Characiformes). IV. Citogenética comparativa na família Hepsetidae. UFSCAR.
- Carvalho, P. C.; Hatanaka, T. ; Oliveira, E. A. ; Bertollo, Luiz A. C. ; Jegede, Oladele I. ; Cioffi, M. B. . Inter-relações evolutivas da família Erythrinidae (Teleostei, Characiformes).

Citogenética comparativa na família Hepsetidae. In: *GENÉTICA 2017 - Brazilian-International Congress of Genetics*, 2017, Águas de Lindóia. Resumos do GENÉTICA 2017.

- Carvalho, P. C.; Oliveira, A. ; Silva-Santos, R. . Uma doce parceria. *Temas Atuais em Biologia*, 2017.
- Carvalho, P. C.; Hatanaka, T. ; Oliveira, E. A. ; Bertollo, L. A. C. ; Jegede, O. ; Cioffi, M. B. . Inter-relações evolutivas da família Erythrinidae (Teleostei, Characiformes). Citogenética comparativa na família Hepsetidae. In: *XVII Simpósio de Citogenética e Genética de Peixes*, 2016, São Carlos. Anais do XVII Simpósio de Citogenética e Genética de Peixes, 2016.
- Freitas, P. D. ; Galetti Junior, P. M. ; Bertollo, Luiz A. C. ; Cioffi, M. B. ; Moreira Filho, O. ; Marques, C. G. ; Silva, C. B. M. ; Blanck, D. V. ; Malaver, J. L. R. ; Santos, R. ; Sember, A. ; Yano, C. F. ; Oliveira, E. A. ; Barby, F. F. ; Freitas, N. L. ; Carvalho, Pedro C. ; Moraes, R. L. R. ; Hatanaka, T. ; Lopes, U. C. . *XVII Simpósio de Citogenética e Genética de Peixes*, 2016.