EDUARDO DA VEIGA BELTRAME

I am a brazilian scientist with a wide range of technical and leadership experiences.
I love working in a creative team environment tackling varied problems.
I deeply enjoy connecting, potentializing, empowering and understanding people.
I want to devote my life to advancing human development through science and education.

email: veigabeltrame@gmail.com **Phone: +1 781.813.0380** **Personal website: munfred.com**

EDUCATION

Visiting Scholar, UC Berkeley

Berkeley School of Education

2023 – Present Berkeley, CA

Hosted by prof. Erin Murphy-Graham. Educational methodologies and impact evaluation of the Pode Crer program.

PhD, Bioengineering, Caltech

Caltech Bioengineering Program

2017 – 2021 Pasadena, CA

Research on single cell RNA sequencing technologies: instrumentation, method development and bioinformatics.

B.S. Biological Physics, Brandeis University

Brandeis University

2014 – 2016 Waltham, MA

Research on neuroscience, biophysics, 3D printing biomolecular models for teaching and research.

Federal University of Santa Catarina (UFSC)

2011 – 2014 (transferred) Florianópolis, Brazil

Electronics Technician, IFSC

Federal Institute of Santa Catarina (IFSC)

2007 – 2010 Florianópolis, Brazil

Vocation highschool in eletronics.

HIGHLIGHTS

I have worked with many different teams across a variety of environments: academic labs, student organizations, startups and non-profits. I understand the importance of listening and awareness. I am extremely forthcoming and deeply value communication and team spirit.

I'm a very involved volunteer at the Vilson Groh Institute, fostering innovative education, social integration and economic opportunities for marginalized youth through a network of 8 social and educational organizations reaching over 5000 students and 22000 people yearly in Brazil. I support English communication, international connections, and educational strategies for Pode Crer, their flagship education program on technology, civics and leadership.

One of my fondest acomplishments is helping create the Brandeis University MakerLab, where I made hundreds of 3D printed biomolecular models for teaching and research, and helped create a new summer course (photos, video). At Caltech I co-developed the low cost, open source, 3D printable poseidon syringe pumps.

I am very interested in policy and governance. I started the Caltech Soveriegnty Club, a weekly meeting of scientists and engineers to discuss history and international politics, now a 501(c)3 organization with the mission of *"promoting the understanding of the world and it's peoples"*.

WORK EXPERIENCES

ImYoo – Bioinformatics Lead

2022 - present San Francisco

Bioinformatic analysis, strategy, business and partnership development and whatever else needs doing.

Retro Biosciences – Scientist

2021-2022 Redwood City

Part of the founding team, I was involved in every aspect of scaling the company from 4 to 20 people in one year. Planning, purchasing, experiment design and execution, bioinformatic analyses, strategy and hiring.

Sternberg Lab – Graduate student

2020 - 2021 Caltech

I worked on leveraging single cell data for studying the nematode C. elegans, and integrating this data to the biological knowledge base WormBase.

Pachter Lab – Graduate student

2018 – 2020 Caltech

Research on instrumentation and new experimental and computational methods for single cell RNA sequencing experiments.

Ginkgo Bioworks – Test Padawan

2017 Boston, MA

I worked on data analysis and proteomics assays using mass spectrometry.

Kondev Group – Research Assistant

2015–2016 Brandeis University

Investigated gene expression and bacterial transcription processes using analytic and computational models.

Katz Lab – Research Assistant

2015–2016 Brandeis University

Neuroscience research about memory formation in mice using electrophysiology, molecular and behavioral techniques.

Structural Biology Lab – Research Assistant

2013–2014 UFSC, Brazil

Investigated protein nitrosylation with mass spectrometry and molecular dynamics.

PUBLICATIONS

Patent: Efficient combinatorial bead barcoding.
Eduardo da Veiga Beltrame, Jase Gehring, Akshay Tambe, Lior Pachter, Taleen Dilanyan
US20200102556A1

Single-nucleus resolution mapping of the adult C. elegans and its application to elucidate inter-and trans-generational response to alcohol. Cell Reports 2023.
doi.org/10.1016/j.celrep.2023.112535

WormBase in 2022—data, processes, and tools for analyzing Caenorhabditis elegans. Genetics 2022.
doi.org/10.1093/genetics/iyac003

Harmonizing model organism data in the Alliance of Genome Resources. Genetics 2022.
doi.org/10.1093/genetics/iyac022

A Python library for probabilistic analysis of single-cell omics data. Nature Biotechnology 2022.
doi.org/10.1038/s41587-021-01206-w

Single-nucleus resolution mapping of the adult C. elegans and its application to elucidate inter- and trans-generational response to alcohol. Biorxiv 2022.
doi.org/10.1101/2022.07.21.500524

WormBase single-cell tools.
Bioinformatics Advances 2022.
doi.org/10.1093/bioadv/vbac018

Modular, efficient and constant-memory single-cell RNA-seq preprocessing. Nature Biotechnology 2021.
doi.org/10.1101/762773

Deletion of Stk11 and Fos in mouse BLA projection neurons alters intrinsic excitability and impairs formation of long-term aversive memory. eLife 2020.
10.7554/eLife.61036

A curated database reveals trends in single-cell transcriptomics. Database 2020.
doi.org/10.1093/database/baaa073

Quantifying the tradeoff between sequencing depth and cell number in single-cell RNA-seq. bioRxiv 2019.
doi.org/10.1101/762773

Principles of open source bioinstrumentation applied to the poseidon syringe pump system.
Scientific Reports, 2019.
doi.org/10.1038/s41598-019-48815-9

3D printing of biomolecular models for research and pedagogy. JoVE, 2017. doi.org/10.3791/55427

TOOLS AND TECHNOLOGIES

Data science: Scientific Python, sklearn, pandas, plotly, dash, pytorch, Keras, Stan, R (grudgingly), Bayesian modelling and machine learning.
Bioinformatics: Snakemake, kallisto, bustools, Cell Ranger, scVI, scanpy, git, bash, linux systems management.
Hardware: FFF/FDM/SLA/BJ 3D printing, Fusion 360, Arduino, embedded electronics, laser cutting, machining.
Web: HTML, web design, Google Cloud, AWS, Flask.
Wetlab: All standard molecular biology tools, lots of gels.

OTHER MEDIA

I want to become a better storyteller. I love writing, teaching and communicating. Below is a selected assortment of different media contents that I created.

2021 article **A Beacon of Hope for Brazil in a Pandemic Year** published in the student views section of the Harvard Review of Latin America. It describes the Vilson Groh Institute and how I came to support it.

2021 PhD thesis **Stories in Single Cell RNA Sequencing**. I wrote my thesis striving to be as didatic as possible, and drew most figures by hand. If you are curious about single cell, take a look at the first chapter! And here is a video of my thesis defense.

2021 webpage of the **WormBase single cell tools**, a collection of interactive tools I helped create to explore *C. elegans* single cell RNA sequencing data

2018 history of Hawaii, which completely fascinated me when I first visited. Humorously written and contains a multitude of links, it served as announcement of a Caltech Sovereignty Club meeting on which I shared my learnings.

2017 video of me pitching "filterly", a humorous gadget I made at the 2017 Brandeis University printathon, a 3D printing hackathon I helped create.

2015 portfolio of Deis 3D, the Brandeis 3D printing club, which I ran for a while.

My thingiverse page, where I collect and share the most notable 3D designs I've created - mostly proteins, with some assorted lab ware and fun things.

LANGUAGES

- Portuguese, Native
- English, fluent
- Spanish, fluent (lived in Spain for 6 months)
- Mandarin, basic (studied for 18 months)