Pedro Fontanarrosa

Multidisciplinary Researcher & Software Engineer in Synthetic Biology | pfontanarrosa@gmail.com | +44 (756) 459 4770 | London, GB | fontanapink.github.io

Summary

Broadly skilled researcher with a strong foundation in both computational/software engineering and biological sciences. I have extensive experience in genetic circuit design, machine learning, and data science—demonstrated through contributions to SBOL and iBioSim as well as remote collaborative projects. Passionate about using modern software development practices and advanced analytical techniques to solve complex, multidisciplinary problems.

Skills

- **Software Engineering**:

  Python

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  Java

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  C++

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  JavaScript

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  R

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  Git

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  GitHub

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  GitLab

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  CI/CD

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  Docker

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  Kubernetes

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  Google Cloud

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  TensorFlow

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  PyTorch

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  scikit-learn

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  pyomo

- **Optimization & Operations Research**:

  CPLEX

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  Gurobi

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  Pyomo

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  Linear Programming

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  Nonlinear Programming

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  Integer Programming

- **Web Scraping**:

  Scrapy

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  Splash

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  Selenium
- **Probabilistic Modeling**:

  Gaussian Process Regression

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  Bayesian Machine Learning
- **Data Science**:

  Machine Learning

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  Artificial Intelligence

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  Data Analysis

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  Neural Networks
- **Writing**:

  LaTeX
- **Web Development**:

  HTML

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  Hugo
- **Databases**:

  SQL

Work Experience

Computational Systems and Synthetic Biology Lab, College University London **London, UK**
Research Assistantship Jan 2023 — Present

- Developed advanced GDA tools for iBioSim
- Pioneered novel modeling automation techniques
- Maintained and enhanced genetic parts repositories

Genetic Logic Lab, University of Boulder **Boulder, CO, USA**
Research Assistantship Jan 2017 — Jan 2023

- Advanced GDA tool development with iBioSim
- Implemented innovative remote collaboration practices
- Enhanced simulation and design of genetic regulatory networks

Evolutionary Studies Laboratory, University of Buenos Aires **Buenos Aires, Argentina**
Research Assistantship Jan 2010 — Jan 2014

- Coordinated field expeditions and permit negotiations
- Managed statistical programs and databases
- Mentored and trained new laboratory members

University of Utah **Utah, USA**
Graduate Teaching Assistant Sep 2020 — Dec 2020

Northlands School **Buenos Aires, Argentina**
Highschool Chemistry Teacher Jan 2015 — Jan 2017

Tarbut School **Buenos Aires, Argentina**
Science and Mathematics Teacher Jan 2014 — Jan 2015

COMBINE Standards **Online**
SBOL Editor Jan 2019 — Jan 2022

Volunteering

Biohacking BA Jan 2013 — Jan 2017
Volunteer Organizer

Organized talks, workshops, hackathons, and DIY projects to promote innovation in science, engineering, and synthetic biology.

- Organized hackathons for SBOL and FAIR data practices
- Coordinated interdisciplinary teams and managed remote collaboration

University of Buenos Aires Biology Week Jan 2010 — Jan 2012
Event Organizer

Coordinated the annual Biology Week to promote science careers among high school students.

Education

University of Utah Jan 2019 — Jan 2022
Ph.D.
- 3.8/4.0

University of Utah Jan 2017 — Jan 2019
Master
- 3.67/4.0

University of Buenos Aires Jan 2007 — Jan 2014
Licentiate
- 8.39/10.00

Profiles

GitHub
fontanapink
github.com/Fontanapink

ORCID
0000-0002-0535-2684
orcid.org/0000-0002-0535-2684

Certifications

- **Data Science Bootcamp** : THE ERDŐS INSTITUTE
- **Machine Learning A-Z™: AI, Python & R + ChatGPT Bonus [2023]** : Udemy
- **Optimization with Python: Solve Operations Research Problems** : Udemy
- **Optimization with Python: Complete Pyomo Bootcamp A-Z** : Udemy
- **AI and Meta-Heuristics (Combinatorial Optimization) Python** : Udemy
- **Modern Web Scraping with Python using Scrapy Splash Selenium** : Udemy
- **Deployment of Machine Learning Models** : Udemy
- **Pyomo Bootcamp: Python Optimization from Beginner to Advance** : Udemy
- **Theory of Gaussian Process Regression for Machine Learning** : Udemy

Projects

Synergistic Discovery and Design (SD2)
* Genetic circuit design for extreme environments enabled by models extracted from petabyte+ perturbation analyses. *

Jan 2018 — Jun 2022

SBOL Standard Contribution
* Contributed to the development of SBOL, a free and open-source standard for representing biological designs. *

iBioSim Development
* Worked on iBioSim—a CAD tool for modeling, analysis, and design of genetic circuits supporting SBML and SBOL, including capabilities for multicellular and spatial models. *

Awards & Recognitions

- **Fulbright and Argentine Presidential Fellowship in Science & Technology**: Awarded to pursue a master's degree in the United States starting Fall 2017.
- **Research and Communication Excellency Award**: Recognized for excellence in research and communication under the 'Beca Estímulo' scholarship.
- **Beca Estímulo (Encouragement Scholarship)**: Supported research and development tasks in genetics and ecology.