PAULA VASCONCELOS, PHD

Mathematical biologist, Data scientist

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SKILLS

Professional Skills

Machine Learning
Natural Language Processing
Data Engineering
Forecasting
Mathematical Modeling
Mechanistic Modeling
Agent-based Simulations
Statistical Modeling
Statistical Analysis
Algorithm Development
Synthetic Data
Data Analysis
Data Visualization

Soft Skills

Critical Thinking
Problem Solving
Curiosity
Creativity
Proactivity
Collaboration
Teamwork
Flexibility
Attention to Detail
Autonomy

Programming Languages

Python
R
SQL
MATLAB
Wolfram
bash
Ruby

Operating Systems

Linux
macOS
Windows

Tools

Jupyter Notebook
RStudio
VSCode
Git
Docker
Poetry
Wolfram Mathematica
MATLAB
AWS
Unity Analytics

Languages

English
Portuguese
Swedish

WORK HISTORY

2023-2024
Might And Delight AB (SE)

Data Scientist

Natural Language Processing and Machine Learning
- Implemented NLP models with BERT for topic modeling and sentiment analysis on diverse textual data sources, such as Steam forum posts, game reviews, and customer feedback.
- Developed a product that integrates a Transformer-based sentiment analysis model with a Slack bot, enhancing the community management team's response time.
- Implemented supervised machine learning models (Random Forests, XGBoost) to predict player churn.
- Applied unsupervised machine learning techniques (K-means, UMAP) and embedding models to classify players into distinct personas based on behavior and textual data, leading to changes in game development and more targeted marketing campaigns.
- Performed network analysis on wishlisted game titles, uncovering cross-genre player interests and informing game marketing and development strategies.

Data Engineering
- Designed and implemented ETL pipelines using Python and AWS services to process and store game telemetry data.
- Created custom web scraping tools using Python to extract Steam platform data (reviews, forum posts, user-owned games, user-friends lists, wishlists), supporting marketing strategies.
- Collaborated with game developers to design and implement in-game telemetry logging, capturing key player interactions and performance metrics.

Data Visualization and Reporting
- Developed interactive dashboards using Plotly, presenting KPIs and in-game metrics to various stakeholders, resulting in an increase in data-driven decision making by senior managers.
- Generated reports on player behavior, game performance, sales, revenue, and market trends, informing business strategy and product development.

Statistical Modeling and Analysis
- Applied statistical techniques, including Multiple Regression, ANOVA, Bootstrapping, and time series analysis using XGBOOST, to get insights into various aspects of the business, such as player behavior, marketing campaign effects, sales and revenue forecasting.

Business Impact
- Collaborated with managers, executives and board members to develop data-driven business strategies.
- Worked closely with the marketing teams to translate data science insights into marketing campaign actions improving customer acquisition rates.
- Established key performance indicators (KPIs) for the company's main games.

2015-2022
Uppsala University (SE)

Doctoral researcher

- Expertise in differential equations, dynamical systems theory, matrix algebra, evolutionary game theory, and adaptive dynamics, with a focus on eco-evolutionary feedback models.
- Applied adaptive dynamics and game theory principles to analyze the interactions of biological organisms in resource competition and species coexistence.
- Presented research findings at international conferences and published in peer-reviewed journals.

Key projects: Link to doctoral dissertation
- Multi-trait Eco-Evolutionary Model: Developed a mathematical model analyzing the impact of the co-evolution of multiple biological traits on the potential for biological diversification.
- Adaptive Plasticity in Resource Competition: Developed an agent-based model to simulate the effects of phenotypic plasticity on species competition for resources.
- Life-Cycle Complexity and Biological Diversification: Developed a novel mathematical and agent-based model investigating the impact of the co-evolutionary dynamics of resource acquisition traits on biological diversification of organisms with complex life-cycles (e.g. frogs, fishes, insects).
- Life-Cycle Complexity and Community Assembly: Developed a novel mathematical and agent-based model investigating the impact of complex life cycles on species coexistence and ecological community structure.

2013-2015
Universidade Federal de Minas Gerais (BR)

Masters researcher

- Developed primers to amplify novel regions of plant nuclear genome.
- Performed bioinformatic analyses of genetic data using bash, Python and R.
- Performed statistical modelling (Approximate Bayesian Computation, Clustering, Network Analysis, and Monte Carlo simulations) to understand population genetic history of different species of plants.
- Presented research findings via talks and posters in multiple conferences in Brazil.
- Wrote one research paper.

EDUCATION

Paused 2023
Stockholm University (SE)

MSc Artificial Intelligence

2022
Uppsala University (SE)

PhD Mathematical Biology

2015
Universidade Federal de Minas Gerais (BR)

MSc Population Genetics