Brener d'Lélis Oliveira Ramos

Python Developer | Data Science | Machine Learning | Physics Simulations

brener@brenerramos.com
www.brenerramos.com
Brazil

Proficient Python developer with an engineering background specializing in Data Science. I have worked with various neural networks architectures using Tensorflow and Pytorch as well as classic machine learning models with Scikit-learn. I am comfortable visualizing and exploring data with Matplotlib, Seaborn, Plotly and Dash. I am well experienced with Pandas and knowledgeable of SQL and AWS (AWS Certified Cloud Practitioner). Years working abroad as well as international remote work provided me with clear communication skills and English proficiency. My innate curiosity and drive for challenges ensures that even if I don't possess all the skills for a role, I can acquire them quickly and uphold high standards of work.

Experience

Machine Learning Specialist at CCES - Unicamp ***2023.11 – Current***

- Aided researchers implementing machine learning techniques into their respective fields.
- Developed custom dashboards for visualizing scientific data.
- Taught workshops for data visualization with Blender, version control with Git and software development on containers with Docker.

Python Developer at Turing (Remote) ***2023.02 – 2023.06***

- Wrote and reviewed code for various tasks, especially Data Science, later used to train an artificial inteligence programming assistant.

Graduate Researcher at Technical University of Munich ***2020.10 – 2022.09***

- Trained and deployed neural networks to act as controllers for fluid control problems through a variety of deep learning techniques and architectures. The developed controllers turned out more efficient and robust than traditional ones.
- Mentored and managed tutors for classes with hundreds of students as well as an undergraduate thesis.

Graduate Researcher at State University of Campinas ***2017.02 – 2019.09***

- Expanded in-house parallel (MPI) code for solving the Navier Stokes equations in 3D and with motion using high-order compact schemes. This allowed the simulation of highly complex phenomena, e.g., a dynamic stall vortex.
- Analyzed and cleaned terabytes of fluid simulations data that were used to design efficient control strategies which were able to mitigate adverse effects of a dynamic stall vortex.
- Performed modal decompositions (POD and SPOD) which allowed the identification of coherent structures in a turbulent flow.
- Created visualization scripts with Python, Tecplot, Paraview and Blender in order to clearly communicate the findings from complex turbulent data.

Other Projects

- Overview of Brazilian Elections Dashboard (**Dash, Plotly, Nginx, Gunicorn, AWS, Pandas, GeoPandas**).
- Kaggle's Spaceship Titanic Competition (**Scikit-learn, XGBoost, Plotly, Pandas**).
- Coordinator of Science Classes at Projeto Ales (**Leadership and Communication**).
- DIY drone controlled with a PS4 controller (**Arduino**).
- Automatic irrigation system (**Arduino**).
- Physics explainers (**Blender**).
- Undergraduate Researcher at State University of Campinas (**Matlab, Numerical Methods**)

Education

University of Campinas ***2017.02 – 2019.09***

MSc in Mechanical Engineering (GPA:3.8/4.0)

University of Campinas ***2012.02 – 2017.02***

B.E. in Mechanical Engineering

Skills

- **Programming Languages**: Python, Fortran, Matlab, C and C++.
- **ML-Toolkits**: Tensorflow, Pytorch, Scikit-learn, Numpy and Scipy.
- **Productivity and monitoring**: Tensorboard and Weights and Biases.
- **Visualization**: Matplotlib, Plotly and Dash.
- **Data manipulation**: Pandas and SQLite.
- **Languages**: Portuguese (native), English (fluent – TOEFL:117/120) and German (basic).

Certificates

- AWS Certified Cloud Practitioner.
- Neural Networks and Deep Learning by Andrew Ng.
- The Ultimate Pandas Bootcamp: Advanced Python Data Analysis by Andy Bek.
- Python + SQL + Tableau: Integrating Python, SQL and Tableau.

Papers/Conferences

- **Ramos, B.**, Trost, F., Thuerey, N., "Control of Two-way Coupled Fluid Systems with Differentiable Solvers" - ICLR 2022 Workshop on Generalizable Policy Learning in Physical World.
- **Ramos, B. L O.**, Wolf, W., Taira, K., Yeh, C., "Active Flow Control for Drag Reduction of a Plunging Airfoil Under Deep Dynamic Stall" - Physical Review Fluids
- **Ramos, B. L O.**, Wolf, W., Taira, K., Yeh, C., "High-Fidelity Simulation and Flow Control of a Plunging Airfoil under Deep Dynamic Stall" - AIAA Scitech 2019