Murilo Camargos

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SUMMARY

- **Career Goal**: Data Science position.
- **Core Competencies**: Python (pandas, numpy, scikit-learn, seaborn), fuzzy models, clustering (k-means, hierarchical, DBSCAN), classification/regression (k-NN, decision trees, linear/logistic regression, random forests, SVMs).
- **Awards and Scholarships**: IFAC's Young Author Support, Petrobras Graduate Research Scholarship, Advanced level of English (**CEFR C1**) certified by the British Council, Study Abroad Scholarship at the Ohio State University (OSU), Undergraduate Research Scholarship.

EDUCATION

Universidade Federal de Minas Gerais   Minas Gerais, BR
Ph.D. in Electrical Engineering (**Cumulative GPA**: 9.3/10.0)   Aug 2018 – Dec 2020
Thesis: New Data-driven Methodologies For Fault Prognostics using Evolving Fuzzy Models

- **Relevant Coursework**: Design and Analysis of Experiments (EE), Introduction to Stochastic Processes (EE), Probabilistic Graphic Models (CS), Statistical Fundamentals for Data Science (CS).

Universidade Estadual de Montes Claros   Minas Gerais, BR
B.Sc. in Systems Engineering (**Cumulative GPA**: 9.3/10.0)   Aug 2012 – Aug 2018

- **Relevant Coursework**: Machine Learning and Statistical Pattern Recognition at OSU, Data Structures and Algorithms, Linear Algebra, Multivariable Calculus, Nonlinear Optimization, Evolutionary Computation.

WORK EXPERIENCE

Fundação Christiano Ottoni   Minas Gerais, BR
Graduate Researcher   Aug 2018 – Present

- Developed a python-based **online clustering** algorithm using **fuzzy** models and **multivariate Gaussians**.
- Devised a **distributed platform** to manage real-time communications using **MQTT**.
- The real-time clustering algorithm allowed the **early anomaly detection** used for predictive maintenance**.**
- **Tech stack**: Python, Numpy, Pandas, Seaborn, MATLAB, C++, Node-red, MQTT, GIT.

Cheesecake Labs   Santa Catarina, BR
Software Engineer   Jan 2018 – Nov 2018

- Developed the python backend of **RESTFull APIs** with **CI/CD** for both **AWS** and **Heroku** clouds.
- Impacted people from more than **127 countries** through Singularity University and Woovit projects.
- Helped the company to be featured as **Top #1** Mobile App Development Company by Clutch.
- **Tech stack**: Python, Django, PostgreSQL, Docker, AWS (EC2, ELB, ECS, S3), Heroku, Travis, Scrum.

PROJECTS

Credit Card Fraud Detection - https://bit.ly/2GXCGlU   Kaggle

- Explored the SMOTE balancing procedure for credit fraud detection in a **highly** imbalanced dataset.
- Compared logistic regression, random forest and adaboost classifiers using the **f1-score**.
- The procedure **increased** the f1-score in **~5%** in the random forest classifier achieving **~84%**.
- **Tech stack**: Python, Pandas, Numpy, Seaborn, Scikit-learn, Imblearn, Scipy.

CKL-Challenge - https://bit.ly/2SRIRKY   GitHub

- News **scraping** from four **different sources**: Twitter, Google+ Feeds, RSS and plain HTML parsing.
- Periodic scraping using **Amazon SQS** managed by **Celery**.
- Provided a **RESTFull API** using **Django** and Django-rest-framework (DRF) with **CI/CD** for **Heroku** cloud.
- **Tech stack**: Python, Django, DRF, RESTFul, CI/CD, Celery, PostgreSQL, CodeShip, Heroku, AWS SQS.

VOLUNTEER WORK

- Part of UFMG **COVID-19** task force to model the disease spread in Belo Horizonte, MG. https://bit.ly/3cV0ket.
- Wrote the **fuzzy logic** chapter in the "Jornada Data-Driven" book, written collaboratively (In Progress).

SELECTED PAPERS

- "Data-driven prognostics of rolling element bearings using a novel Error Based Evolving Takagi-Sugeno Fuzzy Model". In Applied Soft Computing, 2020. https://doi.org/10.1016/j.asoc.2020.106628
- "A new fault classification approach applied to Tennessee Eastman benchmark process". In Applied Soft Computing, v.49, pp. 676-686, 2016. https://doi.org/10.1016/j.asoc.2016.08.040