

MURILO OSORIO CAMARGOS

+55(38)99740-1923 ◇ murilo.camargosf@gmail.com ◇ LinkedIn: [murilocamargos](#)

Address: 500 Costa Rica St, Montes Claros, Minas Gerais, 39408165, Brazil

CAREER SUMMARY

- PhD candidate in Electrical Engineering UFMG, working on topics related to **fault prognostics** and developing tools to improve **fault detection and diagnostics** in the **industrial context** using probabilistic and AI models;
- **core competency** in data analytics, software engineering, real-time predictive algorithms, and incremental learning systems.
- received **two scholarships** to study new learning mechanisms in AI for fault detection and diagnostics in electrical systems, with one of them to **study in the USA** for a year;
- **8 reviewed publications**, including 2 in a top-tier journal, 7 in national and international conferences/workshops, 2 under review and 2 in progress, **Young Author Support** awardee at IFAC'20;
- developed object-oriented **python web services** for Silicon Valley companies, worked under **Scrum management** to meet tight deadlines;
- Advanced level of English (CEFR C1) certified by the British Council.
- Tech stack: Python, Numpy, Pandas, Seaborn, Django, PostgreSQL, Docker, AWS (EC2, ELB, ECS, RDS, S3), Travis, Elasticsearch, MatLab, C++, Node-red, MQTT, GIT.

EDUCATION

Federal University of Minas Gerais

Aug 2018 - Current

PhD in Electrical Engineering.

Minas Gerais, BR

Thesis: *New Data-Driven Methodologies For Fault Prognostics Using Evolving Fuzzy Models.*

Supervisor: Prof. Dr. Reinaldo Martinez Palhares.

State University of Montes Claros

Aug 2012 - Aug 2018

B.Sc. in Systems Engineering.

Minas Gerais, BR

Project: *New fault detection and classification methods.*

Supervisor: Prof. Dr. Marcos Flávio Silveira Vasconcelos D'Angelo.

PROFESSIONAL EXPERIENCE

Fundação Christiano Ottoni

Aug 2018 - Present

Graduate Researcher.

Minas Gerais, BR

- Developed online clustering algorithms for real-time anomaly detection that runs in various offshore oil platforms;
- developed a python-based software to run real-time algorithms integrating multiple data sources;
- represented the team at an invited talk given at the VIII Oil and Gas Production Optimization Workshop;
- wrote scientific papers and internal reports to help spread the research products.
- Tech stack: Python, Numpy, Pandas, Matplotlib, MatLab, C++, Node-red, MQTT, OPC, GIT.

- Impacted thousands of people from more than 127 countries through the Singularity University and Woovit development teams;
- built RESTFull APIs with Python/Django and MySQL and PostgreSQL;
- used CI/CD on Amazon EC2 and Heroku machines with Circle CI and Travis;
- used Amazon Elastic Container Service to serve app in docker clusters;
- served applications with Amazon's Elastic Container Service (ECS);
- used Bonsai to provide on demand Elasticsearch for Heroku applications;
- participated in daily meetings with silicon valley product owners.
- Tech stack: Python, Django, DRF, MySQL PostgreSQL, Docker, AWS (EC2, ELB, ECS, RDS, S3), Circle CI, Travis, Elasticsearch, Scrum, Agile.

PUBLICATIONS - JOURNAL ARTICLES

1. **CAMARGOS, M. O.**, BESSA, I., D'ANGELO, M. F. S. V., COSME, L. B., PALHARES, R. M. "Data-driven prognostics of rolling element bearings using a novel Error Based Evolving Takagi-Sugeno Fuzzy Model". In *Applied Soft Computing*, 2020.
DOI: [10.1016/j.asoc.2020.106628](https://doi.org/10.1016/j.asoc.2020.106628)
2. D'ANGELO, M. F. S. V., PALHARES, R. M., **CAMARGOS, M. O.**, MAIA, R. D., MENDES, J. B., EKEL, P. I. "A new fault classification approach applied to Tennessee Eastman benchmark process". In *Applied Soft Computing*, v.49, pp. 676-686, 2016.
DOI: [10.1016/j.asoc.2016.08.040](https://doi.org/10.1016/j.asoc.2016.08.040)

PUBLICATIONS - CONFERENCE CONTRIBUTIONS

1. **CAMARGOS, M. O.**, BESSA, I., D'ANGELO, M. F. S. V., PALHARES, R. M. "Fault Prognostics of Rolling Bearings Using a Hybrid Approach". In *Proc. of the 21st IFAC World Congress*, 2020, Berlin.
Link: <https://bit.ly/3cCVpPj>
2. BESSA, I., PUIG, V., **CAMARGOS, M. O.**, PALHARES, R. M. "Dissipativity and Stability Recovery by Fault Hiding". In *Proc. of the 21st IFAC World Congress*, 2020, Berlin.
Link: <https://bit.ly/30eRZxh>
3. CORDOVIL JÚNIOR, L. A. Q., COUTINHO, P. H., BESSA, I., **CAMARGOS, M. O.**, PALHARES, R. M. "Tradeoff analysis between granularity and interpretability in evolving granular systems". In *14th Brazilian Symposium on Intelligent Automation (SBAI)*, 2019, Ouro Preto.
DOI: [10.17648/sbai-2019-111316](https://doi.org/10.17648/sbai-2019-111316)
4. **CAMARGOS, M. O.**, PALHARES, R. M., D'ANGELO, M. F. S. V. "An approach based in fuzzy granulation and support vector machines for fault prognostics". In *XXII Brazilian Congress of Automatica*, 2018, João Pessoa.
Link: <https://bit.ly/33d6JyC>
5. COSME, L. B., D'ANGELO, M. F. S. V., CAMINHAS, W. M., **CAMARGOS, M. O.**, MESQUITA, A. R., PALHARES, R. M. "An approach based in particle filters for fault prognostics". In *XII Brazilian Symposium on Intelligent Automation (SBAI)*, 2015, Natal.
Link: <https://bit.ly/36cQC5W>

6. D'ANGELO, M. F. S. V., NETTO, J. C., LAURENTINO, A. C. M., **CAMARGOS, M. O.**, FERREIRA, H. S. "A hybrid immune/neural formulation applied to the problem of fault detection in a DC drive system". In *XI Brazilian Symposium on Intelligent Automation (SBAI)*, 2013, Fortaleza. Link: <https://bit.ly/30cSnfp>

INVITED TALKS AND PRESENTATIONS

1. **CAMARGOS, M. O.**, Lemos, A. P., DE MENEZES, B. R., BOMFIM, C. H. M., PALHARES, R. M., CAMINHAS, W. M., MORAIS, N. "Development and application of techniques for adaptive detection and diagnosis of events in processes and equipment." VIII Oil and Gas Production Optimization Workshop - Sponsored by INTPART. Rio de Janeiro, Brazil, 2019. *Invited talk*.
2. **CAMARGOS, M. O.**, BESSA, I., D'ANGELO, M. F. S. V., PALHARES, R. M. "Fault Prognostics of Rolling Bearings Using a Hybrid Approach". In *Proc. of the 21st IFAC World Congress*, 2020, Berlin. *Presentation*.

AWARDS AND SCHOLARSHIPS

- Young Author Support granted by the International Federation of Automatic Control (IFAC) to attend to the 21st IFAC World Congress at Berlin, 2020.
- Graduate research scholarship from Brazilian oil and gas company Petrobras, 2018-2020.
- Undergraduate study abroad scholarship from the Brazil Scientific Mobility Program (BSMP) to study electrical and computer engineering at the Ohio State University (OSU), 2015-2016.
- Undergraduate research scholarship from the Minas Gerais State Agency for Research and Development (FAPEMIG), 2014-2015.

RESEARCH ACTIVITIES

Reviewer for major journals and conferences

<https://publons.com/researcher/1589517/murilo-osorio-camargos/>

- IEEE Transaction on Industrial Electronics, IEEE Access, JOURNAL OF CONTROL, AUTOMATION AND ELECTRICAL SYSTEMS
- ROCOND 2018, LPVS 2018, IECON 2017

VOLUNTEER WORK

- Part of the UFMG COVID-19 task force to create **predictive models** for the disease spread in the city of Belo Horizonte, MG. <https://bit.ly/3cV0ket>