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Current position

Since 2024 *Pesquisador I*
Artificial Intelligence Lab. Recod.ai
Institute of Computing (IC)
Universidade Estadual de Campinas (Unicamp)

Areas of specialization

Computer Science • Machine Learning • Open-Set Recognition • Digital Forensics • Computer Vision • Time Series

Education

2014–2018 PhD in Computer Science, Unicamp, Brazil
2012–2014 MSc in Computer Science, Unicamp, Brazil
2008–2012 BSc in Computer Science, *Universidade Federal de Ouro Preto (UFOP)*, Brazil

Complementary Education

2019–2024	Postdoctoral researcher (4 years and 9 months) Recod.ai, IC, Unicamp
2018–2019	Postdoctoral researcher (9 months) Dipartimento di Elettronica, Informazione e Bioingegneria (DEIB), Politecnico di Milano With Prof. Paolo Bestagini and Prof. Stefano Tubaro
2017–2018	Deep Learning Specialization (68 hours) by deeplearning.ai , online on Coursera
2016–2017	Doctoral internship as a researcher assistant (1 year) University of Colorado Colorado Springs (UCCS) With Prof. Terrance Boulton
2011	Short term course in Applied Functional Programming in Haskell (40 hours) Utrecht University, Netherlands

Languages

(Elementary • Basic • Intermediary • Advanced • Fluent or Native)

Portuguese	Native
English	Understanding Fluent • Speaking Fluent • Writing Fluent • Reading Fluent
Spanish	Understanding Intermediary • Speaking Intermediary • Writing Advanced • Reading Advanced
Italian	Understanding Intermediary • Speaking Intermediary • Writing Intermediary • Reading Advanced

Grants, honors & awards

2016	Prêmio Inventores Unicamp • Reitoria da Unicamp e Agência de Inovação Inova Unicamp
2015	Honored Papers 2015 • Elsevier Computers in Biology and Medicine

Publications

JOURNAL ARTICLES

2024	Lusquino Filho, Leopoldo; Werneck, Rafael; Castro, Manuel; Mendes Júnior, Pedro ; Lustosa, Augusto; Zampieri, Marcelo; Linares, Óscar; Moura, Renato; Morais, Elayne; Amaral, Murilo; Salavati, Soroor; Loomba, Ashish; Esmin, Ahmed; Gonçalves, Maiara; Schiozer, Denis; Ferreira, Alexandre; Davólio, Alessandra; Rocha, Anderson (2024), “ A multi-modal approach for mixed-frequency time series forecasting ”, <i>Neural Computing and Applications</i> . Online:1–25.
2023	Castro, Manuel; Mendes Júnior, Pedro ; Soriano-Vargas, Aurea; Werneck, Rafael; Gonçalves, Maiara; Lusquino Filho, Leopoldo; Moura, Renato; Zampieri, Marcelo; Linares, Óscar; Ferreira, Vitor; Ferreira, Alexandre; Davólio, Alessandra; Schiozer, Denis; Rocha, Anderson (2023), “ Time series causal relationships discovery through feature importance and ensemble models ”, <i>Scientific Reports</i> . 13:11402.
2022	Mendes Júnior, Pedro ; Boulton, Terrance; Wainer, Jacques; Rocha, Anderson (2022), “ Open-Set Support Vector Machines ”, <i>IEEE Transactions on Systems, Man, and Cybernetics: Systems</i> . 52(6):3785–3798.
2022	Werneck, Rafael; Prates, Raphael; Moura, Renato; Gonçalves, Maiara; Castro, Manuel; Soriano-Vargas, Aurea; Mendes Júnior, Pedro ; Hossain, Manzur; Zampieri, Marcelo; Ferreira, Alexandre; Davólio, Alessandra; Schiozer, Denis; Rocha, Anderson (2021), “ Data-driven deep-learning forecasting for oil production and pressure ”, <i>Journal of Petroleum Science and Engineering</i> . 210:109937.
2021	Soriano-Vargas, Aurea; Werneck, Rafael; Moura, Renato; Mendes Júnior, Pedro ; Prates, Raphael; Castro, Manuel; Gonçalves, Maiara; Hossain, Manzur; Zampieri, Marcelo; Ferreira, Alexandre; Davólio, Alessandra; Hamann, Bernd; Schiozer, Denis; Rocha, Anderson (2021), “ A visual analytics ap-

- proach to anomaly detection in hydrocarbon reservoir time series data”, *Journal of Petroleum Science and Engineering*. 206:108988.
- 2019 **Mendes Júnior, Pedro**; Bondi, Luca; Bestagini, Paolo; Tubaro, Stefano; Rocha, Anderson, “An in-depth study on open-set camera model identification”, *IEEE Access*. 7:180713–180726.
- 2018 Neira, Manuel; **Mendes Júnior, Pedro**; Rocha, Anderson; Torres, Ricardo, “Data-fusion techniques for open-set recognition problems”, *IEEE Access*. 6:21242–21265.
- 2018 Werneck, Rafael; de Almeida, Waldir; Stein, Bernardo; Pazinato, Daniel; **Mendes Júnior, Pedro**; Penatti, Otávio; Rocha, Anderson; Torres, Ricardo, “Kuaa: A unified framework for design, deployment, execution, and recommendation of machine learning experiments”, *Elsevier Future Generation Computer Systems*. 78(1):59–76.
- 2017 **Mendes Júnior, Pedro**; Souza, Roberto; Werneck, Rafael; Stein, Bernardo; Pazinato, Daniel; de Almeida, Waldir; Penatti, Otávio; Torres, Ricardo; Rocha, Anderson, “Nearest neighbors distance ratio open-set classifier”, *Springer Machine Learning*. 106(3):359–386.
- 2016 Pazinato, Daniel; Stein, Bernardo; de Almeida, Waldir; Werneck, Rafael; **Mendes Júnior, Pedro**; Penatti, Otávio; Torres, Ricardo; Menezes, Fabio; Rocha, Anderson, “Pixel-level tissue classification for ultrasound images”, *IEEE Journal of Biomedical and Health Informatics*. 20(1):256–267.
- 2015 Penatti, Otávio; Werneck, Rafael; de Almeida, Waldir; Stein, Bernardo; Pazinato, Daniel; **Mendes Júnior, Pedro**; Torres, Ricardo; Rocha, Anderson, “Mid-level image representations for real-time heart view plane classification of echocardiograms”, *Elsevier Computers in Biology and Medicine*. 66:66–81.

PROCEEDINGS

- 2024 Werneck, Rafael; Lusquino Filho, Leopoldo; Lustosa, Augusto; Loomba, Ashish; Gonçalves, Maiara; Esmin, Ahmed; Salavati, Soroor; Morais, Elayne; **Mendes Júnior, Pedro**; Zampieri, Marcelo; Amaral, Murilo; Linares, Oscar; Castro, Manuel; Moura, Renato; Schiozer, Denis; Ferreira, Alexandre; Davolio, Alessandra; Rocha, Anderson (2024), “Watch the Reservoir! Improving Short-Term Production Forecast Through Transformers”, In: *SPE Europe Energy Conference and Exhibition*. pp. 14.
- 2023 Ferreira, Vitor; Castro, Manuel; Moura, Renato; Werneck, Rafael; Zampieri, Marcelo; Gonçalves, Maiara; Linares, Oscar; Salavati, Soroor; Lusquino Filho, Leopoldo; **Mendes Júnior, Pedro**; Ferreira, Alexandre; Davolio, Alessandra; Schiozer, Denis; Rocha, Anderson (2023), “A New Hybrid Data-Driven and Model-Based Methodology for Improved Short-Term Production Forecasting”, In: *OTC Offshore Technology Conference*. pp. 18.
- 2022 Gonçalves, Maiara; Hossain, Manzur; Vargas, Aurea; Castro, Manuel; **Mendes Júnior, Pedro**; Salavati, Soroor; Moura, Renato; Ferreira, Vitor; Schiozer, Denis; Davólio, Alessandra (2022), “Use of Production Data to Assess Correlation & Interwell Connectivity”, In: *Rio Oil and Gas Expo and Conference*. pp. 305–306.
- 2022 Lusquino Filho, Leopoldo; Werneck, Rafael; **Mendes Júnior, Pedro**; Castro, Manuel; Pereira, Eduardo; Moura, Renato; Ferreira, Vitor; Ferreira, Alexandre; Davólio, Alessandra; Rocha, Anderson (2022), “Oil Production and Pressure Multimodal Forecasting Integrating High-Frequency Production Data”, In: *Rio Oil and Gas Expo and Conference*. pp. 308–309.
- 2019 **Mendes Júnior, Pedro**; Bondi, Luca; Bestagini, Paolo; Rocha, Anderson; Tubaro, Stefano (2019), “A PRNU-based method to expose video device compositions in open-set setups”, In: *IEEE International Conference on Image Processing*. pp. 96–100.
- 2015 Li, Lin; Muñoz, Javier; Almeida, Jurandy; Calumby, Rodrigo; Penatti, Otávio; Dourado, Ícaro; Nogueira, Keiller; **Mendes Júnior, Pedro**; Pereira, Luís; Pedronette, Daniel; dos Santos, Jefersson; Gonçalves, Marcos; Torres, Ricardo (2015), “RECOD @ Placing Task of MediaEval 2015”, In: *MediaEval 2015 Workshop*. pp. 1–3.
- 2014 Li, Lin; Penatti, Otávio; Almeida, Jurandy; Chiachia, Giovanni; Calumby, Rodrigo; **Mendes Júnior, Pedro**; Pedronette, Daniel; Torres, Ricardo (2014), “Multimedia geocoding: The RECOD 2014 approach”, In: *MediaEval 2014 Workshop*. pp. 1–2.
- 2011 **Mendes Júnior, Pedro**; Neves, José Maria; Taveres, Andrea; Menotti, David (2011), “Towards an au-

- automatic vehicle access control system: License plate location”, In: *IEEE International Conference on Systems, Man, and Cybernetics*. pp. 2916–2921.
- 2010 **Mendes Júnior, Pedro**; Neves, José Maria; Menotti, David (2010), “Em rumo a um sistema automático de controle de acesso de veículos automotivos: Localização de placas de identificação”, In: *WUW Workshop of Undergraduate Work, XXIII Conference on Graphics, Patterns and Image*.

THESES

- 2018 **Mendes Júnior, Pedro** (2018), “Open-set recognition for different classifiers” (PhD), *Unicamp*.
- 2014 **Mendes Júnior, Pedro** (2014), “Open-Set Optimum-Path Forest classifier” (MSc), *Unicamp*.
- 2012 **Mendes Júnior, Pedro** (2012), “Uso de paralelismo de dados em algoritmos de processamento de imagens utilizando Haskell” (BSc; in Portuguese), *UFOP*.

PATENTS

- 2014 **Mendes Júnior, Pedro**; Souza, Roberto; Werneck, Rafael; Stein, Bernardo; Pazinato, Daniel; de Almeida, Waldir; Penatti, Otávio; Torres, Ricardo; Rocha, Anderson, “Method for Multiclass Classification in Open-set Scenarios and uses thereof”, *United States Patent and Trademark Office (USPTO)*. [US20160092790A1](#), [US10133988B2](#). Filing date: 11/04/2014. Publication date: 03/31/2016. Issue date: 11/20/2018.
- 2014 **Mendes Júnior, Pedro**; Souza, Roberto; Werneck, Rafael; Stein, Bernardo; Pazinato, Daniel; de Almeida, Waldir; Penatti, Otávio; Torres, Ricardo; Rocha, Anderson, “Método para classificação multiclasse em cenários abertos e usos do mesmo”, *Instituto Nacional da Propriedade Industrial (INPI)*. [BR102014023780A2](#). Filing date: 09/25/2014. Publication date: 05/17/2016.
- 2014 Rocha, Anderson; Torres, Ricardo; Penatti, Otávio; **Mendes Júnior, Pedro**; Pazinato, Daniel; de Almeida, Waldir; Werneck, Rafael; Stein, Bernardo, “Método para classificação automática de visões do coração a partir de ecocardiogramas”, *Instituto Nacional da Propriedade Industrial (INPI)*. [BR102014011059A2](#). Filing date: 05/07/2014. Publication date: 12/04/2018.