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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 Boult

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

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", *Scientific Reports.* 13:11402.

2022   **Mendes Júnior, Pedro**; Boult, Terrance; Wainer, Jacques; Rocha, Anderson (2022), "Open-Set Support Vector Machines", *IEEE Transactions on Systems, Man, and Cybernetics: Systems.* 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", *Journal of Petroleum Science and Engineering.* 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; Davolio, Alessandra; Hamann, Bernd; Schiozer, Denis; Rocha, Anderson (2021), "A visual analytics approach 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, Jeferson; Gonçalvez, 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, Giovani; 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 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.