



TO THE RECTOR OF UNIVERSITA' DEGLI STUDI DI MILANO

ID CODE: A036

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type A fellowship at Dipartimento di Informatica Giovanni Degli Antoni

Scientist- in - charge: Prof. Gaito Sabrina Tiziana

Samara Soares Leal

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	Soares Leal
Name	Samara

PRESENT OCCUPATION

Appointment	Structure
Researcher (type B) at the Computer Science Department, Università degli Studi di Milano: Milan, Italy	Data Scientist in the SOLITAIRE project: Voice-based depression assessment in social isolated adolescents, in collaboration with the University of Verona
University Professor at the Centro Universitário de Belo Horizonte (UniBH): Belo Horizonte, MG, Brazil	Virtual Classes of the courses: Artificial Intelligence, Python Programming, Software Engineering and Modeling

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
PhD	Mathematical and Computational Modeling	Centro Federal de Educação Tecnológica de Minas Gerais (CEFETMG)	2020
Master Degree	Mathematical and Computational Modeling	Centro Federal de Educação Tecnológica de Minas Gerais (CEFETMG)	2016
MBA	Artificial Intelligence	IBMEC	2023
Bachelor	Computer Science	Centro Universitário de Belo Horizonte (UniBH)	2012

FOREIGN LANGUAGES

Languages	level of knowledge
English	Excellent



AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2022	Researcher (type B) at the Computer Science Department, Università degli Studi di Milano
2021	Mention at the World Health Organization database on COVID-19
2010	Certificate of Honor for Merit - From the Secretary of Social Development of the Government of Minas Gerais, Brazil.
2012	Academic highlight in Computer Science with the Highest Grade.

TRAINING OR RESEARCH ACTIVITY

It is noteworthy that despite my status as a young researcher and correspondingly limited years of experience, I have demonstrated a remarkable dedication to scientific research through several papers published in peer-reviewed journals and conferences. One of the latest published papers is a comprehensive survey on speech-based depression diagnosis in the high-impact IEEE Transactions on Affective Computing. It was written after eight months of research collaboration with Prof. Dr. Roberto Sassi and Prof. Dr. Stavros Ntalampiras, at the University of Milan. This collaboration has helped me to gain a better understanding of the latest developments in the literature on speech depression recognition, to identify the remaining challenges, and to acquire a great knowledge of speech signal processing. During this collaboration, my main research activities were: i) Collection, modeling and preprocessing of the patients' speech recordings obtained during therapy sessions with a clinical team from the University of Verona, the patients' sociodemographic data and the patients' responses to depression assessment questionnaires; ii) Machine learning models implementation, testing, and statistical analysis; iii) Regular meetings with Prof. Sassi and Prof. Stavros to get guidance on the project development process and to review papers; iv) Regular meetings with the clinical team to discuss a variety of research-related topics, including project objectives and goals, ethical approval, and depression assessment procedures; and v) Writing and publishing scientific papers.

In addition, I have presented several papers in international conferences, in various countries, including China, Australia, India, Switzerland, and Canada. These experiences have enhanced my oral presentation skills, disseminated my papers' findings, and forged professional networks. As a result, I was invited to be a speaker at the IFC 9th Global Education Conference in Mexico City, in March of this year, where I gave a lecture on Artificial Intelligence applied to the education field. I have also supervised graduate, master and Ph.D. students in the field of medicine at the University Center of Belo Horizonte, Brazil, with the following main results: i) a game for medical student education, which I presented at the Joint Annual Meeting of the Infectious Diseases Society of America, in the USA, and was mentioned in the WHO literature, ii) a clinical case simulator, which I presented at the 7th International Conference on Prevention and Infection Control, in Switzerland, in 2023, and iii) an integrated health clinic platform entitled GENT, which was delivered to a non-governmental organization called Assopoc.

PROJECT ACTIVITY

Year	Project
2022-2024	AILA: Machine Learning Models for Basic Skills Identification in University Students, Centro Universitário Una: Belo Horizonte, MG, Brazil
2023-2024	Web Scraping for Business Intelligence: Analysing Higher Education Courses, Centro Universitário Una: Belo Horizonte, MG, Brazil
2024-2024	Égide: Intellectual Property Support System to Foster Entrepreneurship through Blockchain, Centro Universitário Una: Belo Horizonte, MG, Brazil
2023-2023	Mulheres Tech: Flipped Classroom for the Digital Inclusion of Domestic Workers, Ânima Educação, Brazil. Project website: https://mulherestech.animahub.com.br/
2019-2023	Virtual Patient Simulator, Centro Universitário de Belo Horizonte (UniBH), Belo Horizonte, MG, Brazil.



2023-2023	Innovation in Medical and Legal Education: Artificial Intelligence in lawsuits against Health Plans, Centro Universitário de Belo Horizonte (UniBH), Belo Horizonte, MG, Brazil.
2022-2023	Flipped classroom to develop hard and soft skills in the Brazilian suburbs of 3 cities in Brazil, Ânima Educação, Brazil. Project websites: Belo Horizonte: https://favelaware.animahub.com.br/ , Rio de Janeiro: https://favelatechibmr.animahub.com.br/ , Porto Alegre: https://jovemtechuniritter.animahub.com.br/ .
2022-2023	GENT - Platform for Integrated Health Clinic of the NGO Assopoc, Centro Universitário de Belo Horizonte (UniBH), Belo Horizonte, MG, Brazil. My press interview about the project (October/2022): https://www.revistaencontro.com.br/canal/atualidades/2022/10/com-apoio-do-instituto-galo-alunos-vao-criar-sistema-para-lar-de-idosos.html
2019-2023	Medtest - Gamification for Infectious Diseases Medical Education (Mentioned by the WHO literature), Centro Universitário de Belo Horizonte (UniBH), Belo Horizonte, MG, Brazil. My TV interview about the project (February/2022): https://www.em.com.br/app/noticia/bem-viver/2022/02/23/interna_bem_viver,1346881/oms-public-a-game-criado-por-alunos-do-unibh-para-diagnostico-de-covid.shtml
2020-2022	Health Lab 4.0 UniBH Project: an innovative journey towards entrepreneurship in digital health, Centro Universitário de Belo Horizonte (UniBH), Belo Horizonte, MG, Brazil. My press interview about the project (February/2021): https://www.em.com.br/app/noticia/emprego/2021/02/26/interna_emprego,1241317/unibh-leva-a-tecnologia-para-a-formacao-de-estudantes-de-medicina.shtml
2020-2021	Influencer do Bem: Hackathon for the prevention against COVID-19 in Brazil, Ânima Educação, Brazil. My press interview about the project (August/2021): https://revistaporaqui.com.br/Noticia/Index/di-alok-participa-de-acao-de-conscientizacao
2019-2022	Ânima Girls in Tech: A community of students and teachers of IT courses from all Ânima Educação universities to discuss digital inclusion and diversity. Instagram's page: @girls.intech. Podcast on Spotify: https://open.spotify.com/show/2p7ZUTyB5WFaKozMg5Lc6S . Live on Youtube: https://www.youtube.com/live/YYH-X0GfUtc?feature=share

CONGRESSES AND SEMINARS

Date	Title	Place
September 18-21, 2024	Web Scraping for Business Intelligence: Analysing Higher Education Courses in Brazil.	In the 16th International Conference on Education Technology and Computers (ICETC 2024), University of Porto, Porto, Portugal.
August 29-31, 2024	Machine Learning Models for Basic Skills Identification in University Students.	The IEEE 12th International Conference on Intelligent Systems (IS), Varna, Bulgaria.
June 20-22, 2024	Mulheres Tech: Flipped Classroom for the Digital Inclusion of Domestic Workers in Brazilian Cities	The 6th World Conference on Education and Teaching (ETCONF), Vienna, Austria.
November 17, 2024	Health Lab 4.0 UniBH Project: an innovative journey towards entrepreneurship in digital health	The XX Congresso Brasileiro de Informática em Saúde - CBIS24, Belo Horizonte, Brazil.
September 12-15, 2023	Virtual Patient: New and Optimised Decision Tree in Virtual Simulation Process.	The 7th International Conference on Prevention and Infection Control (ICPIC), Geneva, Switzerland.
September 12-15, 2023	Platform for Gamification of Medical Education: Expanding Teaching Strategies with Data Management and Gamified Interaction.	The 7th International Conference on Prevention and Infection Control (ICPIC), Geneva, Switzerland.
July 28-30, 2023	Innovation in Medical and Legal Education: Artificial Intelligence in lawsuits against Health Plans.	The 7th International Conference on Applied Research in Management, Economics, and Accounting (IARMEA), Dublin, Republic of Ireland.
July 17-21, 2023	OACTS: Mathematical Model for Optimizing the Active Control of Traffic Signals Parameters.	The 16th World Conference on Transport Research - WCTR 2023, Montreal, Canada.



June 23-25, 2023	Extension Project Based on Flipped Classroom to the Development of Hard and Soft Skills in Brazilian Outskirts: Case studies.	The 6th International Academic Conference on Teaching, Learning and Education - TLECONF 2023, Amsterdam, Netherlands.
March 11-13, 2022.	Virtual Patient: Development of a Clinical Cases Simulator as a Tool for Medical Education.	The 5th International Conference on Research in Applied Science, Berlin, Germany.
May 26-31, 2019	Calibrating Traffic Microscopic Simulation Model Parameters Using an Evolutionary Approach	The World Conference on Transport Research - WCTR, Mumbai, India.
November 1st, 2017	Modelo de Otimização para o Controle Ativo do Plano de Temporização Semaforica de Intersecções	XXXI Congresso de Pesquisa e Ensino em Transportes da ANPET, Recife, Brazil.
October 10-14, 2016	Active Control of Traffic Signals using a Multi-objective Approach and Evolutionary Algorithms.	23rd ITS World Congress in Melbourne, Australia
July 10-15, 2016	Active control for traffic lights in regions and corridors: an approach based on evolutionary computation.	14th World Conference on Transport Research - WCTR, Xangai, China

PUBLICATIONS

Leal, S. S., Ntalampiras, S., & Sassi, R. (2024). Speech-based Depression Assessment: A Comprehensive Survey. <i>IEEE Transactions on Affective Computing</i> . https://doi.org/10.1109/TAFFC.2024.3521327
Leal, S. S., & de Almeida, P. E. M. Traffic light optimization using a non-dominated sorting genetic algorithm (NSGA2). <i>Journal of Scientific Reports, Nature</i> , 13(1), 2023. https://doi.org/10.1038/s41598-023-38884-2
Leal, S. S., Souza, F. H. B. d., Moreira, R. P. C., & Bortolotto, F. C. K. ÂNIMA HUB: New Research to Business Model for the Development of Technological Innovation and Entrepreneurship in Universities in Partnership With Companies. <i>International Journal of Business Administration</i> , 14(4), 13, 2023. https://doi.org/10.5430/ijba.v14n4p13
Leal, S. S., Moreira, R. P. C., Amaral, L. A., Barbosa, J. d. A., Alves, T. P., Matos, I. M. d., & Pereira, S. C. Extension Project Based on Flipped Classroom to the Development of Hard and Soft Skills in Brazilian Outskirts: Case studies. <i>International Journal of Second and Foreign Language Education</i> , 2(2), 43-61, 2023. https://doi.org/10.33422/ijsfle.v2i2.464
Martins, K., Souza, F., Augusto, L., Magalhães, R., Rodrigues, L., Menezes, E., Souza, P., Savio, R., Leal, S., & Reis, M. Enhancing Follicular Lymphoma Diagnosis with the Aid of MedTest: an Innovative Clinical Tool. <i>Haematology, Transfusion and Cell Therapy</i> , 45, S363. 2023. https://doi.org/10.1016/j.htct.2023.09.696
Martins, K., Souza, F., Campos, L., Menino, E., Guimarães, J., Fernandes, M., Soares, A., Rocha, L., Leal, S., & Santiago, R. Enhancing Medical Education in Hematology: Complex Clinical Case Simulator with Decision Tree. <i>Haematology, Transfusion and Cell Therapy</i> , 45, S204, 2023. https://doi.org/10.1016/j.htct.2023.09.431
Souza, G., Leal, S. S., et al. 969 Gamification for Infectious Diseases Medical Education: Creating a Video Game to Teach COVID 19 Diagnosis and Treatment to Medical Students. In: <i>Open forum infectious diseases</i> . US: Oxford University Press, p. S576-S577, 2021. https://doi.org/10.1093/ofid/ofab466.1164
Leal, S. S., Almeida, P. E. M. d; Ribeiro, R. G.. Calibrating Traffic Microscopic Simulation Model Parameters Using an Evolutionary Approach. <i>Transportation Research Procedia</i> , v. 48, p. 1038-1045, 2020. https://doi.org/10.1016/j.trpro.2020.08.131
Leal, S. S., Almeida, P. E. M. d., Junior, J. E. B. Modelo de Otimização para o Controle Ativo do Plano de Temporização Semaforica de Intersecções. In book: <i>O Desenvolvimento Sustentável do Sistema de Transportes do Brasil</i> , Atena Editora, p. 33, 2019. https://doi.org/10.22533/at.ed.5571919123 .



Costa, B. C.; Leal, S. S., Almeida, P. E. M. d., Carrano, E. G. Fixed-time traffic signal optimization using a multi-objective evolutionary algorithm and microsimulation of urban networks. Transactions of the Institute of Measurement and Control, v. 40, n. 4, p. 1092-1101, 2018. <https://doi.org/10.1177/0142331216675026>

Leal, S. S., Almeida, P. E. M. d., Chung, E. Active control for traffic lights in regions and corridors: an approach based on evolutionary computation. Transportation Research Procedia, v. 25, p. 1769-1780, 2017. <https://doi.org/10.1016/j.trpro.2017.05.140>.

Articles in reviews

Brás, G., Leal, S. S., Sousa, B., Junior, C., Souza, J., Mendes, Z., & Paes, G. Machine Learning Models for Basic Skills Identification in University Students. In the Advances in Science, Technology and Engineering Systems Journal (ASTES). ISSN: 2415-6698. Vol. 9, No. 1, 2024.

Monteiro, E. C. C., Maciel, W., Leal, S. S. Égide: Social Network for Intellectual Property Support to Foster Entrepreneurship and Intrapreneurship through Blockchain. In Revista Processando o Saber - eISSN 2179-5150, Volume 16, 2025.

Leal, S. S., Brás, G., Paes, Gabriel., Souza, J., Junior, C., Sousa, B., Assis, R., Guimaraes, T., Marques, T. AILA - Artificial Intelligence for Learning Assistance: A learning support interactive chatbot. In the IEEE 4th International Conference on Computing and Machine Intelligence (ICMI 2025), Michigan , USA, April 05-06, 2025.

Congress proceedings

Brás, G., Leal, S. S., Sousa, B., Junior, C., Souza, J., Mendes, Z., & Paes, G. Machine Learning Models for Basic Skills Identification in University Students. Proceedings of the IEEE 12th International Conference on Intelligent Systems (IS), Varna, Bulgaria, August 29-31, 2024 (pp. 1-9). IEEE. <https://doi.org/10.1109/IS61756.2024.10705207>

Leal S. S., Brás G., Brandão V. S. W., Silva L. C. V. d., Alves V. d. O., Hirano W. M., Meira A. C., Costa G. J., Luz C. S. Web Scraping for Business Intelligence: Analysing Higher Education Courses in Brazil. In the 16th International Conference on Education Technology and Computers (ICETC 2024), University of Porto, Porto, Portugal, September 18-21, 2024.

Leal S. S., et al. Mulheres Tech: Flipped Classroom for the Digital Inclusion of Domestic Workers in Brazilian Cities. Proceedings of the 6th World Conference on Education and Teaching (ETCONF), Vienna, Austria. June 20-22, 2024. ISBN: 978-609-485-557-3. <https://www.dpublication.com/wp-content/uploads/2024/06/32-2249.pdf>

de Souza, F. H. B., Leal, S. S., Martins, K. A. M., de Araújo, L. L., Souza, N. M., dos Reis, M. A. A., ... & de Oliveira Rocha, L. Health Lab 4.0 UniBH Project: an innovative journey towards entrepreneurship in digital health. Extended Proceedings of the XX Congresso Brasileiro de Informática em Saúde - CBIS24, Belo Horizonte, Brazil. November 17, 2024 (pp 387-390). <https://zenodo.org/records/14175656>

Leal, S. S., Almeida, P. E. M. d. OACTS: Mathematical Model For Optimising The Active Control of Traffic Signals Parameters. Proceedings of the 16th World Conference on Transport Research - WCTR 2023, Montreal, Canada, 17-21 July 2023. <https://easychair.org/publications/preprint/wQd8t>

Leal, S. S., Moreira, R. P. C., Amaral, L. A., Barbosa, J. d. A., Alves, T. P., Matos, I. M. d., & Pereira, S. C. Extension Project Based on Flipped Classroom to the Development of Hard and Soft Skills in Brazilian Outskirts: Case studies. Proceedings of The 6th International Academic Conference on Teaching, Learning and Education - TLECONF 2023, Amsterdam, Netherlands. 23-25, June, 2023. <https://www.dpublication.com/proceeding/6th-tleconf/#Table-of-Contents>

Martins, K. A. M., de Souza, F. H. B., Leal, S. S., Reis, M. A. d., Santiago, R. C., Souza, G. L. de Araújo, L. L., Rocha, L. d. O. Gamificação Arelada à Árvore de Decisões: Inovação e Otimização no Manejo Clínico do Aprendizado sobre Doenças Inflamatórias Intestinais. In 71° Congresso Brasileiro de



Coloproctologia. Thieme Revinter Publicações Ltda. 2023. https://doi.org/10.1055/s-0044-1781017
Souza, F. H. B. d., Leal, S. S., et al. Virtual Patient: New and Optimised Decision Tree in Virtual Simulation Process. In the 7th International Conference on Prevention and Infection Control (ICPIC), Geneva, Switzerland, September 2023. https://doi.org/10.1186/s13756-023-01276-2
Souza, F. H. B. d., Leal, S. S., et al. Platform for Gamification of Medical Education: Expanding Teaching Strategies with Data Management and Gamified Interaction. In the 7th International Conference on Prevention and Infection Control (ICPIC), Geneva, Switzerland, September 2023. https://doi.org/10.1186/s13756-023-01276-2
H. B. de Souza, F... Leal, S. S. et al. Innovation in Medical and Legal Education: Artificial Intelligence in lawsuits against Health Plans. In The 7th International Conference on Applied Research in Management, Economics and Accounting. Acavent, 2023. https://doi.org/10.33422/7th.iarmea.2023.07.122
de Souza, F. H. B., Leal, S. S., et al. Virtual Patient: Development of a Clinical Cases Simulator as a Tool for Medical Education. In Proceedings of The 5th International Conference on Research in Applied Science. Berlin, Germany. 2022. https://www.doi.org/10.33422/5th.rasconf.2022.03.01
Leal, S. S., Almeida, P. E. M. d; Ribeiro, R. G.. Calibrating Traffic Microscopic Simulation Model Parameters Using an Evolutionary Approach. In the WCTR Mumbai 2019 Full Conference Proceedings, Mumbai, India, 26-31, May, 2019. https://wctrs-society.com/mumbai-conference-2019/

OTHER INFORMATION

Contacts for further references: <ul style="list-style-type: none">- Roberto Sassi: Full Professor at the University of Milan- (Email: roberto.sassi@unimi.it)- Edward Chung: Professor at The Hong Kong Polytechnic University - Email: edward.cs.chung@polyu.edu.hk- Marccone Freitas: Dean and professor at The Federal University of Ouro Preto - Email: marcone.freitas@gmail.com
Link with CV attachments (Original in Portuguese and translated into English): https://drive.google.com/drive/folders/16EwygaAkCr79LwftqhxQLioVuXA3JkGk?usp=sharing

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Please note that **CV WILL BE PUBLISHED** on the University website and It is recommended that personal and sensitive data should not be included. This template is realized to satisfy the need of publication without personal and sensitive data.

Please DO NOT SIGN this form.

Place and date: Milano, 22/01/2025.