

ADMISSION TO DOCTORAL STUDIES

Session September 2024

Field of doctoral studies: FINANCE

Doctoral supervisor: Ph.D. Professor Marius Sorin DINCĂ

TOPICS FOR THE ADMISSION TO DOCTORAL STUDIES

TOPIC 1: Using Machine Learning (ML) to optimize the investment decisions regarding publicly listed companies

Contents / Main aspects to be considered

1. The specific of ML for the financial field
2. Using ML to perform the fundamental analysis of publicly listed companies
3. Using ML to perform the technical analysis of publicly listed companies
4. Integrating the results of the fundamental and technical analyses to set the investment decisions

Recommended bibliography:

1. Oliveira, A.V.d.; Dazzi, M.C.S.; Fernandes, A.M.d.R.; Dazzi, R.L.S.; Ferreira, P.; Leithardt, V.R.Q. Decision Support Using Machine Learning Indication for Financial Investment. *Future Internet* 2022, *14*, 304. <https://doi.org/10.3390/fi14110304>
2. J. Arroyo, F. Corea, G. Jimenez-Diaz and J. A. Recio-Garcia, "Assessment of Machine Learning Performance for Decision Support in Venture Capital Investments," in *IEEE Access*, vol. 7, pp. 124233-124243, 2019, doi: 10.1109/ACCESS.2019.2938659.
3. R. Rosati, L. Romeo, C. A. Goday, T. Menga and E. Frontoni, "Machine Learning in Capital Markets: Decision Support System for Outcome Analysis," in *IEEE Access*, vol. 8, pp. 109080-109091, 2020, doi: 10.1109/ACCESS.2020.3001455.
4. Jabeur, S.B., Sadaoui, A., Sghaier, A., Aloui, R., Machine learning models and cost-sensitive decision trees for bond rating prediction, *Journal of Operational Research Society*, vol. 71, Issue8, Pages 1161-1179, Published online: 20 Apr 2019 <https://doi.org/10.1080/01605682.2019.1581405>

Scientific Doctorate (full-time only)

without tuition fee (state budget funded)

with tuition fee or with funding from other sources than the state budget

TOPIC 2: Using Mathematical Models to Improve Financial Decisions for Small and Medium Enterprises

Contents / Main aspects to be considered

1. Theoretical underpinnings of mathematical modeling in finance and how SME's might use it
2. Testing and Using mathematical models for improving SME's resilience and financial performance.

3. Using mathematical modeling approaches to analyze financial data and spot trends that are important to SME's

Recommended bibliography:

1. Attar, M., & Abdul-Kareem, A. (2020). The Role of Agile Leadership in Organizational Agility. *Agile Business Leadership Methods for Industry 4.0*, 4, 171–191.
2. <https://doi.org/10.1108/978-1-80043-380-920201011>
3. Gherghina, S. C., Botezatu, M. A., Hosszu, A., & Simionescu, L. N. (2020). Small and Medium-Sized Enterprises (SMEs): The Engine of Economic Growth through Investments and Innovation. *Sustainability*, 12(1), 347. MDPI. <https://doi.org/10.3390/su12010347>
4. Pappas, N., Caputo, A., Pellegrini, M. M., Marzi, G., & Michopoulou, E. (2021). The complexity of decision-making processes and IoT adoption in accommodation SMEs. *Journal of Business Research*, 131. <https://doi.org/10.1016/j.jbusres.2021.01.010>
5. Rane, N., Choudhary, S., & Rane, J. (2024). Artificial Intelligence-Driven Corporate Finance: Enhancing Efficiency and Decision-Making Through Machine Learning, Natural Language Processing, and Robotic Process Automation in Corporate Governance and Sustainability. *Social Science Research Network*.
6. <https://doi.org/10.2139/ssrn.4720591>
7. Surya, B., Menne, F., Sabhan, H., Suriani, S., Abubakar, H., & Idris, M. (2021). Economic Growth, Increasing Productivity of SMEs, and Open Innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(1), 20. MDPI.
8. <https://doi.org/10.3390/joitmc7010020>
9. Weaven, S., Quach, S., Thaichon, P., Frazer, L., Billot, K., & Grace, D. (2021). Surviving an economic downturn: Dynamic capabilities of SMEs. *Journal of Business Research*, 128, 109–123. <https://doi.org/10.1016/j.jbusres.2021.02.009>

X Scientific Doctorate (full-time only)

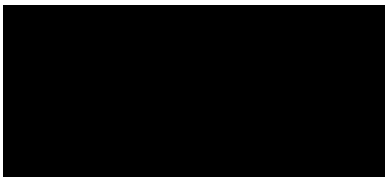
X without tuition fee (state budget funded)

X with tuition fee or with funding from other sources than the state budget

Doctoral supervisor,

Prof. dr. Marius Sorin DINCĂ

Semnătură



Coordinator of the field of doctoral studies,

Prof. dr. Marius Sorin DINCĂ

Semnătură

