

Bucharest University of Economic Studies

No./ Date: 11863/25.08.2023

NOTICE

Bucharest University of Economic Studies organizes the selection for the following post:

PhD candidate researcher - 2 posts in the project “*AI for Energy Finance (AI4EFin)*”,
project number 162/15.11.2022

Part-time 80 hours/month unevenly distributed, gross hourly pay 86,50 lei, for a determined period of 12 months, including assessment and possible extension up to 30 June 2026.

A. In order to enter the selection, candidates need to fulfil the following general and specific conditions

1. General conditions:

- a) minimum age stipulated by law;
- b) has full capacity;
- c) meets the conditions of education and, where appropriate, seniority or other specific conditions in accordance with the requirements of the post to be filled;
- d) has not been convicted of a crime against humanity, against the state or against authority, or of an offence committed in the course of or in connection with the performance of his or her duties which obstructs the course of justice, or of forgery or corruption, or of an offence committed with intent which would make him or her incompatible with the performance of his or her duties, unless he or she has been rehabilitated.

2. Specific conditions:

- a) level of studies: higher education, MA diploma completed
- b) area of studies: economy, business administration, cybernetics and statistics, economic informatics, finance, statistics or similar
- c) Registered PhD candidate at PhD organizing institutions in Romania - https://www.edu.ro/IOSUD_2022).
- d) Other specific conditions:

Responsibilities:

- Collect, preprocess, and analyze vast amounts of data from the energy finance ecosystem.
- Apply machine learning and statistical techniques to extract patterns and insights from the data.
- Develop and implement data-driven models for forecasting energy derivative prices and other relevant variables.
- Collaborate with the research team to design and refine ML/AI instruments for energy finance analysis.

- Publish research findings in reputable academic journals and present at conferences/workshops.
- Contribute to quantinar.com and the social media strategy of the research project

Requirements:

- A Master's degree in a relevant field such as data science, computer science, statistics, or a related discipline.
- Solid knowledge of machine learning algorithms, statistical modeling, and data analysis techniques.
- Proficiency in programming languages such as Python (preferred) or R.
- Strong understanding of energy markets and financial concepts.
- Good problem-solving skills and attention to detail.
- Ability to collaborate effectively with researchers and analysts from different backgrounds

B. Selection will consist of:

1. Assessment of applications

2. Interview: structured interview (if minimum 2 candidates do not apply, the selection panel may decide to simplify the procedure and complete the selection without the interview)

- *Interview date and timing:* will be communicated at the same moment of posting the results for applications assessment;
- *Place of interview:* will be communicated at the same moment of posting the results for applications assessment.

Tests are eliminatory, maximum score at each test being 70 points.

C. Subject area and bibliography:

1. Subject area:

1. Energy Finance
2. Artificial Intelligence
2. Explainable deep neural networks
3. Machine Learning
4. Risk management

Bibliography:

1. Bock, K. W. D., Coussement, K., & Lessmann, S. (2020). Cost-Sensitive Multicriteria Ensemble Selection: A Framework For Business Failure Prediction When Misclassification Costs Are Uncertain. *European Journal of Operational Research*, 285(2), 612-630. <https://doi.org/https://doi.org/10.1016/j.ejor.2020.01.052>
2. Craja, P., Kim, A., & Lessmann, S. (2020). Deep learning for detecting financial statement fraud. *Decision Support Systems*, 139, 113421. <https://doi.org/https://doi.org/10.1016/j.dss.2020.113421>

3. Haupt, J., & Lessmann, S. (2022). Targeting customers under response-dependent costs. *European Journal of Operational Research*, 297(1), 369-379. <https://doi.org/https://doi.org/10.1016/j.ejor.2021.05.045>
4. Kim, A., Yang, Y., Lessmann, S., Ma, T., Sung, M. C., & Johnson, J. E. V. (2020). Can Deep Learning Predict Risky Retail Investors? A Case Study in Financial Risk Behavior Forecasting. *European Journal of Operational Research*, 283(1), 217-234. <https://doi.org/https://doi.org/10.1016/j.ejor.2019.11.007>
5. Kozodoi, N., Jacob, J., & Lessmann, S. (2022). Fairness in credit scoring: Assessment, implementation and profit implications. *European Journal of Operational Research*, 297(3), 1083-1094. <https://doi.org/https://doi.org/10.1016/j.ejor.2021.06.023>
6. Lessmann, S., Baesens, B., Seow, H.-V., & Thomas, L. C. (2015). Benchmarking state-of-the-art classification algorithms for credit scoring: An update of research. *European Journal of Operational Research*, 247(1), 124-136. <https://doi.org/10.1016/j.ejor.2015.05.030>
7. Lessmann, S., Haupt, J., Coussement, K., & De Bock, K. W. (2021). Targeting customers for profit: An ensemble learning framework to support marketing decision-making. *Information Sciences*, 557, 286-301. <https://doi.org/https://doi.org/10.1016/j.ins.2019.05.027>
8. Lux, M., Härdle, W. K., & Lessmann, S. (2019). Data Driven Value-at-Risk Forecasting using a SVR-GARCH-KDE Hybrid. *Computational Statistics*, 35, 947-981. <https://doi.org/10.1007/s00180-019-00934-7>
9. Schirmer, M., Eltayeb, M., Lessmann, S., & Rudolph, M. (2022, July 17-23). Modeling Irregular Time Series with Continuous Recurrent Units. *Proceedings of Machine Learning Research Proc. of the 39th Intern. Conf. on Machine Learning (ICML'2022)*, PLMR, Baltimore, MD, USA. <https://proceedings.mlr.press/v162/schirmer22a.html>
10. Srivastava, S., & Lessmann, S. (2018). A comparative study of LSTM neural networks in forecasting day-ahead global horizontal irradiance with satellite data. *Solar Energy*, 162, 232-247. <https://doi.org/10.1016/j.solener.2018.01.005>

Application documents:

1. List of documents;
2. Application form to the Rector of ASE;
3. Affidavit of own responsibility incompatibility;
4. Copy of identity card or any other document attesting the identity, according to the law, depending on the case;
5. Copy of marriage certificate or proof of changing name if the candidate has changed his/her name (proof of name change);
6. Curriculum vitae European format ([www.cveuropean.ro/cv- online.html](http://www.cveuropean.ro/cv-online.html)) – each page dated and signed;
7. Copies of documents attesting the level of studies and other documents attesting completion of specialisations, as well as copies of documents attesting the fulfilment of specific conditions required to fill the post;

8. Other documents relevant for the selection.

E. Contact:

Applications will be submitted by 4 September 2023, 4 pm, at ASE Registrar
Contact: Daniel Traian Pele – e-mail: danpele@ase.ro

F. Selection calendar:

| No. | Activities | Date |
|-----|--|----------------------------|
| 1. | Posting notice | 25 August 2023 |
| 2. | Submission of candidates' applications to ASE Registrar and check of documents in the applications | By 4 September 2023 |
| 3. | Assessment of applications by the panel | 5 September 2023 |
| 4. | Posting the results of the applications assessment | 6 September 2023 |
| 5. | Submission of appeals about the results in applications assessment | 7 September 2023 |
| 6. | Posting the results of resolving appeals | 8 September 2023 |
| 7. | Interview | 11 September 2023 |
| 8. | Communicating results following the interview | 12 September 2023 |
| 9. | Submission of appeals about the results of the interview | 13 September 2023 |
| 10. | Posting the results of resolving appeals | 14 September 2023 |
| 11. | Posting final results of selection | 14 September 2023 |
| 12. | Appointment | Following Board's approval |