

Addi Ait-Mlouk, Ph.D.

📍 Skövde, Sweden

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🌐 <https://aitmlouk.github.io/>

🌐 <https://scholar.google.com/citations?user=nvgiplcAAAAJ&hl=en>



Employment History

- 09/2022 – Present **Senior Lecturer** in Artificial Intelligence and Data Science, Skövde University, Skövde, Sweden.
Group: Skövde Artificial Intelligence Lab (SAIL)
Director of the Data Science Master's programme
- 09/2020 – 09/2022 **Senior Researcher** in Computer Science, Uppsala University, Uppsala, Sweden.
Project: *Scalable federated machine learning*.
HellanderLab on Computational Science and Engineering.
Research Interests: Federated learning, Deep learning, NLP, AI, Applied cloud computing.
- 09/2018 – 08/2020 **PostDoc Researcher** in Computer Science, Umeå University, Umeå, Sweden.
Project: *Privacy-aware federated database infrastructure construction for heterogeneous data analysis on micro-data*
Group: Deep Data Mining Group (DDM).
Research Interests: Data Mining, Privacy-preserving, Semantic Web, NLP, Knowledge Graph, Information Retrieval.
- 09/2017 – 07/2018 **Assistant Professor** in Computer Science, Private University of Marrakech, Morocco.
- 07/2013 – 12/2017 **ERP (Odoo) Expert**, Sublimaroc, Casablanca, Morocco.

Education

- 01/2014 – 03/2018 **Ph.D. in Data Mining**, Cadi Ayyad University, Marrakech, Morocco.
Thesis title: *Data Mining and association rules quality analysis in big data : Application on road safety*.
Supervisor : Pr. Tarik Agouti
Research Interests : Data Mining, Machine Learning, Big Data, Multiple Criteria Analysis, and Transportation.
- 09/2011 – 07/2013 **M.Sc. in Information Systems Engineering**, Cadi Ayyad University, Faculty of Science Semlalia, Marrakech, Morocco.
- 09/2008 – 07/2011 **B.Sc. in Software Engineering**, Faculty of Science and technology, Errachidia, Morocco.

Pedagogical Courses (Educational development)

- 11/2021 – 12/2021 **Curious about leadership - for future research group leaders**, Uppsala University, Uppsala, Sweden.
- 11/2021 – 11/2021 **Supervising student presentations in theory and in practice**, Uppsala University, Uppsala, Sweden.
- 08/2021 – 10/2021 **Academic Teacher Training Course 1**, Uppsala University, Uppsala, Sweden.
- 02/2020 – 04/2021 **Supervising Doctoral Students, spring 2021**, Uppsala University, Uppsala, Sweden.
- 04/2020 – 05/2021 **Assessment, grading and feedback**, Uppsala University, Uppsala, Sweden.
- 03/2020 – 05/2021 **Supervising Students for Degree Projects**, Uppsala University, Uppsala, Sweden.

Teaching Experience

- 08/2022 – Present **University of Skövde, Skövde, Sweden.**
Courses: *Data Mining (7.5 credits), Data Science (15 credits).*
Level: *Master.*
Role: *Responsible for lectures, labs, seminars, mini-project and examination.*
- 03/2022 – 05/2022 **Uppsala University, Uppsala, Sweden.**
Course: *Data Engineering II (7.5 credits).*
Level: *Master.*
Role: *Teacher: lectures, labs, seminars and mini-project.*
- 08/2021 – 10/2021 **Uppsala University, Uppsala, Sweden.**
Course: *Applied Cloud Computing (10 credits).*
Level: *Master.*
Role: *Responsible for lectures, labs, seminars, mini-project and examination.*
- 2019 – 2020 **Umeå University, Umeå, Sweden.**
Course: *Machine Learning (ML).*
Level: *Master.*
Role: *Guest Lecturer (two lectures).*
- 2018 – 2019 **Private University of Marrakech (UPM), Marrakech, Morocco.**
Course 1: *Database administration (DBA Oracle 11g).*
Course 2: *Web development.*
Level: *Bachelor.*
Role: *Responsible for lectures, labs, mini-project and examination.*
- 2016 – 2017 **Cadi Ayyad University, Marrakech, Morocco.**
Course 1: *Programming C/C++.*
Course 2: *Advanced Excel.*
Level: *Bachelor.*
Role: *Responsible for labs and examination.*
- Trainer, IT & Business Consulting, Casablanca, Morocco.**
Course 1: *Information system -Odoo development /Python.*
Course 2: *Data Science with R and Python.*
Role: *Responsible for training (lectures and labs).*
- 2015 – 2016 **Trainer, Sublimaroc, Casablanca, Morocco.**
Course 1: *Information system -Odoo development /Python.*
Role: *Responsible for training (lectures and labs).*
- 2014 – 2015 **Cadi Ayyad University, Marrakech, Morocco.**
Course 1: *Programming C/C++.*
Course 2: *Advanced Excel.*
Level: *Bachelor.*
Role: *Responsible for labs and examination.*

Online teaching

- 2018 – 2021 **Mentor and degree project supervisor, at Openclassrooms.com (High-Tech).**
Path 1: *Artificial Intelligence Engineer (AI).*
Path 2: *Machine Learning Engineer (MLE).*
Path 3: *Data Scientist (DS).*
Path 4: *Python Application Developer (PAD).*
Role: *Mentor and Examiner.*

Supervision

Master thesis reviewer

- 02/2023 – 06/2023
 - ▀ Privacy-aware object detection for visually impaired people using Decentralized AI.
 - ▀ Comprehensive study on Federated Learning frameworks.
 - ▀ SpryAB – Budget prognosis for business planning.
 - ▀ Real-time image analysis for the identification of defects in metal products.
 - ▀ Image analysis to interpret image streams in order to standardize manufacturing.
 - ▀ Building a short-term forecasting model to predict the call volume of an answering
- 01/2022 – 06/2022
 - ▀ Federated Learning for edge computing: Real-Time Object Detection(University of Skövde).
- 01/2022 – 06/2022
 - ▀ Hands-on comparison of cloud computing services for developing applications (Uppsala University).
 - ▀ Continuous replication of data from NSO to an external database (Uppsala University).
 - ▀ Cloud-based video stabilization processing in real-time (Uppsala University).
- 03/2021 – 06/2021
 - ▀ Graph Neural Network Aggregation (Uppsala University).
- 04/2021 – 06/2021
 - ▀ Vision through ears for blind or visually impaired people (Uppsala University).

Proposals / Grants

- 03 – 2022
 - ▀ **VR-Starting Grant (4MSEK):** TrustNLP: Decentralized Large-Scale Natural Language Processing models for medical domain [Submitted]
- 09 – 2021
 - ▀ **STINT- Initiation Grant (100.000 SEK):** Data, Decentralized Artificial Intelligence, and Knowledge Sharing for good (Uppsala University, and University Hassan II, Morocco) [Submitted]
- 03 – 2021
 - ▀ **SNIC AI/ML 2021:** Federated Learning for large models (SNIC Cloud resources)
 - ▀ **UPPMAX 2021/2-4:** Federated NLP with FEDn (SNIC Cloud resources)
- 12 – 2019
 - ▀ **Wallenberg Foundation (30.000 SEK):** Travel Grants - <https://thewebconf.org/www2019/>

Reviewer (Journals and Conferences)

- Journal
 - ▀ Universal Journal of Computer Science (ISSN: 0948-695x)
 - ▀ International Journal of Cluster Computing (ISSN: 1386-7857)
 - ▀ International Journal of Big Data (ISSN: 2196-1115)
 - ▀ Artificial Intelligence Review (ISSN: 1573-7462)
 - ▀ IEEE Access
- Conferences
 - ▀ The European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD 2017)
 - ▀ The 30th Australasian Joint Conference on Artificial Intelligence (AI 2017)
 - ▀ ICDM 2019: 19th IEEE International Conference on Data Mining
 - ▀ The 28th International Conference on Database and Expert Systems Applications (DEXA)
 - ▀ International Conference on Computer Science and Application Engineering (CSAE 2017)

Reviewer (Journals and Conferences) (continued)

- 3rd International Conference on Recent Trends in Computer Science and Electronics(RTCSE18)
- The 4th International Conference on Computer Science, Engineering and Information Technology (CSEIT-2017)
- The 5th International Conference on Fuzzy Systems and Data Mining (FSDM 2019)

Research Publications

Journal Articles

- **Ait-Mlouk, A.**; Alawadi, S.A.; Toor, S.; Hellander, A. FedQAS: Privacy-Aware Machine Reading Comprehension with Federated Learning. Appl. Sci. 2022, 12, 3130. <https://doi.org/10.3390/app12063130>
- Brahim Ait Ben Ali, **Addi Ait-Mlouk**, Soukaina Mihi, Ismail El Bazi, Nabil Laachfoubi, (2022) Arabic Named Entity Recognition on Social Media based on BiLSTM-CRF using an attention mechanism. journal of intelligent and fuzzy systems (JIFS).
- Morgan Ekmefjord, **Addi Ait-Mlouk**, Sadi Alawadi, Mattias Åkesson, Desislava Stoyanova, Ola Spjuth, Salman Toor and Andreas Hellander (2021) Scalable federated machine learning with FEDn. arXiv:2103.00148.
- **Addi Ait-Mlouk**; Vu, X.-S.; Jiang, L. (2020) WINFRA: A Web-Based Platform for Semantic Data Retrieval and Data Analytics. Mathematics 2020, 8, 2090. <https://doi.org/10.3390/math8112090>
- **Addi Ait-Mlouk**, Lili Jiang (2020) kbot: a knowledge graph based chatbot for natural language understanding over linked data, in IEEE Access, vol. 8, pp. 149220-149230, 2020, doi: 10.1109/ACCESS.2020.3016142..
- **Addi Ait-Mlouk** and T.Agouti, (2019) DM-MCDA: Aweb-based platform for data mining and multiple criteria decision analysis: A case study on road accident. SoftwareX (2019) 100323, <https://doi.org/10.1016/j.softx.2019.100323>.
- Marzak B, **Addi Ait-Mlouk**, El Moumni S, Benlahmar E, Talea M. (2018) Stable routing protocol based on fuzzy logic system in vehicular ad hoc networks. Int J Commun Syst. 2018;e3587. <https://doi.org/10.1002/dac.3587>.
- **Addi Ait-Mlouk**, Gharnati, F., Agouti, T. (2017) An improved approach for association rules mining using multi-criteria decision support system: A case study in road safety. European Transport Research Review, Vol.9, No.3, pp. 1-13, <https://doi.org/10.1007/s12544-017-0257-5>.
- **Addi Ait-Mlouk**, Gharnati, F., Agouti, T. (2017) Application of big data analysis with decision Tree for road accident. Indian Journal of Science and Technology, Vol. 10, No. 29, pp. 1-10, DOI: 10.17485/ijst/2017/v10i29/117325.
- **Addi Ait-Mlouk**, Kamsa, I., Gharnati, F., Agouti, T. (2017) Intelligent transport system for road safety based data mining approach. International Journal of Control and Automation, Vol.10, No.8, pp.13-22.
- **Addi Ait-Mlouk**, Gharnati, F., Agouti, T. (2017) Mining and prioritization of association rules for Big Data: Multi-criteria decision analysis approach. Journal of Big Data.
- Raja Mouachi, **Addi Ait-Mlouk**, Fatima Gharnati and Mustapha Raoufi(2017) A Choice of Symmetric Cryptographic Algorithms based on Multi-Criteria Analysis Approach for Securing Smart Grid. Indian Journal of Science and Technology, Vol. 10, No. 39, pp. 1-9, DOI:10.17485/ijst/2017/v10i39/119856.
- **Addi Ait-Mlouk**, Gharnati, F., Agouti, T. (2017) Multi-criteria decisional approach for extracting relevant association rules. Int. J. of Computational Science and Engineering, Vol. 15, No.3/4, pp. 188-200.
- **Addi Ait-Mlouk**, Gharnati, F. Agouti, T. (2016) Multi-Agent Based Modeling for Extracting Relevant Association Rules Using a Multi-Criteria Analysis Approach. Vietnam Journal of Computer Science, Vol.3, N.4, pp 235-245.

Research Publications (continued)

Conference Proceedings

- Morgan Ekmeffjord, **Addi Ait-Mlouk**, Sadi Alawadi, Mattias Åkesson, Desislava Stoyanova, Ola Spjuth, Salman Toor and Andreas Hellander, "Scalable federated machine learning with FEDn" 2022 IEEE/ACM 22st International Symposium on Cluster, Cloud and Internet Computing (CCGrid), 2022, pp. 21-30. [Rank: A]
- **Addi Ait-Mlouk**, Lili Jiang (2020) A Web-based Platform for Mining and Ranking Association Rules. The 42st European Conference on Information Retrieval (ECIR 20), April 14-17, Lisbon, Spain. [Rank: A]
- Xuan-Son Vu, **Addi Ait-Mlouk**, Erik Elmroth, Lili Jiang (2019) Graph-based Interactive Data Federation System for Heterogeneous Data Retrieval and Analytics. **The 30th TheWebConf'19 (formerly WWW)**, May 13-17, 2019. San Francisco, Californie, U.S. [Rank: A*]
- **Addi Ait-Mlouk**, Xuan-Son Vu, Erik Elmroth, Lili Jiang (2019) Improving RDF data through semantic association rules mining. The 31st annual workshop of the Swedish Artificial Intelligence Society (SAIS 2019), June 18-19, Umeå, Sweden.
- Xuan-Son Vu, **Addi Ait-Mlouk**, Erik Elmroth, Lili Jiang (2019) Privacy-concerns in the Era of AI and Social Network Sites. The 31st annual workshop of the Swedish Artificial Intelligence Society (SAIS 2019), June 18-19, Umeå, Sweden.
- Lili Jiang, Xuan-Son Vu, **Addi Ait-Mlouk**, Anders Brändström and Erik Elmroth (2019) Privacy-aware Data Federation Infrastructure. The 31st annual workshop of the Swedish Artificial Intelligence Society (SAIS 2019), June 18-19, Umeå, Sweden.
- **Addi Ait-Mlouk**, Gharnati, F., Agouti, T. (2017) Application of big data analysis with decision Tree for road accident. 3rd International Conference on Green Computing and Engineering Technologies, August 8-10. Killaloe, County Clare, Ireland.
- **Addi Ait-Mlouk**, Kamsa, I., Gharnati, F., Agouti, T. (2017) Intelligent transport system for road safety based data mining approach. 3rd International Conference on Green Computing and Engineering Technologies, August 8-10. Killaloe, County Clare, Ireland.
- **Addi Ait-Mlouk**, Gharnati, F., Agouti, T. (2017) An Approach Based on MapReduce and Decision Tree to Improve Road Safety in Morocco. International symposium on data engineering and information systems (DEIS'2017), Mai 19-05, 2017, Marrakech, Morocco.
- **Addi Ait-Mlouk**, Gharnati, F., Agouti, T. (2016) Mining Traffic Accident from Big Data: The case study of Morocco. The First International Conference of High Innovation in Computer Science (ICHICS'2016), June 01-03, 2016, Kenitra, Morocco.
- Formation Science des Données (2016) La Conférence Internationale Francophone AAFD SFC, Mai 22-26, 2016, Marrakech, Morocco.
- **Addi Ait-Mlouk**, A. Tarik and G. Fatima (2016) An approach based on association rules mining to improve road safety in Morocco. International Conference on Information Technology for Organizations Development (IT4OD), Fez, 2016, pp. 1-6. doi: 10.1109/IT4OD.2016.7479311
- **Addi Ait-Mlouk**, Gharnati, F., Agouti, T. (2015) Association Rules Mining based On Electre Tri Method. The 4th International Conference on Software Engineering and New Technologies (ICSSENT'2015), December, 20-24, 2015, Istanbul, Turkey.
- **Addi Ait-mlouk**, A. Tarik, G. Fatima and D. Badi, (2015) A choice of relevant association rules based on multi-criteria analysis approach. 5th International Conference on Information and Communication Technology and Accessibility (ICTA), Marrakech, Morocco, 2015, pp. 1-6. doi: 10.1109/ICTA.2015.7426886
- Aznaoui, H., **Addi Ait-Mlouk** (2015) Classification of routing Protocol in WSNs. The 4th International Conference on Software Engineering and New Technologies (ICSSENT-2015), December, 20-24, 2015, Istanbul, Turkey.

Research Publications (continued)

- H. Aznaoui, S. Raghay, L. Aziz and **Addi Ait-Mlouk** (2015) A comparative study of routing protocols in WSN. 5th International Conference on Information and Communication Technology and Accessibility (ICTA), Marrakech, Morocco, 2015, pp. 1-6.
- **Addi Ait-Mlouk**, A. Tarik and G. Fatima (2015) Comparative survey of association rule mining algorithms based on multiple-criteria decision analysis approach. 3rd International Conference on Control, Engineering and Information Technology (CEIT), Tlemcen, Algeria 2015, pp. 1-6. doi: 10.1109/CEIT.2015.7233078
- **Addi Ait-Mlouk**, Gharnati, F., Agouti, T. (2015) Evaluation of association rules extraction algorithms. International Conference on Networked Systems (NETYS'2015), May 13-15, 2015. Agadir, Morocco.
- **Addi Ait-Mlouk**, Gharnati, F., Agouti, T. (2015) On selecting interestingness measures for association rules extraction based on electre tri method. 1er forum de la recherche scientifique, Jun, 2015. Marrakech, Morocco.

Chapters

- **Ait-Mlouk A.**, Ait-Mlouk M., El Mazouri FZ., Dey A., Agouti T. (2022) Fuzzy Set Theory-Based Approach for Mining Spatial Association Rules: Road Accident as a Case Study. In: AI and IoT for Sustainable Development in Emerging Countries. Lecture Notes on Data Engineering and Communications Technologies, vol 105. Springer, Cham. https://doi.org/10.1007/978-3-030-90618-4_17

Current work (Submitted, in progress)

- **Addi Ait-Mlouk** and Tarik Agouti (2021) Complex networks analysis using measures of degree, bitterness and closeness centrality: Application to influential users in social networks [In progress].
- **Addi Ait-Mlouk**, Sadi Alawadi, Salman Toor, Andreas Hellander (2021) Febot: Privacy-aware conversational AI assistant for customer support based on federated machine learning [In progress].
- **Addi Ait-Mlouk**, Fatima Zahra El Mazouri (2021) Core techniques of chatbots over linked data: a survey and comparative study [In progress].
- Sadi Alawadi, **Addi Ait-Mlouk**, Salman Toor, Andreas Hellander (2021) Do we need to train all layers in neural network models using federated machine learning settings [In progress].
- Tarik Agouti, Mohamed El-Moussaoui, **Addi Ait-Mlouk** (2021) A graph based modeling using association rule mining to detect influential users in social networks [Submitted to Expert Systems with Applications].

Languages

English	■ Strong reading, writing and speaking competencies
French	■ Strong reading, writing and speaking competencies
Tamazight	■ Strong reading, writing and speaking competencies
Arabic	■ Strong reading, writing and speaking competencies
Swedish	■ Learning
Spanish	■ Learning

References

Available upon request.