

# Addi Ait-Mlouk, Ph.D.

📍 Skövde, Sweden

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🌐 <https://aitmlouk.github.io/>



## Employment History

- 09/2022 – Present    **Associate Professor (Docent)** in Artificial Intelligence and Data Science, University of Skövde, Skövde, Sweden.  
**Director** of the Data Science Master's program (2023-2024)  
**Group:** Skövde Artificial Intelligence Lab (SAIL)  
**Research Interests:** Data Science, Federated learning, Deep learning, NLP, Decentralized AI, IoT.
- 09/2020 – 09/2022    **Postdoc Researcher** in Computer Science, Uppsala University, Uppsala, Sweden.  
**Project:** *Scalable federated machine learning*.  
**Group:** 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) Consultant**, 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*.  
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.

## Pedagogical Courses (Educational development) (continued)

03/2020 – 05/2021  **Supervising Students for Degree Projects, Uppsala University, Uppsala, Sweden.**

## Teaching Experience


08/2022 – Present  **University of Skövde, Skövde, Sweden.**

Level: Master.

Role: Responsible for lectures, labs, seminars, mini-project and examination.

Courses:

- *Data Mining (7.5 credits)*
- *Data Science (15 credits)*
- *Degree project in IT with a focus on data science A2E (30 credits)*
- *Degree project in IT with a focus on Data Science A1E (15 credits)*
- *Project in Data Science A1F (15 credits)*
- *Java Programming (7.5 credits) - Bachelor level*

03/2021 – 05/2022  **Uppsala University, Uppsala, Sweden.**

Level : Master.

Role: Responsible for lectures, labs, seminars and mini-project.

Courses:

- *Data Engineering II (7.5 credits)*
- *Applied Cloud Computing (10 credits)*

2019 – 2020  **Umeå University, Umeå, Sweden.**

Level : Master.

Role : Guest Lecturer.

Courses:

- *Machine Learning (7.5 credits)*

2017 – 2018  **Private University of Marrakech (UPM), Marrakech, Morocco.**

Level : Bachelor.

Role: Responsible for lectures, labs, mini-project and examination.

Courses:

- *Database administration (DBA Oracle 11g)*
- *Web development*

2014 – 2017  **Cadi Ayyad University, Marrakech, Morocco.**

Level : Bachelor .

Role : Responsible for labs and examination.

Courses:

- *Programming C/C++*
- *Advanced Excel*

## Teaching Experience (continued)

- 2016 – 2017    ■ **Trainer, IT & Business Consulting, Casablanca, Morocco.**  
Role : Responsible for training (lectures and labs).  
Courses:
- *Information system -Odoo development /Python*
  - *Data Science with R and Python*

### Online teaching

- 2018 – 2024    ■ **Mentor and degree project examiner, 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).*  
Path 5 : *Junior Web Developer.*  
Role : *Mentor and Examiner.*

## Supervision & Examination

### Ph.D students examiner

- 04/04/2024    ■ **Name:** Ali Bemani  
**Title:** Collaborative Predictive Maintenance for Smart Manufacturing: From Wireless Control systems to Federated Learning.  
**University:** University of Gävle, Sweden  
**Role:** External Examiner






### PhD students supervision

- 11/2024 – 11/2027    ■ **Name:** Fatiha Ait Baali  
**University:** Cadi Ayyad University  
**Title:** Federated Fine-Tuning of Large Language Models for Domain-Specific Applications: Balancing Personalization and Privacy.  
**Key words:** Federated Learning, LLM, Deep Learning, Privacy preserving, Virtual assistants.  
**Role:** Co-supervisor
- 11/2023 – 11/2026    ■ **Name:** Chaima Lhasnaoui  
**University:** Cadi Ayyad University  
**Title:** Enabling Federated Learning on the Edge for Enhanced Privacy in Medical Imaging.  
**Key words:** Federated Learning, AI, Deep Learning, Privacy preserving, IoT, Virtual assistants.  
**Role:** Co-supervisor



















## Projects / Grants

- 01/2025 – 01/2028    ■ **ProcTwin (4,825,924 EUR):** Integrated modelling for sustainable and optimized steel manufacturing processes [EU Project: 101178721]

## Projects / Grants (continued)

- 03 – 2024     **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)
- 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/>

## Service and Administrative Responsibilities

- Organizing - Conf.     FLTA: The International Conference on Federated Learning Technologies and Applications. [<https://flta-conference.org/>]
- Editorial     Data in Brief (ISSN: 2352-3409)
- Speaker - Conf.     FLTA23, FLTA24  
 International Conference on Computer Engineering and Artificial Intelligence [27-28 Sep 2024, Khouribga]  
 Pannel of experts: Morocco IoT and AI challenge Jury [02 September 2024, Marrakech]
- Reviewer     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
- Reviewer - Conf.     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)  
 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

- Thomas Heitz, Ning He, Addi Ait-Mlouk, Daniel Bachrathy, Ni Chen, Guolong Zhao, Liang Li. Investigation on eXtreme Gradient Boosting for cutting force prediction in milling. *Journal of Intelligent Manufacturing* 2025. <https://doi.org/10.1007/s10845-023-02243-9>
- Sadi Alawadi, Addi Ait-Mlouk, Salman Toor, Andreas Hellander. Toward efficient resource utilization at edge nodes in federated learning. *Progress in Artificial Intelligence* 2024. Article. <https://doi.org/10.1007/s13748-024-00322-3>
- **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

- C. Lhasnaoui, **Addi Ait-Mlouk**, T. Agouti and M. Sadgal, "Bridging AI and Privacy: Federated Learning for Leukemia Diagnosis," 2024 2nd International Conference on Federated Learning Technologies and Applications (FLTA), Valencia, Spain, 2024, pp. 79-84, doi: 10.1109/FLTA63145.2024.10840066.
- Chaima Lhasnaoui, **Addi Ait-Mlouk**, Tarik Agouti, Mohammed Sadgal. Decentralized Diagnosis: Privacy-Preserving Brain Tumor Classification with Federated Learning. KDD 2024 Workshop - Artificial Intelligence and Data Science for Healthcare, Barcelona, Spain, 25 August – 29 August 2024
- Morgan Ekmefjord, **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.

## Research Publications (continued)

- **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.
- 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](https://doi.org/10.1007/978-3-030-90618-4_17)

## 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