EL HACHIMI CHOUAIB

PhD & Full-Stack Geospatial Data Scientist

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EXPERIENCE

Postdoctoral Fellow
Research Centre for Artificial Intelligence in Geomatics
May, 2025 -> Ongoing — PolyU, Kowloon, Hong Kong SAR

Visiting Scholar
Biological and Agricultural Engineering
March, 2024 -> October, 2024 — University of California, Davis, USA

Assistant Teacher
Discrete Mathematics
2022-2023 Academic Year — JUACS, UM6P, Ben Guerir, Morocco

Data scientist intern
Namyr Big Data Solutions
February 2019 – July 2019 — Hassan, Rabat, Morocco

EDUCATION

Ph.D. Degree (Artificial Intelligence, Data Science and Remote Sensing)
Center for Remote Sensing Applications
July 2020 -> April, 2025 — UM6P, Ben Guerir, Morocco

Master's Degree (Business Intelligence and Big Data Analytics)
Faculty of Sciences
Sep 2017 – July 2019 — UCD, El Jadida, Morocco

Bachelor Degree (Mathematics and Computer Science)
Faculty of Sciences
Sep 2012 – July 2017 — UCD, El Jadida, Morocco

High School Degree (Mathematics' Science A)
6 November High School
July 2012 — Ouled Frej, El Jadida, Morocco

PUBLICATIONS

Journal Papers

- C. E. Hachimi et al., "Physics-informed neural networks for enhanced reference evapotranspiration estimation in morocco: Balancing semi-physical models and deep learning," *Chemosphere*, vol. 374, p. 144 238, Apr. 2025, ISSN: 0045-6535. DOI: 10.1016/J.CHEMOSPHERE.2025.144238

LIFE PHILOSOPHY

لاَ تَمَيُّزَ وَ أَثَرُ اَلْأَقْدَامِ أَمَامِي

No uniqueness, and footprints are on the way

PROJECTS

FIRMA
A Field-scale decision support platform for fertilization and IRrigation MAnagement based on remote sensing and physics-constrained machine learning models.

GEANTech
Sustainable Water Management in Agriculture: Innovation through a synergistic approach combining New Technologies and collective intelligence.

HydraCarta
Remote Sensing and Artificial Intelligence for mapping irrigated areas, in partnership between UC Davis and the FAO.

3eddad
Smart solution for automating water meter data collection through artificial intelligence and Internet of Things.

SKILLS

Data Science & Artificial intelligence

Statistical modeling | Machine learning | Deep learning | Reinforcement Learning | Computer Vision | Remote Sensing | Time Series | Data Visualization | NLP | Data Mining

Software, Web Development & Opps

Python | C & Cpp | Java | PyQt | HTML, CSS and JS | Material Design | Bootstrap | Django | Flutter | AWS | Azure | Linux Systems Administration | GCP | Git | Jira | Docker | Anaconda

Big Data Management

RDBMS (MySQL, PostgreSQL, Oracle) | SQL | NoSQL(MongoDB) | Airflow | ETL | High Performance Computing (HPC)

Geospatial Data

- C. E. Hachimi et al., "Towards collective intelligence in agriculture: Deep reinforcement learning and digital twins for efficient management of collective irrigation water distribution systems," *Energy Nexus*, vol. 20, p. 100 599, Dec. 2025, ISSN: 2772-4271. DOI: 10.1016/J.NEXUS.2025.100599
- Y. Ouassanouan et al., "Downscaled era5 land addresses agrometeorological data scarcity in north african basins," *Scientific Reports 2025 15:1*, vol. 15, pp. 38 533–, 1 Nov. 2025, ISSN: 2045-2322. DOI: 10.1038/s41598-025-20552-2
- C. E. Hachimi et al., "Advancements in weather forecasting for precision agriculture: From statistical modeling to transformer-based architectures," *Stochastic Environmental Research and Risk Assessment 2024*, pp. 1–23, Aug. 2024, ISSN: 1436-3259. DOI: 10.1007/S00477-024-02778-0
- C. E. Hachimi et al., "Climatefiller: A python framework for climate time series gap-filling and diagnosis based on artificial intelligence and multi-source reanalysis data," *Software Impacts*, vol. 18, p. 100 575, Nov. 2023, ISSN: 26659638. DOI: 10.1016/j.simpa.2023.100575
- O. Kaissi et al., "Advanced learning models for estimating the spatio-temporal variability of reference evapotranspiration using in-situ and era5-land reanalysis data," *Modeling Earth Systems and Environment*, pp. 1–25, Oct. 2023, ISSN: 23636211. DOI: 10.1007/S40808-023-01872-6/METRICS
- B. E. Sebbar et al., "Machine-learning-based downscaling of hourly era5-land air temperature over mountainous regions," *Atmosphere 2023, Vol. 14, Page 610*, vol. 14, p. 610, 4 Mar. 2023, ISSN: 2073-4433. DOI: 10.3390/ATMOS14040610
- C. E. Hachimi, S. Belaqziz, S. Khabba, and A. Chehbouni, "Data science toolkit: An all-in-one python library to help researchers and practitioners in implementing data science-related algorithms with less effort," *Software Impacts*, vol. 12, p. 100 240, May 2022, ISSN: 2665-9638. DOI: 10.1016/J.SIMPA.2022.100240
- C. E. Hachimi, S. Belaqziz, S. Khabba, B. Sebbar, D. Dhiba, and A. Chehbouni, "Smart weather data management based on artificial intelligence and big data analytics for precision agriculture," *Agriculture 2023, Vol. 13, Page 95*, vol. 13, p. 95, 1 Dec. 2022, ISSN: 2077-0472. DOI: 10.3390/AGRICULTURE13010095
- A. Naim, A. Aaroud, K. Akodadi, and C. E. Hachimi, "A fully ai-based system to automate water meter data collection in morocco country," *Array*, vol. 10, p. 100 056, Jul. 2021, ISSN: 2590-0056. DOI: 10.1016/J.ARRAY.2021.100056

Proceedings

- C. E. Hachimi, S. Khabba, and S. Belaqziz, "Are machine learning approaches bringing an end to empirical models? case of reference evapotranspiration and relative humidity," in *2025 5th International Conference on Emerging Smart Technologies and Applications, eSmarTA 2025*, Institute of Electrical and Electronics Engineers Inc., 2025, ISBN: 9798331585198. DOI: 10.1109/ESMARTA66764.2025.11132172
- H. Ouatiki, A. Chehbouni, C. E. Hachimi, B. A. Hssaine, and D. Entekhabi, "Assessment of an ai-based model-free merging approach for producing continuous daily passive microwave-based soil moisture," AGU, Dec. 2025.
- J. R'baiti, C. E. Hachimi, Y. Hmamouche, and A. E. F. Seghrouchni, "Morai at qias 2025: Collaborative llm via voting and retrieval-augmented generation for solving complex inheritance problems," in *Proceedings of The Third Arabic Natural Language Processing Conference: Shared Tasks*, Association for Computational Linguistics, Nov. 2025, pp. 947–952.
- C. E. Hachimi, S. Khabba, S. Belaqziz, B. A. Hssaine, M. H. Kharrou, and A. Chehbouni, "Are raw satellite bands and machine learning all you need to retrieve actual evapotranspiration?" In *E3S Web of Conferences*, vol. 489, EDP Sciences, Oct. 2024, p. 04 019. DOI: 10.1051/E3SCONF/202448904019
- C. E. Hachimi, S. Belaqziz, S. Khabba, and A. Chehbouni, "Early estimation of daily reference evapotranspiration using machine learning techniques for efficient management of irrigation water," in *Journal of Physics: Conference Series*, vol. 2224, Apr. 2022, p. 012 006. DOI: 10.1088/1742-6596/2224/1/012006
- C. E. Hachimi, S. Belaqziz, S. Khabba, and A. Chehbouni, "Towards precision agriculture in morocco: A machine learning approach for recommending crops and forecasting weather," in *Proceedings - 2021 International Conference on Digital Age and Technological Advances for Sustainable Development, ICDATA 2021*, Institute of Electrical and Electronics Engineers Inc., Jun. 2021, pp. 88–95, ISBN: 9781665429016. DOI: 10.1109/ICDATA52997.2021.00026
- C. E. Hachimi, S. Belaqziz, S. Khabba, and A. Chehbouni, "A reinforcement learning based approach for efficient irrigation water management," in *Proceedings of 2020 African Conference of Precision Agriculture*, 2020.
- A. Naim, A. Aaroud, E. hachimi Chouaib, and S. Saadani, "New embedded system for retrieving meter index," in *ACM International Conference Proceeding Series*, Association for Computing Machinery, Oct. 2019, ISBN: 9781450372404. DOI: 10.1145/3372938.3373012;PAGEGROUP:STRING:PUBLICATION

QGIS · Google Earth Engine · RasterIO · GDAL · Geopandas · Dask · LeafletJS · OpenLayers · PostGIS · GeoDjango · GEEMAP & LEAFMAP · Agisoft

EMBEDED SYSTEMS

Raspberry Pi · Arduino

LANGUAGES

Arabic · **English** · **French**

CERTIFICATES

Scrum Product Owner · Data Analyst · TinyML · AI & ML · Web of Science · Scopus · CISCO CCNA

REFEREES

Prof. CHEHBOUNI Abdelghani
@ CRSA, UM6P, Morocco.
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Prof. BELAQZIZ Salwa
@ LabSIV, UIZ, Morocco.
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Book Chapters

- C. E. Hachimi, S. Belaqziz, S. Khabba, and A. Chehbouni, *Evaluation of Statistical and Deep Learning Methods for Short-Term Weather Forecasting in Semi-arid Regions*. Springer Nature, 2024, pp. 203–206, ISBN: 9783031470783. DOI: 10.1007/978-3-031-47079-0_45/FIGURES/2
- C. E. Hachimi and A. Aaroud, *Medical use of deep learning: Malaria testing using pre-trained ResNet*. Springer Science and Business Media Deutschland GmbH, 2020, vol. 1103 AISC, pp. 273–280, ISBN: 9783030366636. DOI: 10.1007/978-3-030-36664-3_31/COVER

PEER REVIEW

Journals

- City and Environment Interactions, Elsevier
- Journal of Hydrology, Elsevier
- Information Processing in Agriculture, Elsevier
- Geo-spatial Information Science, Taylor and Francis
- Expert Systems With Applications, Elsevier
- Climatic Change, Springer
- Heliyon, CellPress
- PeerJ, Computer Science
- Smart Agricultural Technology, Elsevier
- Cogent Food & Agriculture, Taylor and Francis
- IEEE Access, IEEE

Conferences

- 7th International Conference on Computer Science and Application Engineering.