EL HACHIMI CHOUAIB

Ph.D. candidate & full stack geospatial data scientist

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EXPERIENCE

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

Ph.D. Candidate
Center for Remote Sensing Applications (CRSA)
July 2020 – Ongoing UM6P, Ben Guerir, Morocco

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

EDUCATION

Ph.D. Degree (Applications of artificial intelligence in agriculture)
Center for Remote Sensing Applications (CRSA)
July 2020 – Ongoing 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, S. Belaqziz, S. Khabba, *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

No uniqueness, and footprints are on the way

PROJECTS

HydraCarta
Contributing as a full-stack geospatial data scientist to a project that applies Remote Sensing and Artificial Intelligence for mapping irrigated areas, in partnership between UC Davis and the FAO.

FIRMA
Contributing as a full-stack geospatial data scientist to the design and implementation of a precision agriculture solution in the Moroccan context.

3eddad
Contributing as a full-stack data scientist to implement of a 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
QGIS | Google Earth Engine | RasterIO | GDAL | Geopandas | Dask | LeafletJS | OpenLayers | PostGIS | GeoDjango

- C. E. Hachimi, S. Belaqziz, S. Khabba, *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, S. Belaqziz, S. Khabba, *et al.*, "Towards collective intelligence in agriculture: Deep reinforcement learning and metaheuristics for efficient management of collective irrigation water distribution systems," *Under Review*, Dec. 2024.
- C. El Hachimi, S. Belaqziz, S. Khabba, *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, 2023, ISSN: 26659638. DOI: 10.1016/j.simpa.2023.100575.
- O. Kaissi, S. Belaqziz, M. H. Kharrou, *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, 2023, ISSN: 23636211. DOI: 10.1007/S40808-023-01872-6/METRICS.
- B. Sebbar, S. Khabba, O. Merlin, *et al.*, "Machine-Learning-Based Downscaling of Hourly ERA5-Land Air Temperature over Mountainous Regions," *Atmosphere 2023, Vol. 14, Page 610*, vol. 14, no. 4, p. 610, 2023, ISSN: 2073-4433. DOI: 10.3390/ATMOS\\14040610.
- C. El 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, 2022, ISSN: 2665-9638. DOI: 10.1016/J.SIMPA.2022.100240.
- C. El 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, no. 1, p. 95, 2022, ISSN: 2077-0472. DOI: 10.3390/AGRICULTURE13010095.
- A. Naim, A. Aaroud, K. Akodadi, and C. El Hachimi, "A fully AI-based system to automate water meter data collection in Morocco country," *Array*, vol. 10, p. 100 056, 2021, ISSN: 2590-0056. DOI: 10.1016/J.ARRAY.2021.100056.

Proceedings

- C. El Hachimi, S. Khabba, S. Belaqziz, B. Ait Hssaine, M. H. Kharrou, and A. Chehbouni, "Are raw satellite bands and machine learning all you need to retrieve actual evapotranspiration?," vol. 489, EDP Sciences, 2024, p. 04 019. DOI: 10.1051/E3SCONF/202448904019.
- C. El Hachimi, S. Belaqziz, S. Khabba, and A. Chehbouni, "Early Estimation of Daily Reference Evapotranspiration Using Machine Learning Techniques for Efficient Management of Irrigation Water," 1, vol. 2224, 2022, p. 012 006. DOI: 10.1088/1742-6596/2224/1/012006.
- C. EL Hachimi, S. Belaqziz, S. Khabba, and A. Chehbouni, "Towards Smart Big Weather Data Management," 1, vol. 10, Basel Switzerland: Multidisciplinary Digital Publishing Institute, 2022, p. 54. DOI: 10.3390/IOCAG2022-12240.
- C. El Hachimi, S. Belaqziz, S. Khabba, and A. Chehbouni, "Towards precision agriculture in Morocco: A machine learning approach for recommending crops and forecasting weather," Institute of Electrical and Electronics Engineers Inc., 2021, pp. 88–95, ISBN: 9781665429016. DOI: 10.1109/ICDATA52997.2021.00026.
- C. El 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, C. El hachimi, and S. Saadani, "New embedded system for retrieving meter index," in *ACM International Conference Proceeding Series*, Association for Computing Machinery, 2019, ISBN: 9781450372404. DOI: 10.1145/3372938.3373012.

Book Chapters

- C. El 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. El Hachimi and A. Aaroud, *Medical Use of Deep Learning: Malaria Testing Using Pre-trained ResNet*. Springer, Cham, 2019, vol. 1103 AISC, pp. 273–280, ISBN: 9783030366636. DOI: 10.1007/978-3-030-36664-3_31.

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
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PEER REVIEW

Journals

- City and Environment Interactions, Elsevier.
- Expert Systems With Applications, Elsevier.
- Climatic Change, Springer.
- Heliyon, CellPress.
- PeerJ, Computer Science.
- Smart Agricultural Technology, Elsevier.
- IEEE Access, IEEE

Conferences

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