

OTHMANE ECHCHABI

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EDUCATION

McGill University & Mila — Quebec AI Institute

M.Sc. Candidate & Research Assistant, Computer Science

Montréal, Canada

Aug 2025 - May 2027

Duke Kunshan University

Duke University

Bachelor of Science in Data Science (Dual Degree)

Jiangsu, China

Durham, North Carolina

Aug 2020 - May 2025

Universidad Carlos III

Semester Abroad

Madrid, Spain

Jan 2022 – May 2022

Relevant Coursework: Statistical Machine Learning, Computer Vision, Deep Learning, Speech Recognition

GRANTS AND AWARDS

DKU Student Experiential Learning Fellowship, 2024

DKU Signature Work Research Grant, 2023 | Awarded \$1,500 for research on wetland degradation.

DKU iINNOVATION iNCUBATOR, 2023 | Awarded \$3,000 for developing a dialectal Arabic NLP model.

Dean's List, 2021

RESEARCH EXPERIENCE

Tracking Progress Towards SDG6

Jun 2024 – Present

Supervised by Prof. Ka Leung Lam, Duke Kunshan University

Suzhou, China

- Assessed piped water and sewage access in Africa using satellite imagery and vision transformers with 97% accuracy; Developed a global dataset for piped water and sewage access.

Echchabi, O., Lahlou, A., Talty, N., Manto, J., Lam, K. L. "Tracking Progress Towards Sustainable Development Goal 6 Using Satellite Imagery." *Water Research*. (Under review). *arXiv preprint* [arXiv:2411.19093](https://arxiv.org/abs/2411.19093).

Carbon Footprint Reduction and Trip Mode and Purpose Prediction

Jun 2024 – Present

Supervised by Prof. Charles Chang, Duke Kunshan University

Suzhou, China

- Developed a transformer model for sequence data to predict individual modalities; achieved 94% accuracy in mode identification on the GeoLife dataset with our pre-trained transformer-based model; achieved 92% accuracy in purpose prediction using Point-of-Interest (POI).
- Designed and implemented CarbonClever, a social media application for individual carbon footprint reduction.

Zhang, Y., **Echchabi, O.**, Feng, T., Zhang, W., Liao, H.-K., Lu, Z., Chang, C. "Individual Modality Prediction Using Sporadic Social Media Geolocations and Pre-trained Transformer Models." *International Journal of Geographical Information Science*. (Under review).

Monitoring *Spartina Alterniflora* Using Self-Supervised Learning

Jun 2024 – Aug 2024

Supervised by Prof. Wenhong Li and Prof. Ding Ma, Duke University

Durham, NC

- Identified evasive coastal wetland species using satellite imagery and ViT's for wetland monitoring.

"Monitoring *Spartina alterniflora* Using Self-Supervised Learning." Climate+ Symposium, Rhodes Information Initiative at Duke, Durham, NC, 2024. [\[project page\]](#) [\[poster\]](#)

Assessing Climate Change Risk of Rural Coastal Plains

Jun 2023 – Aug 2023

Supervised by Prof. Emily Bernhardt, Duke University

Durham, NC

- Developed a comprehensive geospatial database for saltwater intrusion and sea level rise research within the North American Coastal Plain using ArcGIS. [\[Interactive map\]](#)
- Applied NLP models such as BERT to analyze and map insights from over 1,000 scholarly articles.

“Assessing Climate Change Risk of Rural Coastal Plain Communities.” Climate+ Symposium, Rhodes Information Initiative at Duke, Durham, NC, 2023. [\[project page\]](#) [\[poster\]](#)

PROFESSIONAL EXPERIENCE

AI Intern, University Mohammed VI Polytechnic	Benguerir, Morocco June 2025 – Dec 2025
<ul style="list-style-type: none"> - Engineered a geospatial ML pipeline that fuses yield records to deliver field-level fertilizer recommendations. - Co-developed an agriculture-domain LLM with Retrieval-Augmented Generation for informed responses. 	
Data Analyst Intern, Atos Morocco	Rabat, Morocco Oct 2022 – Nov 2022
<ul style="list-style-type: none"> - Created dashboards to provide real-time insights into HR metrics, facilitating leadership decision-making. - Rolled out the solution in the Morocco branch, later expanding to all company branches in Africa. 	
Data Analyst Intern, XPerlean	Saint-Quentin, France Jul 2022 – Aug 2022
<ul style="list-style-type: none"> - Collaborated with Morocco's leading ceramics manufacturer, using Faster R-CNN and YOLO models to detect defects in ceramics, increasing defect detection accuracy from 70% to 85%. - Improved quality control and sped up production by 10% and decreased operational costs. 	
Data Analyst Intern, Al Jazeera Media Institute	Doha, Qatar Oct 2021 – Dec 2021
<ul style="list-style-type: none"> - Scraped large-scale CSV data files using social media APIs, processing over 200,000 data records, to analyze user behavior and interaction data. 	

PROJECTS

Spatiotemporal Patterns of the Yancheng Coastal Wetlands Degradation.	Aug 2023 - Present
<i>Senior Year Thesis</i>	Suzhou, China
<ul style="list-style-type: none"> - Conducted a 25-year spatiotemporal analysis of Yancheng coastal wetlands degradation using satellite imagery and NDVI, highlighting ecological shifts and advocating for targeted conservation strategies. [poster] 	
Football AI Tracker	Oct 2024 - Dec 2024
<i>Final Project for STATS402: Interdisciplinary Data Science</i>	Suzhou, China
<ul style="list-style-type: none"> - Achieved accurate tracking of players, referees, and the ball under suboptimal video conditions, providing a cost-effective alternative to high-end tracking systems, democratizing football analytics. [manuscript] 	

ACTIVITIES AND VOLUNTEER WORK

Duke Kunshan University	
<i>Resident Assistant</i>	Aug 2024 – Present
<i>Student Athlete – Co-Captain of the soccer team</i>	Aug 2023 – Present
<i>DKU CS Club Software Team Lead</i> [website]	Aug 2023 – Present
<i>Math and Computer Science TA</i>	Jan 2022 – May 2024
FADI Academy	Aug 2023 – Present
<i>Partner and Math Tutor</i>	Remote/Casablanca, Morocco
Co-founded the academy and designed the math curriculum that helped students get near-perfect SAT scores.	
FIFA World Cup 2022 Volunteer	Nov 2022 – Dec 2022
<i>Spectator Services Volunteer – Team Leader</i>	Doha, Qatar
Led team of volunteers and assisted spectators in two venues with a capacity of 45,000 seats each.	

TECHNICAL SKILLS

Python, Java, R, JavaScript, TypeScript, SQL, TensorFlow, PyTorch, Django, React.