

OTHMANE ECHCHABI

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EDUCATION

Duke Kunshan University Master of Science in 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 Relevant Coursework: Statistical Machine Learning, Computer Vision, Deep Learning, Speech Recognition	Madrid, Spain Jan 2022 – May 2022

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 Supervised by Prof. Ka Leung Lam, Duke Kunshan University <ul style="list-style-type: none">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." <i>Water Research</i> . (Under review). <i>arXiv preprint</i> arXiv:2411.19093 .	Jun 2024 – Present Suzhou, China
Carbon Footprint Reduction and Trip Mode and Purpose Prediction Supervised by Prof. Charles Chang, Duke Kunshan University <ul style="list-style-type: none">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." <i>International Journal of Geographical Information Science</i> . (Under review).	Jun 2024 – Present Suzhou, China
Monitoring Spartina Alterniflora Using Self-Supervised Learning Supervised by Prof. Wenhong Li and Prof. Ding Ma, Duke University <ul style="list-style-type: none">Identified evasive coastal wetland species using satellite imagery and ViT's for wetland monitoring. "Monitoring <i>Spartina alterniflora</i> Using Self-Supervised Learning." Climate+ Symposium, Rhodes Information Initiative at Duke, Durham, NC, 2024. [project page] [poster]	Jun 2024 – Aug 2024 Durham, NC
Assessing Climate Change Risk of Rural Coastal Plains Supervised by Prof. Emily Bernhardt, Duke University	Jun 2023 – Aug 2023 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

Data Analyst Intern, Atos Morocco

Rabat, Morocco | Oct 2022 – Nov 2022

- 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

- 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

- 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

Senior Year Thesis

Suzhou, China

- 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

Final Project for STATS402: Interdisciplinary Data Science

Suzhou, China

- 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

Resident Assistant

Aug 2024 – Present

Student Athlete – Co-Captain of the soccer team

Aug 2023 – Present

DKU CS Club Software Team Lead [\[website\]](#)

Aug 2023 – Present

Math and Computer Science TA

Jan 2022 – May 2024

FADI Academy

Aug 2023 – Present

Partner and Math Tutor

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

Spectator Services Volunteer – Team Leader

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.