

# OTHMANE ECHCHABI

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## EDUCATION

<b>Duke Kunshan University</b> Master of Science in Computer Science	Montréal, Canada Aug 2025 - May 2027
<b>Duke Kunshan University</b> <b>Duke University</b> Bachelor of Science in Data Science (Dual Degree)	Jiangsu, China Durham, North Carolina Aug 2020 - May 2025
<b>Universidad Carlos III</b> 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

<b>Tracking Progress Towards SDG6</b> Supervised by Prof. Ka Leung Lam, Duke Kunshan University <ul style="list-style-type: none"><li>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.</li></ul> <b>Echchabi, O., Lahlou, A., Talty, N., Manto, J., Lam, K. L.</b> "Tracking Progress Towards Sustainable Development Goal 6 Using Satellite Imagery." <i>Water Research</i> . (Under review). <i>arXiv preprint</i> <a href="https://arxiv.org/abs/2411.19093">arXiv:2411.19093</a> .	<b>Jun 2024 – Present</b> Suzhou, China
<b>Carbon Footprint Reduction and Trip Mode and Purpose Prediction</b> Supervised by Prof. Charles Chang, Duke Kunshan University <ul style="list-style-type: none"><li>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).</li><li>Designed and implemented CarbonClever, a social media application for individual carbon footprint reduction.</li></ul> <b>Zhang, Y., Echchabi, O., Feng, T., Zhang, W., Liao, H.-K., Lu, Z., Chang, C.</b> "Individual Modality Prediction Using Sporadic Social Media Geolocations and Pre-trained Transformer Models." <i>International Journal of Geographical Information Science</i> . (Under review).	<b>Jun 2024 – Present</b> Suzhou, China
<b>Monitoring Spartina Alterniflora Using Self-Supervised Learning</b> Supervised by Prof. Wenhong Li and Prof. Ding Ma, Duke University <ul style="list-style-type: none"><li>Identified evasive coastal wetland species using satellite imagery and ViT's for wetland monitoring.</li></ul> "Monitoring <i>Spartina alterniflora</i> Using Self-Supervised Learning." Climate+ Symposium, Rhodes Information Initiative at Duke, Durham, NC, 2024. <a href="#">[project page]</a> <a href="#">[poster]</a>	<b>Jun 2024 – Aug 2024</b> Durham, NC
<b>Assessing Climate Change Risk of Rural Coastal Plains</b> Supervised by Prof. Emily Bernhardt, Duke University	<b>Jun 2023 – Aug 2023</b> 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.