Curriculum Vitae

NADIA ZIKIOU, Ph.D.
Email: nadia.zikiou@yale.edu | zikiounadia@gmail.com
Phone: +1 (347) 234-2639
Citizenship: Algerian

RESEARCH INTERESTS

Remote sensing, hyperspectral image analysis, AI for environmental applications, forest monitoring, geospatial modeling, LiDAR and photogrammetry, biodiversity assessment.

EDUCATION

Ph.D. in Science in Electronics (Remote Sensing & Hyperspectral Image Processing)
Mouloud Mammeri University, Tizi Ouzou, Algeria
Thesis: Classification and compression of hyperspectral textures using sparse representations.
Summa cum laude with international collaboration at XLIM Laboratory, Poitiers (France)
Graduated: October 2020

Magister in Electronics (Remote Sensing)
Mouloud Mammeri University, Tizi Ouzou, Algeria
Thesis: Application of SVM learning for hyperspectral image compression.
Graduated: October 2014

Engineering Degree in Electrical Engineering and Electronics
Mouloud Mammeri University, Tizi Ouzou, Algeria
Specialty: Control – Graduated with Honors
Graduated: June 2009

PROFESSIONAL EXPERIENCE

Postdoctoral Research Associate – Hutchinson Environmental Postdoctoral Fellow
Yale University, Yale Institute for Biospheric Studies (YIBS), 2022 – 2024

- Selected for the prestigious Hutchinson Fellowship supporting interdisciplinary environmental science.
- Applied Sentinel-2, PlanetScope, MODIS, and GEDI for multiple ecological applications:
    - Fire severity, land use/land cover (LULC), and water assessment classification in North Africa.

    - Primary productivity and spectral variation analysis in Sabah, Malaysia.
    - Carbon storage and sequestration mapping in tropical forests (Congo Basin) and temperate forests (Olympic National Forest, Washington).
    - Classification of animals from camera trap images using AI-based models.
    - Using LiDAR CT ECO data to study biomass variation and compare young vs. old-growth forests in Connecticut.

- Led Yalescale, a drone photogrammetry initiative creating 3D models for ecosystem studies.
- Conducting research on super-resolution of hyperspectral images using deep learning and spectral graph transforms**.**

Assistant Research Scientist – Yale Center for Geospatial Solutions
Yale University, 2025 – Present

- Supervises student projects in AI, GIS, and remote sensing.
- Provides cross-departmental support on drone and spectrometer data analysis.
- Coordinates equipment management and training (UAVs, field sensors).
- Contributing to the development of a comprehensive database of hyperspectral data, methods, and applications, leading data conversion efforts and providing curated AI resources.
- Supporting the analysis of hyperspectral imagery from forests in Panama to detect small understory plants undetectable by traditional satellite or LiDAR methods.

Lecturer & Research Supervisor
Multiple Technical and University Institutes, 2010 – 2025

- Delivered lectures and practical training in Electronics, Microcontrollers, Remote Sensing.
- Supervised senior technician, master, and PhD's students.
- Participated in numerous defense juries and developed pedagogical content.

SELECTED PUBLICATIONS

1. **Zikiou, N.** et al. (2024). *Remote Sensing and Machine Learning for Accurate Fire Severity Mapping in Northern Algeria*. Remote Sensing, 16(9), 1517.
2. **Zikiou, N.**, Rushmeier, H. (2023). *Sentinel-2 data classification for LULC mapping in northern Algeria*. SPIE Proc. Vol. 12519.
3. **Zikiou, N.** et al. (2020). *Hyperspectral image classification using graph-based wavelet transform*. Int. J. Remote Sensing.
4. **Zikiou, N.** et al. (2019). *Support vector regression-based 3D-wavelet texture learning*. The Visual Computer.

Additional papers and conference talks available on request.

SKILLS & CERTIFICATIONS

- **Technical:** Python, MATLAB, ArcGIS, SNAP, ENVI, Agisoft, QGIS, ArcPy
- **AI & Remote Sensing:** Deep learning for classification, SVMs, ROI automation, spectral graph transforms
- **Data Sources :** Sentinel-2, PlanetScope, Landsat, MODIS, GEDI, CT LiDAR
- **Hardware & Field:** Part 107 certified drone pilot, UAV field surveys, spectrometer use

---

LANGUAGES

- Tamazight: Native
- Arabic, French: Fluent
- English: Proficient
- Spanish, Turkish: Beginner.
