

Editorial

We are pleased to present the final issue of the seventeenth volume of the **Journal of Multimedia Processing and Technologies**. This issue features a diverse collection of research spanning underwater computer vision, interior design classification, and geospatial artificial intelligence.

In the opening paper, “**Synthetic Underwater Image Degradation: Classification, Restoration, Multi-Task Learning, Domain Adaptation, and Contrastive Representation Analysis**,” the authors present a controlled, scene-independent framework for systematically evaluating underwater degradation, restoration, and representation learning. Utilising the Synthetic Underwater Image Dataset (SUID), which comprises 30 ground truth scenes and 900 synthetically degraded variants across four categories (Bluish, Greenish, Hazy, and Low Light), the study conducts rigorous experiments on degradation classification, paired affine restoration, multi task learning, and contrastive representation analysis. This framework establishes a robust benchmark for degradation specific behaviour and provides a reproducible protocol for future synthetic to real domain adaptation in underwater vision.

The second paper, “**Evaluating Visual Feature Sufficiency for Interior Design Style Classification: A Comparative Machine Learning Benchmark**,” introduces a comparative machine learning benchmark to evaluate whether engineered visual features are sufficient for reliable interior design style classification. Using the Interior Spatial Sensor Dataset (4,141 records), the authors construct a multidimensional feature vector that includes chromatic distributions, textural metrics (GLCM), and geometric edge density. They evaluate a diverse suite of traditional machine learning and shallow neural network classifiers, including Logistic Regression, Random Forest, SVM, Gradient Boosting, and MLP, using a multidimensional assessment protocol that measures accuracy, macro-F1, OvR ROC-AUC, and SHAP-based interpretability.

In the final paper, “**Independence of Optical Parameters and Wavelength Effects in Synthetic Tissue Imaging Data**,” the authors evaluate the predictive capabilities of geospatial metadata, including polygon geometry, temporal duration, and annotation attributes, using Random Forest, Extra Trees, and Logistic Regression models on a large scale GeoJSON dataset of urban construction sites. The authors conducted binary (site presence) and multiclass (construction type) classification tasks, revealing a stark contrast: while Random Forest achieved near perfect binary accuracy (~99.9%), multiclass construction type recognition remained highly ambiguous (macro-F1 = 0.610) due to semantic and geometric overlaps among categories such as Residential, Commercial, and Industrial. Consequently, the study concludes that metadata-only models are insufficient for fine-grained semantic typing. Furthermore, the authors issue a critical methodological warning for the GeoAI community: rigorous spatial cross-validation (e.g., MGRS-tile holdouts) and annotation leakage audits are mandatory to prevent spatially and procedurally inflated performance metrics.

We trust that the research presented in this final issue will provide valuable insights to our readers, and that these contributions will inspire further innovation and methodological rigor in their respective fields

Editors