



Pole for Doctoral Studies
Center for Doctoral Studies Sciences, Technologies, and Medical Sciences

ANNOUNCEMENT OF DOCTORAL THESIS DEFENSE



Ms. LOUKILI Soumaya

**Will present here research work with the aim of earning a
Doctorate**

Doctoral program: Engineering Sciences and Technologies
Discipline: Computer Science
Specialty: Computer Science and Artificial Intelligence

**On 22/11/2025 at 10H00 at the Conference Hall, F Building,
Faculty of Sciences and Techniques of Tangier, UAE
Under the Theme**

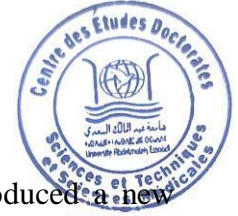
**Towards the Development of an Intelligent System for Supporting
Content Creation in Digital Marketing**

Front of the jury composed of :

First Name & Last Name	Establishment	Designation
Pr. BOUHORMA Mohammed	FST of Tangier, UAE	President
Pr. KISSI Mohamed	FST of Mohammedia, UH2	Reviewer
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Pr. EL BOUHDIDI Jaber	ENSA of Tetouan, UAE	Examiners
Pr. ELAACHAK Lotfi	FST of Tangier, UAE	Co-Adviser
Pr. FENNAN Abdelhadi	FST of Tangier, UAE	Doctoral Supervisor

Host Research Structure: Data and Intelligent Systems (DIS) Research Team, Computer Science and Smart Systems (C3S) Laboratory, FST Tangier, Abdelmalek Essaâdi University, Tetouan, Morocco.

Abstract



The intersection of artificial intelligence (AI) and digital marketing has introduced a new paradigm of intelligent automation, transforming not just the mechanics of content creation but also the strategic dynamics of audience outreach. This thesis introduces a new, end-to-end framework that leverages the generation potential of Large Language Models (LLMs) and Diffusion-based image generation to produce cohesive, high-performing email marketing content. By fine-tuning GPT-3.5, PaLM 2, and BERT on domain-specific datasets, we enable the generation of personalized subject lines based on the preferences and behavior patterns of the audience. Meanwhile, a Stable Diffusion model with Knowledge Graphs and Vector Embeddings generates semantically coherent visual content, fulfilling a complete multimodal generation pipeline.

On top of the inherent performance of each of the two models, our system is designed for a modular integration within marketing systems already in place. The system takes as input a brief product description and produces complete campaign material - both textual and visual - optimized for engagement. Empirical evaluation draws on classic NLP and image generation metrics, as well as business-level measures (open rates, click-through rates), to determine the LLM with the best accuracy and commercial influence, and the impact of the generated visuals.

The image generation pipeline incorporates adaptive conditioning with domain embeddings and user-specified semantic prompts to produce imagery that resonates with target audiences. Notably, the system is tested by live deployment with industry partners to validate its effectiveness in live scenarios. The research extends the state of the art not only by reporting strong technical results but also by facilitating a transferable and scalable intelligent marketing automation methodology. In closing, the thesis identifies key ethical issues of deployment, prevention of bias, and transparency of AI-generated content. It also provides research directions for reinforcement learning-based personalization, real-time campaign optimization, and culture-adaptive multimodal generation - positioning this work at the edge of next-generation marketing technologies.

Keywords: Artificial Intelligence (AI), Digital Marketing, Email Marketing Automation, Large Language Models (LLMs), Stable Diffusion, Multimodal Content Generation