

Aesthetic Computing and Intelligent Fashion Design

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ABSTRACT

In the context of Industry 5.0, fashion design is undergoing a profound transformation driven by the convergence of artificial intelligence, human-centered creativity, and aesthetic cognition. This talk explores the emerging paradigm of aesthetic computing as a bridge between computational intelligence and design sensibility, positioning it as a foundational framework for next-generation intelligent fashion systems.

The presentation first revisits the concept of aesthetic computing, emphasizing its role in translating subjective aesthetic judgments into computable, interpretable, and generative forms. Building upon this, it examines how advances in machine learning, knowledge graphs, and multimodal representation learning enable the modeling of complex relationships among fabric properties, style semantics, cultural symbols, and user preferences.

Focusing on intelligent fashion design, the talk introduces a hybrid approach that integrates data-driven algorithms with designer intuition. It highlights key methodologies, including semantic-aware design recommendation, affective style recognition, and human-AI collaborative co-creation workflows. Special attention is given to how these technologies support personalized design, small-batch innovation, and rapid prototyping within real-world fashion ecosystems.

Finally, the talk reflects on the broader implications of aesthetic computing for design research and practice, arguing that the future of fashion lies not in replacing designers, but in augmenting human creativity through interpretable and ethically grounded intelligent systems. By redefining the relationship between computation and aesthetics, this work aims to contribute to a more sustainable, human-centric, and culturally responsive design paradigm.