2025 18th International Symposium on Computational Intelligence and Design (ISCID 2025)

Hangzhou, China
13-14 December 2025

IEEE Catalog Number: CFP2560E-POD
ISBN: 979-8-3315-7309-6

IEEE
Advancing Technology for Humanity

Copyright © 2025, IEEE

All Rights Reserved

Copyright and Reprint Permissions:

Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

IEEE Catalog Number:	CFP2560E-POD
ISBN (Print-On-Demand):	979-8-3315-7309-6
ISBN (Online):	979-8-3315-7308-9
ISSN:	2165-1701

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA

Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Prediction of Whirling Vibration Characteristic Parameters for Large Ship Propulsion Shafting Using Surrogate Models 1
Zheng Gu, Jinlin Liu, Junhui He

Research on the Construction Method of Digital Twin Model for Ship Propulsion Shafting 5
Junhui He, Jinlin Liu, Zheng Gu

Research on Electric Vehicle Human-Machine Interface Design Driven by Online Reviews 10
Hangyu Zhou, Xudong Fan

Smart Optimization of Age-Friendly Residential Space Design: An Integrated Approach Based on Kano Model, AHP, and a Recommendation System 16
Haichen Liu, Ruifeng Zhang

Research on the Design of Children's Educational Furniture Driven by User Perception Preferences 22
Yushuo Han, Ning Wei

Building Words, Building Worlds: An AR-Enhanced Tangible System for Vocabulary Learning in Early Childhood 28
Yijun Zhao, Yuanqi Cheng, Lingxiang Meng, Qing Yu, Tianshu Dong, Jiacheng Cao

Integrating Cultural Elements into Intelligent Product Design: A Methodological Exploration of Enhancing User Experience Through Emotional Design 33
Renxin Tu, Xiaojun Hu

SonicBite: An AI-Driven Multisensory System for Personalized Mindful Eating through Music and Voice Guidance 38
Yanlin Liu, Xiaofei Gong, Yujie Peng, Bing Yan, Leijing Zhou

LookMate: A Scenario-Based Design Study of an AI-Enabled Wardrobe and Outfit Assistant Platform 43
Bing Yan, Hongchi Liu, Yanlin Liu, Yang Mao, Aiwen Mai, Leijing Zhou

AIGC-Enabled Sustainable Development and Innovation of Intangible Cultural Heritage: The Case of Fengxiang Woodblock Prints 47
Haichen Liu, Ruifeng Zhang

SCAD: A Situated Cognition-Based Design Toolkit for Advertising 51
Ping Li, Mengjing Wang, Yichen Hong, Ren Peng

LRBTeacher: A Generative AI Co-teaching System for Cultivating "Internet Sense" in Content Creators 56
Shaobin Hou, Chunlei Chai

Co-Design of an Anti-Bullying Serious Game with User-Driven Content Generation via Generative AI 61
Yijun Zhao, Qing Yu, Zhaojia Yang, Fanyu Li, Yijun Zhao

Emotional Impact of Visual Stimuli: A Heart Rate and User Study on Color and Facial Expressions in Images 65
Leijing Zhou, Hongchi Liu, Yang Mao, Bin Yan

Oasis: Design of a Multimodal Emotional Healing Interactive Device 69
Xinyang Hu, Ziyi Wang

NeckMove: Applying the Spatial Audio to Movement Guidance in Neck Training 73
Yue Lu, Yujuan Feng, Cheng Yao

MunchMelody: Enhancing eating experiences through accompanied AI-generated music driven by masseter muscle movement 80
Yujuan Feng, Cheng Yao

Can a Chatbot Win Your Heart? The Impact of Diverse Role Settings in Anthropomorphic Chatbots on User Preferences 85
Xinyi Chen, Shiying Ding, Shaobin Hou, Chunlei Chai

NFT Pricing via Long-Short-Term Memory Model 89
Qiyu Wang

High-Resolution Precipitation Nowcasting based on Frequential-Spatiotemporal Attention 93
Xiaolong Ge, Rui Li, Zhongning Zhao, Dong Liu, Qing Ji

Design of Intelligent Cleaning Equipment for Urban Road Railings Based on Green Design Principles 100
Zixuan Huang, Xu Zhang

Healink: A Game-based Interactive Massage Device For Intergenerational Family 104
Shilu Li, Yunzhan Zhou

A Study on Integration Paths The Disconnection Between Design Methods and Practice 108
Ziyuan Bian, Peilei Han

A Comparison of AIGC Animation and Traditional 3D Animation: Taking the Five-Second Shark Animation as an Example 112
Qidan Jiang, Zhiying Chen, Xu Zhang

Research on the Regeneration Design Path of Cloud Shoulder Patterns within the Four-Dimensional Encoding Framework 116
Yuxin Liu, Zhiying Chen, Xu Zhang

Research on the Customized Service Process of Mortise and Tenon Lamps Based on the Double Diamond Model 120
Yiming Kang, Xu Zhang

Multi-scale Recursive Residual Modulation Network for efficient infrared Image Super-Resolution 124
Zepeng Liu, Xin Zhang, Guodong Zhang, Yizong Wang

Research on the Design of Delivery Drones for Rural Logistics Terminal Service 130
Qianwen Chen, Yimin Wang, Xu Zhang

Research on the Renewal Design Strategies of Child-Friendly Parks from a People-oriented Perspective 135
Baojin Qiu, Xu Zhang

Research on the Design Strategy of Dietary and Health-Preserving Kitchen Appliances Based on Constitution Theory 139
Hongyu Liu, Xuli Jia, Yuhan Ye, Meicen Lu, Yi Liu

Research on Visual Design of Children’s Toys from the Perspective of Global Intellectual Property 144
Xuan Wang, Xu Zhang

Design of Underground Coal Mine Inspection Robot Based on Intelligent Detection and VR-assisted Maintenance Applications 148
Fangfang Wang, Zhuo Liu, Xu Zhang

Research on Design Requirements for Elderly- Friendly Smartphones Based on the KANO Model 152
Baixue Xing, Xu Zhang

Factor-Analytic Approaches to Designing Elderly Care Beds 156
Mingyu Zhang, Zhuo Liu

Interactive Narrative with Generative AI and Virtual Humans in Cultural Heritage Museums: A Case Study of Qing Dynasty Mandarin Squares 160
Yu Ye, Mengzhen Wang, Kexin Li, Yixuan Zhou

DiagAgent: A LLM-Based Multi-Agent Framework for Highly Accurate Product Fault Diagnosis 164
Hairuo Zhang, Ke Xu, Yongchuan Tang

Agile Design of Intelligent Packaging Inspection System Based on RAG Agent 171
Yifeng Ding, Zhongliang Yang

Creating an Immersive Virtual Exhibition for Intangible Cultural Heritage through AI and Digital Technologies 175
Aiwen Mai, Leijing Zhou, MengHan Li, Maxinyue Jin, Yang Mao, Bing Yan

Practice of Immovable Heritage Survey and Evaluation in Jiashan County: A Data-Driven Approach to Heritage Conservation and Utilization 179
Yongcheng Xie, Jia Guo, Ruohuai Guo, Qidong Yang, Wei Cao, Jiazhu Liang, Xinjing Li, Qing Gong

LightMedSegV2: A Lightweight CNN-Transformer Hybrid Architecture for Water Body Extraction 183
Wenjie Zhao, Yihong Chen, Mingqiang Wang, Zhuoshi Li

Research on Digital Design of Yueqing Fine-Line Paper Cutting Based on AIGC 187
Jiazhu Liang, Yongcheng Xie, Shiqin Di, Jia Guo, Wei Cao

A Computational Parametric Origami Design Method Based on the Strip-pattern Method 191
Shan Ma, E Yuping

Research on Emotionalization of Creative Products Based on Auspicious Culture: A Case Study of Mount Wutai 197
Shuyu Lv, Zhuo Liu, Xu Zhang

Application of AI-Assisted Design in Art Therapy App: A Kano Model Approach 201
Xuan Liu, Chunhui Zheng, Pu Ren, Nan Lin

Performance Modeling and Design of Safety Valve Calibration Bench Fixture 205
Xuan Ren, Zhongliang Yang, Liran Wang, Mugeng Ju

Research on Interaction Design of Children's Companion APP Interface Based on Personality Development Theory 209
Mo Che, Lei Zhon, Xu Zhang

Enhancing Tourism of Historic District Sites through Mobile Augmented Reality (MAR): The Case of Tianjin's Italian Concession Historic and Cultural District 213
Shaoqi Sun, Heng Liu, Chenyang Liu

Service Design Empowering Digital Health: A Study on the Service Model of Community Smart Pharmacies 218
Junrui Liu, Xu Zhang

Exploring Lower-Limb Interaction for Enhanced Embodiment in Virtual Reality 222
Wang Ying, Shaolong Chai, Qirui Xiong, Xinghao Jiang, Jingwei He, Cheng Yao

Exploring the Role of Augmented Reality in Promoting Local Tourism: A Qualitative Research Based on Culturally Themed Postcards 227
Qiang Li, Yingyao Wang, Shaoying Luo

When Music Paints: A Multi-Agent Framework for Cross-Modal Cultural Semantics 231
Yu Wang, Yongcheng Xie

Comparing Media for Digital Cultural Heritage: A Study of 2D, 3D, and VR Immersive Experiences 235
Qiang Li, Shaoying Luo, Yingyao Wang

TwistCraft: Designing an LLM-Powered Tangible Construction Game for Developing Children's Spatial Skills 239
Xiaojing Zhou, Yuanyue Wang, Yiwei Chai, Mingyu Li

How Auditory, Tactile, and Visual Stimuli Synergistically Shape Restorative Emotions 245
Shuyi Wang, Kewei Guo, Anran Liu, Manhao Guan

User-Centered Evaluation of an Interactive Multi-Model Image and Video Generation System 249
Shenghao Li, Shouqian Sun

Fostering Occupational Cognition in Children: An LLM-Powered Multi-Agent Role-Playing Approach 253
Yujie Zhou, Hongli Xi, Zhenyuan Ma, Cheng Yao

Simulating Cognitive Styles in Conceptual Design: An LLM-Based Process Modeling Approach 257
Xiyuan Zhang, Jinyu Gu, Ningfeng Tang, Chunlei Chai

Visual Language Large Model Hallucination Management from the Perspective of Service Design 262
Nian Liu, Pingting Zhang

AI-Driven Teaching Reform in Software Engineering: A Focus on Prototype Design 266
Yingfei Wu, Lei Xu, Xiaoyan Sun, Erhao Chen, Hanqi Pan

Surprise-Inducing Strategies in the UX Design of Shopping App Recommendation Interfaces 271
Yijun Zhao, Yang Zhou, Jiacheng Cao

MetaBGM: Dynamic Soundtrack Transformation For Continuous Multi-Scene Experiences With Ambient Awareness And Personalization 275
Haoxuan Liu, Zihao Wang, Youwei Feng, Haorong Hong, Jiaxing Yu, Han Diao, Kejun Zhang

Research on Smart Tourism App Solution Design Based on DeepSeek Model Technology 280
Chuang Gan, Chenxi Yu, Jianchen Hu, Manqi Wang, Qinglin Wu

Analysis of Incentive Mechanisms in the Game of Higher Education Supervision 284
Jingling Shu, Huan Hao, Weiping Wang, Fujiang Sun, Siying Chen, Heya Na

Hallucinations in Text-to-Image Generation Models: Characteristics and Impacts on Product Conceptual Design 288
Jiaxiang You, Yaxuan Song, Yu Cai, Liuqing Chen

From Passive Monitoring to Active Guardianship: An IoT Escort Drone System 292
Can Gu, Gang Wang, Ning Han, Han Gxing Luo, Siying Lin, Daoyang Qiu, Gang Ren

Algorithmic Aesthetics and Cultural Heritage: Geometric Pattern Generation through Morris Semiotics 296
Yixuan Hou, Pu Ren

Research on Practical Teaching of Computer-related Majors Based on the OBE Concept Under the Background of Emerging Engineering Education 300
Caiyun Xu, Qinglin Wu

The Impact of College Students' National Security Perception on AI Acceptance 304
Siying Chen, Heya Na, Fujiang Sun

Single-Image Turntable-Style Product Rotation Video Generation via Video Diffusion Models 310
Peiyuan Chen, Shouqian Sun

From Quantitative to Qualitative: An Explainable Risk Assessment Model Based on Large Language Models 314
Ling Guo

Rethinking Creative Ideation: Toward Seamless Synergetic AI in Human–AI Design Collaboration 318
Chenqi Zhang, Zehui Feng, Tongtong Zhou, Ting Han

Research on the Innovation Path of Chaoshan Alcove Head Gene Mapping in Local Gift Packaging Designs 323
Xiang Zhou, Jiaqi Ren, Meiting Guan, Xuesong Zhou

DesignDNA: Injecting Domain Knowledge into Generative Models for Controllable Air Conditioner Design 329
Jia Wei, Chengyu Lin, Qinqin Zhao, Yongchuan Tang

Research on the Translation and Contextual Embedding of Kunqu Opera Symbols for Smart High-Speed Rail 336
Zhibing Zou, Xian Zhu

How Design Aesthetics and Peer Support Improve Well-Being: Unraveling the Impact of Smart Speaker Attributes on Older Adults Using PLS-SEM 340
Bao-Yi Zhang, Jia-Cheng Lai, Chen-Lei Lin

Exploring the Impact of Virtual Companion Interaction Design in Otome Games on Female Players' Subjective Happiness: A Study Based on the SOR Theory 344
Bao-Yi Zhang, Chen-Lei Lin, Jia-Cheng Lai

A Conceptual Innovation Design Framework Integrating Causal Inference and Multi-Method Fusion 348
Longwei Zhong, Li Liu