2026 10th International Conference on RELIABILITY ENGINEERING

Hangzhou, China July 19-21, 2026

ICRE RELIABILITY ENGINEERING

Special Session 1

Industrial AI-Driven Operation and Maintenance

Goal

With the rapid advancement of industrial digitalization and intelligentization, modern engineering systems are becoming increasingly complex, characterized by multi-scale, multi-physics, and multi-source heterogeneous data. Reliability analysis and maintenance are crucial to ensuring the safe, stable, and efficient operation of these systems throughout their life cycles. The integration and penetration of new-generation artificial intelligence into various industries are accelerating, and it has become a core enabling technology to address challenges in traditional prognostics and health management (PHM), reliability analysis, and maintenance models. This forum focuses on new theories, methods, technologies, and applications of PHM empowered by new-generation artificial intelligence and communication technologies such as AIGC, edge computing, and augmented reality. By integrating explicit knowledge and implicit data, the forum strives to improve the accuracy, adaptability, and efficiency of multi-scale reliability assessment, and promote innovations in artificial intelligence-driven maintenance strategies for complex engineering systems. The forum provides a communication platform for researchers and engineering technicians to share the latest research findings, discuss key technical challenges, and advance the application and development of new-generation artificial intelligence in PHM.

Topics

- Knowledge-data fusion methodologies for fault diagnosis, maintenance, and reliability modeling of complex systems
- Augmented reality-aided maintenance operation
- AIGC-enabled Prognostic Health Management (PHM) with knowledge-data fusion for equipment maintenance
- Development of low-computational-power diagnostic/prognostics models based on edge computing
- New technologies on data acquisition, fusion and application
- AI-aided predictive maintenance strategies based on remaining useful life prediction
- Knowledge-guided data mining for identifying critical factors in degradation
- Industrial case studies on knowledge-data fusion-based reliability analysis and AI-aided maintenance
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Chairs

Y.W. Wang, Beihang University, China

Z.C. Huang, Beihang University, China

P.J. Xiang, Beihang University, China

X.L. Zhao, Nanjing University of Science and Technology, China

Publication

We provide a good opportunity by presenting your updated research knowledge and also by publishing it in the conference proceedings. submitted paper will be peer reviewed by conference committees, and accepted papers will be included into conference proceedings which will be indexed by SCOPUS and Ei compendex.

Submission

1. Full paper (presentation and publication)
- The paper must be written in English.
- All submissions will undergo a peer-review process by the conference committee.
- The paper should be at least FIVE pages including all figures, tables, and references.
- The paper should be submitted as a PDF document in .pdf format.
- submitted paper must be unpublished.
- Accepted papers will be invited for oral presentation or poster presentation and will be included in the conference proceedings.

2. Abstract (presentation only)
- Abstracts will be considered for presentation (oral/poster) only without publication.
- The abstract must be written in English.
- Abstracts should be no more than 300 words and clearly outline the title, purpose, methods, and outcomes of the research or practice being described.
- All submissions will undergo a peer-review process by the conference committee.

* Welcome to submit the paper or abstract by Electronic submission system: https://www.zmeeting.org/submission/icre2026
More details about submission, please visit at: https://www.icre.org/sub.html

Conference Program

July 19, 2026 I CONFERENCE + SHORT COURSE
July 20, 2026 I TECHNICAL EXCELLENCE & TRIBUTE
July 21, 2026 I INNOVATION & FUTURE OUTLOOK
July 17-22, 2026 I PHD SCHOOL PROGRAM

Conference Venue

Hangzhou International Innovation Institute of Beihang University
Address:
No. 166, Shuanghongqiao Street, Pingyao Town, Yuhang District, Hangzhou City

Hangzhou, China

Hangzhou, a renowned Jiangnan city blending millennia of heritage and poetic scenery, boasts three world cultural heritage sites. west Lake ripples with romance; Liangzhu Ruins hold ancient wisdom; the Grand canal carries folk vibes. Timeless song Dynasty elegance meets trendy fun, and delicious local cuisine delights the taste buds. A perfect mix of classic and modern, it awaits visitors from all over the world.

Important Dates

Submission Deadline: April 10, 2026
Notification Deadline: April 1, 2026
Camera-ready Date: May 20, 2026

Sponsors LASAR³ Co-sponsors

杭州市北京航空航天大学国际创新研究院（北京航空航天大学国际创新学院） 哈爾濱工業大學 HARBIN INSTITUTE OF TECHNOLOGY

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ICRE RELIABILITY ENGINEERING

特别专题 1

工业人工智能驱动的运行与维护

专题目标

随着工业数字化与智能化的快速推进，现代工程系统日趋复杂，呈现出多尺度、多物理场、多源异构数据的特征。可靠性分析与维护对于保障这些系统全生命周期安全、稳定、高效运行至关重要，新一代人工智能与各行业的融合渗透正在加速，已成为应对传统预测与健康管理(PHM)、可靠性分析、维护模式挑战的核心支撑技术。本论坛聚焦AIGC、边缘计算、增强现实等新一代人工智能、通信等技术赋能的PHM新理论、新方法、新技术、新应用。通过融合显性知识与隐性数据，本论坛力求提升多尺度可靠性评估的准确性、适应性与效率，推动复杂工程系统人工智能驱动维护策略的创新。论坛为科研人员与工程技术人员提供交流平台，分享最新研究成果、探讨关键技术难题，并推动新一代人工智能在PHM中的应用与发展。

专题主题

- 面向复杂系统故障诊断、维护与可靠性建模的知识 — 数据融合方法
- 增强现实辅助维护作业
- 知识与数据融合的 AIGC 赋能设备故障预测与健康管理（PHM）
- 基于边缘计算的低算力诊断与预测模型研发
- 数据采集、融合与应用新技术
- 基于剩余使用寿命预测的人工智能辅助预测性维护策略
- 面向退化关键因素识别的知识引导式数据挖掘
- 知识数据融合的可靠性分析与人工智能辅助维护工业案例研究
- ……

专题主席

王艺玮，北京航天航空大学，中国

黄志成，北京航天航空大学，中国

向芃桔，北京航天航空大学，中国

赵孝礼，南京理工大学，中国

会议出版

会议收录的文章将出版在会议论文集中出版，并提交EI Compendex, Scopus等其他检索机构审核检索。

投稿方式

1). 上传文章到电子投稿系统: https://www.zmeeting.org/submission/icre2026
2). 或发送文章至会议邮箱: icre_conf@outlook.com
提示:
1. 全文投稿（含报告与出版）
- 稿件须以英文撰写。
- 所有投稿均由会议委员会进行同行评审。
- 稿件篇幅不少于 5 页，包含所有图表及参考文献。
- 稿件须以 PDF 格式提交。
- 投稿稿件须为未发表的原创成果。
- 录用稿件将受邀进行口头报告或海报展示，并收录至会议论文集。
2. 摘要投稿（仅作报告）
- 摘要仅用于申请报告资格（口头报告 / 海报展示），不纳入出版范围。
- 摘要须以英文撰写。
- 摘要字数不超过 300 词，须清晰阐明所涉研究或实践的标题、研究目的、研究方法及研究成果。
- 所有投稿均由会议委员会进行同行评审。
• 详细信息请见----https://icre.org/sub.html

会议日程

2026年7月19日- 签到注册
2026年7月20日- 开幕式+主旨报告+作者报告
2026年7月21日- 开幕式+主旨报告+作者报告
2026年7月19-21日- 博士研究生项目

会议地址

杭州市北京航空航天大学国际创新研究院（北京航空航天大学国际创新学院）

地址：杭州市余杭区瓶窑镇双红桥街166号

中国杭州

杭州，一座融千年文脉与诗画风光的江南名城，三大世界文化遗产勾勒其独特魅力。西湖碧波漾诗意，良渚遗址藏远古智慧，大运河流淌南北烟火。宋韵风雅浸润红墙古社，新潮玩法解锁别样体验，鲜醇杭帮菜抚慰味蕾。古典与现代交织，漫步街巷皆是惊喜，正静待八方游客前来探寻。

重要日期

投稿截止日期：2026年4月10日
审稿通知日期：2026年5月05日
注册截止日期：2026年5月20日

Sponsors LASAR³ Co-sponsors 杭州市北京航空航天大学国际创新研究院（北京航空航天大学国际创新学院） 哈尔滨工业大学 HARBIN INSTITUTE OF TECHNOLOGY

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