Special Session Proposal

Special Session Basic Information:

专栏题目 **Session Title**	中文：面向复杂任务场景的智能系统可靠性与运维优化 英文： Reliability and Operations & Maintenance Optimization of Intelligent Systems under Complex Missions

专栏介绍和征稿主题
Introduction and topics

中文：

随着大数据与人工智能等技术的飞速发展，现代智能系统（如自动驾驶汽车、无人机、智能物联网等）正日益广泛地部署于复杂、动态且不确定的环境中执行关键任务。与传统工程系统相比，智能系统通常具有高维状态耦合、退化机理复杂以及外部工况强时变等特征，给可靠性建模与评估、健康管理与运维决策带来了新的挑战。本专栏聚焦可靠性理论与人工智能技术的交叉融合，围绕复杂任务场景下的智能系统，探讨统计建模、数据驱动分析与优化决策等方法在可靠性与智能运维中的应用，促进相关理论方法与工程实践的协同发展。征稿主题包括但不限于：

1. 复杂场景下的系统高维退化建模与寿命预测
2. 多源信息驱动的智能系统状态监测与健康评估
3. 智能感知系统与复杂网络可靠性建模、评估与优化
4. 面向复杂任务的自主系统健康管理与运维决策优化
5. 智能系统可靠性与运维优化的典型应用与工程案例

英文：

With the rapid development of technologies such as big data and artificial intelligence, modern intelligent systems (e.g., unmanned aerial vehicles, autonomous vehicles, and smart IoT) are increasingly deployed in complex, dynamic, and uncertain mission environments to execute mission-critical tasks. Compared with conventional engineering systems, intelligent systems often involve high-dimensional state coupling, complex degradation mechanisms, and strongly time-varying operating conditions, posing new challenges to reliability modelling and assessment, health monitoring and operation & maintenance (O&M) decision-making. By focusing on the integration of classical reliability theory and artificial intelligence technologies, with an emphasis on intelligent systems under complex missions, this special session aims to foster the development and applications of statistical modeling, data-driven analysis, and optimization-based decision-making methods for intelligent systems. Topics of interest include, but are not limited to:

1. High-dimensional degradation modeling and life prediction of systems under complex mission scenarios
2. Condition monitoring and health assessment for intelligent systems with multi-source information
3. Reliability modeling, assessment, and optimization of intelligent sensing systems and complex networks
4. Health management and intelligent O&M optimization for autonomous systems in complex missions
5. Practical applications and case studies of reliability and O&M optimization in intelligent systems

Special Session Chair(s):

姓名 **Name**	郝松华/Songhua Hao
称谓 **Prefix**	副研究员/Assoc. Prof.
部门 **Department**	空天科学与工程学院/ School of Aeronautics and Astronautics
单位 **Organization**	四川大学/Sichuan University
城市/地区 **City/Region**	成都/Chengdu

Organizer's Brief Biography

中文：郝松华，四川大学空天科学与工程学院副研究员、硕士生导师。主要从事复杂系统质量与可靠性工程、智能运维与健康管理方面的教学与科研工作。现担任中国系统工程学会系统可靠性工程专业委员会委员/副秘书长、中国现场统计研究会可靠性工程分会理事、中国运筹学会可靠性分会理事。承担国家自然科学基金项目（重点国合项目子课题、青年基金），国防基础科研项目，四川省基金项目（国合项目、青年基金），四川大学引进人才科研启动项目等纵向科研项目以及企业横向课题，已发表学术论文、国家发明专利、国家标准等科研成果 30 余项。

英文：Songhua Hao is an Associate Professor and Master's Supervisor at the School of Aeronautics and Astronautics, Sichuan University. His main research focuses on quality and reliability engineering, intelligent operations & maintenance, and health management of complex systems. He currently serves as the Member and Deputy Secretary-General of System Reliability Engineering Committee of SESC, Member of Reliability Engineering Committee of CAAS, and Member of Reliability Committee of CAAS. He has taken charge of multiple government-funded vertical research projects, including sub-projects of the Key International Cooperation Program and Youth Science Fund of NSFC, National Defense Basic Scientific Research Program, Sichuan Provincial Fund Programs (International Cooperation Program and Youth Fund), and the Scientific Research Startup Foundation for Introduced Talents of Sichuan University, as well as enterprise-funded horizontal projects. He has published more than 30 academic achievements, including academic papers, authorized national invention patents, and national standards.

姓名 Name	杨军/Jun Yang
称谓 Prefix	教授/Prof.
部门 Department	可靠性与系统工程学院/School of Reliability and Systems Engineering
单位 Organization	北京航空航天大学/Beihang University
城市/地区 City/Region	北京/Beijing

Organizer's Brief Biography

中文：杨军，北京航空航天大学可靠性与系统工程学院教授、博士生导师、系主任，研究方向为可靠性建模评估、加速试验设计与数据分析、统计质量控制、网络可靠性、迁移学习等。担任中国现场统计研究会常务理事、副秘书长暨其可靠性工程分会理事长、统计调查分会秘书长，中国系统工程学会理事及其系统可靠性工程专业委员会副主任兼秘书长，全国统计方法应用标准化技术委员会(SAC/TC21)委员，全国统计教材编审委员会第七届委员会专业委员，SCI 期刊 QREI(Quality and Reliability Engineering International)编委以及中文核心期刊《数理统计与管理》编委等学术兼职。主持国家自然科学基金项目 4 项、技术基础项目 3 项等纵向科研项目以及国家电网、华为、金风等行业企业横向课题。已在 ITR、RESS、INS、JMS、MSSP 等国内外学术期刊发表论文一百七十多篇(包括 SCI 论文 140 多篇，中文核心期刊 30 余篇，ESI 高引 1 篇)，出版著作 11 部(含英文专著 1 部)，主持起草国家标准 2 项、参与起草国家标准 3 项与国际标准 2 项，授权国家发明专利 20 余项，获部级科技进步一等奖 1 项、二等奖 3 项、三等奖 1 项与北京市教学成果二等奖 1 项等。

英文：Jun Yang is a Professor, Doctoral Supervisor, and Department Head at the School of Reliability and Systems Engineering, Beihang University. His research interests include reliability modeling and assessment, accelerated test design and data analysis, statistical quality control, network reliability, and transfer learning. He holds a number of academic positions, including Standing Director and Deputy Secretary-General of CAAS, Chairman of Reliability Engineering Committee of CAAS, Secretary-General of Statistical Survey Committee of CAAS, Director of SESC, Deputy Director and Secretary-General of System Reliability Engineering Committee of SESC, Editorial Board Member of the *Quality and Reliability Engineering International*, and Editorial Board Member of *Journal of Applied Statistics and Management*. He has presided over 4 projects funded by NSFC, 3 Technical Foundation Programs, and other government-funded vertical research projects, as well as enterprise-funded horizontal projects from leading industry enterprises including State Grid, Huawei, and Goldwind. He has published more than 170 papers in domestic and international academic journals including ITR, RESS, INS, JMS, and MSSP. Among these publications, over 140 are SCI-indexed papers, more than 30 are published in Chinese core journals, and 1 is an ESI Highly Cited Paper. He has published 11 books (including 1 English monograph), led the formulation of 2 national standards, and participated in the formulation of 3 national standards and 2 international standards. He has also been granted more than 20 national invention patents, and received 1 First Prize, 3 Second Prizes, and 1 Third Prize of Ministerial Science and Technology Progress Award, as well as 1 Second Prize of Beijing Municipal Teaching Achievement Award.