



**The International Conference on Aerospace System Science and  
Engineering 2025**

**ICASSE 2025**

**July 29<sup>th</sup> - 31<sup>st</sup>, 2025  
Singapore**

**Organized by**

Shanghai Jiao Tong University



**Hosted by**

National University of Singapore



Technical University of Munich Asia



**Supported by**

COMAC Shanghai Aircraft Flight Test Co., Ltd.

Moscow Aviation Institute

University of Toronto



中国商飞上海飞机试飞工程有限公司  
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## Program

<b>July 29<sup>th</sup>, 2025</b> <b>Day 1</b> <b>Location: T-lab meeting room level 8</b>		
14:00-17:00	<b>Registration</b>	
17:30-18:00	<b>Host: Qiang Shen</b> <b>Keynote Speech:</b> Computational Control Framework for Tethered Space Systems	George Zhu
18:00-19:00	<b>Reception Catering</b>	

July 30 <sup>th</sup> , 2025 Day 2		
Opening Ceremony 09:00-10:30 (GMT+8) Location LT3 Host: Sutthiphong Srigrarom		
09:00-09:15	WELCOME REMARKS 1. Poh Seng Lee, Head of Mechanical Engineering, NUS 2. Markus W ächter, Vice President TUM Asia, TUM Managing Director TUM Asia 3. Fucheng Liu, Dean of SJTU-SAA	
09:15-09:45	Keynote Speech: Aluminum Mining on the Moon for Mars Rocket Fuel	Kimiya Komurasaki
09:45-10:15	Keynote Speech: Addressing Control and Dynamics Challenges of eVTOLs	Florian Holzapfel
10:15-10:30	GROUP PHOTO BREAK	
Day 2 Track 1 Aircraft Technologies 10:30-11:35 (GMT+8) Location LT3 Session Chair: Florian Holzapfel		
10:30-10:50	Invited Speech: Next-Gen Technology for Civil Aircraft Flight Test	Yi Mi
10:50-11:05	Invited Speech: Model-Based Development for Next-Generation Aerospace Systems	Stephan Myschik
11:05-11:20	Civil Aircraft Pilot Coupling Vibration Analysis and Practice	P0018 Luning Ding
11:20-11:35	Research on Modal Analysis Methods for Flutter Flight Testing	P0021 Wei Dai
Lunch & Poster Session 12:00-13:00 (GMT+8)		

<b>Location Outside area between LT3 and LT4</b>		
<b>Day 2 Track 1</b> <b>Computer Vision and Artificial Intelligence</b> <b>13:30-17:10 (GMT+8)</b> <b>Location LT3</b> <b>Session Chair: Lingkun Luo</b>		
13:30-13:50	<b>Invited Speech:</b> Multispectral and HDR Image and Video Processing	Pavel Zemčík
13:50-14:10	<b>Invited Speech:</b> Digitalization of Creation Multi-Satellite Earth Monitoring Systems	Ivan S. Tkachenko
14:10-14:25	YOLO-CD: Drone Video Detection Method Based on YOLOv7 and Kalman Filter in Complex Background	P0093 Wentao Zhou
14:25-14:40	Drone Navigation Based on Deep Q-Network with Prioritised Experience Replay	P0095 Chenghao Ding
14:40-14:55	Visual Detection and Tracking of Quadraped Robot from Quadrotor Using YOLOv8 with SAHI and IBVS	P0105 Fangze Li
14:55-15:10	<b>BREAK</b>	
15:10-15:25	Square Cupola AprilTag: A High-Precision Fiducial Marker for Pose Estimation Based on Accuracy Experiments of AprilTag	P0031 Haoran Yang
15:25-15:40	Multi-Scale Feature Coupled Attention Mechanism for Space Object Detection Under Varying Exposure Conditions	P0023 Xuyang Zhang
15:40-15:55	Fault Diagnosis Under Variable Working Conditions Enhanced by Diffusion Models	P0009 Lingkun Luo
15:55-16:10	Hyperspectral and Multispectral Image Fusion Via Non-Local and Global Low Rank Regularization	P0055 Zhouchu Zhang
16:10-16:25	Space Faint Target Extraction and Detection Via Background Noise Modelling with GMM	P0027 Kaiyao Ling
16:25-16:40	Conditional Variational Autoencoder for Remaining Useful Life Prediction with Spatial-Temporal Feature Fusion	P0058 Yuzhe Hao
16:40-16:55	MLMSKT: Mutual Learning and Multi Scale Knowledge Transfer for Aviation Bearing Fault Diagnosis Under Cross-Domain Few-Shot Learning Scenario	P0041 Kong Sun
16:55-17:10	Multi-Objective Optimization of a Boundary Layer Ingesting Fan Based on Deep Transfer Learning	P0037 Hefang Deng

<b>Day 2 Track 2</b> <b>Navigation</b> <b>10:30-11:50 (GMT+8)</b> <b>Location LT4</b> <b>Session Chair: Xingqun Zhan</b>		
10:30-10:50	<b>Invited Speech:</b> The Application of Artificial Intelligence in Satellite Navigation	Li-Ta Hsu
10:50-11:05	Hold-in, Pull-in, and Lock-in Ranges for GNSS PLL with Arctangential Detector	P0003 Rong Yang
11:05-11:20	A Visual-Inertial Navigation System (VINS) with Integrity Guided Visual Error Modeling for Aircraft Precision Approach	P0061 Yulong Sun
11:20-11:35	Development of a Satellite Onboard Computer Simulation Platform and Complex Network Generation Based on Renode	P0110 Yi Zhan
11:35-11:50	Beyond Gaussian Assumptions: Toward Trustworthy Navigation in Autonomous Systems	P0085 Penggao Yan
<b>Lunch &amp; Poster Session</b> <b>12:00-13:00 (GMT+8)</b> <b>Location Outside area between LT3 and LT4</b>		
<b>Day 2 Track 2</b> <b>Structure and Safety</b> <b>13:30-17:25 (GMT+8)</b> <b>Location LT4</b> <b>Session Chair: Andreas Hermanutz</b>		
13:30-13:50	<b>Invited Speech:</b> Investigation of Rational Size and Weight of a Second-Generation Supersonic Passenger Aircraft	Dmitry Strelets
13:50-14:10	Optimization Method of the Stiffened Plates with Multi-Level Load-Transfer Structures	P0005 Xin Lian
14:10-14:25	Complex Analysis of the Impact Damage Growth in Composite Element Under Cyclic Compression	P0057 Nikolay O. Kononov
14:25-14:40	Methods for Modeling Fracture in Composite Materials: A Review and Comparative Analysis	P0063 Elizaveta Ryzhova
14:40-14:55	Explicit Stress Intensity Factor Solution for Kinked Crack in Anisotropic Material	P0072 Chennian Shi
14:55-15:10	<b>BREAK</b>	

15:10-15:25	Research on Scenario Modeling of Civil Aircrafts Based on DoDAF	P0094 Meng Zhao
15:25-15:40	Research on the Architecture of Distributed Combat Simulation Platform	P0029 Yongqi Lai
15:40-15:55	Approach to the Main Landing Gear Linkage Design for the Requirement of Ultimate Loads on Links During Emergency Landing	P0054 Egor Ivanovich Titov
15:55-16:10	Research Progress on Supercritical Co2 Brayton Cycle System and Compressor for Thermal Protection of Hypersonic Aircraft	P0102 Xinzhe Zhang
16:10-16:25	Do-178c Software Development Lifecycle with Arp4754a System-Level Verification	P0056 Purav Panchal
16:25-16:40	ATC-QA: A Benchmark for Evaluating LLMs on Aviation Safety Compliance	P0113 Hongyu Shi
16:40-16:55	Computational Determination of the Failure Mechanisms of PCM Samples with Adhesive Repair	P0004 Sergei Kovtunov
16:55-17:10	Matrix STL: Concise Temporal Logic Rule for Complex Task Allocation	P0032 Yi Zhang
17:10-17:25	Realization of Optimal Size-Weight Design with Static Strength Constraints for Structurally Anisotropic Aircraft Skins with Medium and Large Thickness Made of Composite Materials	P0076 Liubov Gavva

<b>July 31<sup>st</sup>, 2025</b> <b>Day 3</b>		
<b>Day 3 Track 1:</b> <b>Guidance and Control</b> <b>9:00-12:00 (GMT+8)</b> <b>Location LT3</b> <b>Session Chair: Jianzhe Huang</b>		
09:00-09:20	<b>Invited Speech:</b> Low Thrust Trajectory Optimization Near L1 in Cislunar Space	Christopher Damaren
09:20-09:40	<b>Invited Speech:</b> UAV Flight Control in the Era of Deep Learning	Hugh Liu
09:40-09:55	Application Method of Dead-Zone Saturation Operation in Nonlinear Control System	P0098 Qiang Shen
09:55-10:10	Reinforcement Learning Based Trajectory Planning for Autonomous Dynamic Soaring	P0100 Alexander Zwenig

10:10-10:25	Distributionally Robust Model Predictive Control of Space Manipulators Based on Koopman Modeling	P0040 Yiheng Yang
10:25-10:30	<b>BREAK</b>	
10:30-10:45	Design of A Mission Data Handling Algorithm for A Unified Trajectory Module Based on STANAG 4586 and MAVLink	P0065 Dominik Heimsch
10:45-11:00	Smooth Dubins Path Planning Based on Convolution Parameterization	P0069 Zijian Cheng
11:00-11:15	Quantification of Map Matching Credibility Based on GNSS Positioning Covariance	P0090 Chenzhang Ning
11:15-11:30	Trajectory Planning and Optimisation for Intercepting Evasive Drones	P0070 Javier Hongrui Lee
11:30-11:45	Path Planning and Guidance for Quadruple Legged Robots Through Obstacles Using YOLOv8 and A-Star with ROS2 and IsaacSim Implementation	P0106 Weihua Li
11:45-12:00	Aerial Herding of Flocks of Birds and Interception of Multiple Drone Targets by Distributed Chasers Using StringNet and Heuristic Task Allocations	P112 Panithan Rithburi
<b>Lunch &amp; Poster Session</b> <b>12:00-13:00 (GMT+8)</b> <b>Location Outside area between LT3 and LT4</b>		
<b>Day 3 Track 1</b> <b>Electric Aircraft</b> <b>13:30-15:50 (GMT+8)</b> <b>Location LT3</b> <b>Session Chair: Stephan Myschik</b>		
13:30-13:45	Design of Power Supply Active Load Allocation Algorithm Based on Aircraft Grid Perception	P0024 Chunxia Yang
13:45-14:00	Scaling and Building a Technology Demonstrator of an Electric Vertical Take-Off and Landing Boxwing Martian Aircraft	P0067 Elena Karpovich
14:00-14:15	Effects of Propeller Rotation Patterns on the Performance of a BWB Configuration eVTOL Aircraft	P0088 Xiaolu Wang
14:15-14:30	Rotor Configuration Optimization for Enhanced Control Authority in eVTOL Aircraft	P0083 Tingyu Huang
14:30-14:45	Requirements-Based Performance Optimisation Tool for Hybrid Electric Aircraft	P0101 Luca Hein
14:45-15:00	Washout Algorithm Design for eVTOL Aircraft Based on the Model Predictive Control Method	P0044 Diming Qin



15:00-15:15	Proportional Multiple-Integral Observer Based Robust Fault-Tolerant Control for Distributed Electric Propulsion Aircraft	P0050 Jun Wei
15:15-15:50	<b>BREAK</b>	

<b>Day 3 Track 2</b> <b>Propulsion</b> <b>9:00-11:30 (GMT+8)</b> <b>Location LT4</b> <b>Session Chair: Yi Gao</b>		
09:00-09:20	<b>Invited Speech:</b> Advancing Flow Diagnostics with Neuromorphic Vision	Luming Fan
09:20-09:35	Modular Constructive Geometry Parameterization Method for Turbomachinery Blade Design Based on Blade Matching Method	P0117 Qilong Shen
09:35-09:50	Fault Estimation for Aero-Engine Actuator Using Unknown Input Observers	P0099 Huihui Li
09:50-10:05	Numerical Investigation of Aerodynamic Interference Effects for Wing-Integrated Ducted Fans Using the Momentum Source Method	P0118 Huaxing Gou
10:05-10:20	A Methodology for Electrically Propelled Fixed-Wing Aircraft Design Based on the Integration of Design to Cost and RFLP	P0115 Su Liu
10:20-10:30	<b>BREAK</b>	
10:30-10:45	The Effects of Air Temperature on the Supersonic Combustion of N-Heptane Dilute Sprays in a Model Combustor	P0014 Chi Zhang
10:45-11:00	Neural Network-Based Online Performance Degradation Prediction of Diesel Engine Turbocharging System	P0092 Xiayu Chen
11:00-11:15	Design of a Turbofan Engine Protection System Against Foreign Object Ingestion	P0038 Sergei Serebriansk
11:15-11:30	Investigation on the Aerodynamic Performance Characteristics of Coaxial Contra-Rotating Propellers under the Influence of Blade Pitch Angles	P0015 Lingyu Gao
<b>Lunch &amp; Poster Session</b> <b>12:00-13:00 (GMT+8)</b> <b>Location Outside area between LT3 and LT4</b>		
<b>Day 3 Track 2</b> <b>Applied Fundamental Technologies</b> <b>13:30-15:50 (GMT+8)</b>		

<div>Location LT4</div> <div>Session Chair: Wei Ma</div>		
13:30-13:45	Design Optimization of Aircraft Hybrid Electric Propulsion System Based on Full-Flight Energy Consumption Calculation	P0087 Peidong Tian
13:45-14:00	Identifying the Radiating Core and Predicting the Tonal Noise Radiation of An Axial Compressor	P0051 Xiao Jing
14:00-14:15	Multi-Dimensional Evaluation of Chemical Kinetic Mechanisms for Ammonia and Ammonia/Hydrogen Combustion	P0036 Chaowei Ge
14:15-14:30	Effects of Microphone Installation Deviations on Localization: A Fundamental Investigation Between Stationary and Rotating Sound Sources	P0052 Cheng Wei Lee
14:30-14:45	Numerical Investigation of Flow and Heat Transfer in Turbine Disk Cavity Under Hydrogen-Oxygen Cycle Conditions	P0114 Jie Yang
14:45-15:00	Evolution of the Instability Characteristics of Wing-Tip Vortex Under the Effect of Synthetic Jet	P0011 Zhenglin Xiao
15:00-15:50	BREAK	
<div>Panel Discussion:</div> <div>EDITOR’S DIALOGUE</div> <div>15:50-16:30 (GMT+8)</div> <div>Location LT3</div> <div>Host: Li-Ta Hsu</div> <div>Speakers: Christopher Damaren, Hugh Liu, Xingqun Zhan, Wu Xu , Haichao Hong, Rong Yang</div>		
<div>Best Poster Award &amp; Best Paper Award &amp; Closing Ceremony</div> <div>16:30-17:00 (GMT+8)</div> <div>Location LT3</div> <div>Host and Closing Remarks by: Wu Xu</div> <div>Presented by: Sutthiphong Srigrarom, Lailai Zhu, Andreas Hermanutz, Tat Loon Chng Boo Cheong Khoo, Markus Waechter, Fucheng Liu, Zhongliang Jing, Xingqun Zhan, Wei Mao</div>		
<div>Dinner (for the paid participants and invited guests)</div> <div>18:30-20:00 (GMT+8)</div> <div>Location (TBD)</div>		

**July 29th:**

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