

THE LI DEREN AWARD

The Chinese Society for Geodesy, Photogrammetry and Cartography decided, in 2025, to present a periodic award, called Li Deren Award, to encourage the advancement of spatio-temporal intelligence. The award consists of a medal and a monetary grant (5,000 CHF), and is presented at each quadrennial ISPRS Congress to a person who has made a significant achievement or innovation in spatio-temporal intelligence.



Steve Chien

The 2026 awardee is **Steve Chien**. He earned a Bachelor of Science (B.S.) in Computer Science from the University of Illinois

at Urbana-Champaign in 1985, followed by a Master of Science (M.S.) in 1987. He completed his studies at the same institution in 1990 with a Doctor of Philosophy (Ph.D.) in Computer Science. Currently, he is a Senior Research Scientist, and Technical Group Supervisor of the Artificial Intelligence Group and in the Mission Planning and Execution Section at the Jet Propulsion Laboratory (JPL), California Institute of Technology, where he is a JPL Fellow and leads efforts in automated planning and scheduling for space exploration.

His work represents a system-level breakthrough in autonomous spatio-temporal decision-making. One of his most influential contributions was his role as the architect of the EO-1 Autonomous Sciencecraft, the first fully integrated demonstration of closed-loop, science-driven autonomy in orbit. The mission operated from 2004-2017 and included several advances including onboard replanning for rapid response, onboard imagery analysis including machine learning inference, and onboard summarization for rapid notification. He subsequently pioneered the sensorweb concept which coordinated multiple spacecraft to enhance

spatio-temporal intelligence. Sensorwebs for flood and volcano monitoring continue today, leveraging commercial remote sensing capabilities. He also led the development of campaign-based science scheduling for ESA's Rosetta mission, incorporating complex spatio-temporal constraints into an AI-based observation scheduling system. He played key roles in the use of automated scheduling for the ECOSTRESS, OCO-3, and EMIT missions - incorporating autonomous coverage scheduling and advancing the state of the art in spatio-temporal intelligence. He has also played a key role in the deployment of an advanced AI scheduler onboard the Perseverance rover at Mars, which addresses temporal reasoning to manage complex thermal and energy constraints. He is currently the Principal Investigator for the Federated Autonomous Measurement (FAME) effort, deploying AI to over 60 spacecraft, leveraging recent advances in machine learning, edge computing, and multi-agent systems.

He is internationally recognized as a pioneer in autonomous spacecraft systems and in-orbit data processing. Over more than two decades, his work has established technical foundations that enable remote sensing platforms to reason, adapt, and optimize data acquisition directly in space. His broader body of work has systematically advanced the theory, algorithms, and flight implementation of onboard artificial intelligence for remote sensing.

In addition to his technical contributions, the recipient has provided sustained leadership and service to the broader research community. He has authored or co-authored numerous peer-reviewed publications spanning autonomous systems, artificial intelligence, and remote sensing, many of which are highly cited and widely used as foundational references. His work appears in leading journals and conferences relevant to ISPRS and IEEE, including venues that bridge geoscience, remote sensing, and intelligent systems. Through mentoring, collaboration, and service on advisory and review panels, he has played a key role in shaping the next generation of researchers and engineers working at the intersection of photogrammetry, remote sensing, and autonomous systems.

Today, as the remote sensing community confronts unprecedented data volumes, latency requirements, and operational constraints, the importance of onboard

intelligence is universally recognized. Many of the concepts now considered essential—adaptive sensing, onboard data triage, and science-driven autonomy—can be traced directly to his pioneering work.

In recognition of his seminal and pioneering contributions to onboard artificial intelligence and autonomous data processing for remote sensing systems, which have fundamentally transformed how Earth observation missions acquire, process, and deliver geospatial information, he has received a multitude of awards including the 1995 JPL Lew Allen Award for Excellence, various NASA Exceptional Achievement Medals (1997, 2007, 2015), the NASA Software of the Year Award (2005) and the a JPL Magellan Award (2015).



XXV ISPRS CONGRESS

TORONTO, CANADA | 4-11 JULY 2026

FROM IMAGERY TO UNDERSTANDING

2026 AWARDS AND CITATIONS



HOSTED BY



Canadian Remote Sensing Society
Société Canadienne de Télédétection

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