

Message from the Chairs

AISM 2025

Welcome to AISM 2025 – The First International Workshop on AI for Software Modernization

It is our great pleasure to welcome you to the inaugural edition of the International Workshop on AI for Software Modernization (AISM 2025), co-located with ASE 2025. This workshop addresses one of the most pressing challenges in today's digital world: the modernization of legacy software systems. With enterprises across the globe facing the twin pressures of technological debt and rapid advances in AI, the role of AI-driven methods in accelerating, automating, and improving software modernization has never been more critical.

This first edition of AISM received submissions from a diverse set of contributors across academia and industry, reflecting the growing interest and urgent need for innovation in this domain. The accepted papers represent a rich spectrum of research themes, which can be broadly grouped into:

- AI for legacy code understanding and transformation – including work on program augmentation for LLM training, multilingual explanations for mainframe languages, and case studies in COBOL functionality extraction.
- Software architecture and modernization strategies – covering microservices identification, dependency upgrades, and mining open-source artifacts for deeper insights.
- Evaluation and validation approaches – exploring methods to address low-data regimes and ensure reliability in modernization workflows.

The author pool represents a broad demographic distribution across regions including Japan, Israel, India, and the United States, with contributors from both leading industrial research labs (IBM Research, JP Morgan, TCS Research, AMD India) and academic institutions (e.g., COEP Tech, Pune). Gender diversity is reflected among the authorship, with both women and men actively contributing. Importantly, the split across academia and industry demonstrates the strong need for collaboration: nearly two-thirds of the papers come from industry research groups, underscoring the applied relevance of AI4SM.

The review process was supported by a dedicated program committee of expert reviewers drawn from both academia and industry worldwide. Each paper was assigned at least three reviewers, with conflicts of interest carefully handled to ensure fairness and integrity. Reviews were evaluated based on technical novelty, clarity, and relevance to the workshop theme. We are deeply grateful to our reviewers, who provided thorough and constructive feedback despite their busy schedules. Their engagement has been instrumental in shaping this program and in fostering the high standards that will define AISM going forward.

The workshop program will feature keynote talks, accepted paper presentations, and an interactive panel discussion that brings together voices from academia, industry, and open-source communities. Beyond technical sessions, our goal is to build a community around AI for software modernization — one that bridges research advances with the real-world needs of enterprises worldwide.

Hosting ASE and AISM in Seoul, South Korea, offers a unique opportunity for the software engineering community. Seoul is a global hub of technology, innovation, and digital transformation, home to both cutting-edge research institutions and world-leading enterprises. Its vibrant technology ecosystem, coupled with its rich cultural heritage and accessibility, provides an ideal backdrop for connecting researchers, practitioners, and industry leaders. For a workshop like AISM, dedicated to bridging AI research and enterprise modernization needs, Seoul's role as a bridge between academia and industry makes it a perfect fit.

We warmly invite you to join us in this exciting journey. Together, let us advance the field of AI4SM, foster collaborations across domains, and work towards a future where modernization is not a burden, but an opportunity enabled by AI.

We look forward to your participation and to shaping the future of software modernization with you at AISM 2025!

AISM 2025 Organizing Committee

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