MIT AI in Software Engineering Forum

April 2, 2025 9:00 am - 1:30 pm

8:30 AM — Arrival, Registration, Networking, Coffee and Tea

9:00 AM — Introduction and Overview
Jim Flynn
Program Director, MIT Industrial Liaison Program

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Before MIT, Jim was the assistant dean of research business development at the UMass Amherst College of Information and Computer Sciences. Jim founded, built, and sold multiple technology companies in fintech and online media. He has bootstrapped startups and closed venture capital, angel, and private equity funding rounds. Jim also served as the Chief Operating Officer of a public company and a subsidiary of Pitney Bowes. He began his career at AT&T as a software developer, hardware engineer, and national account manager. Jim has authored patents and wrote one of the first books on Java programming. Out of all the roles he's held, Jim's favorite job title by far is dedicated dad of four. He earned a BS from Manhattan College and an MBA with concentrations in finance and international business from New York University.

9:10 AM — State of the Art: How AI Has Impacted Software Engineering

Armando Solar-Lezama

Prof. Armando Solar-Lezama, a leading expert in program synthesis and software systems, will delve into the key transformative effects of AI on software engineering, from automating code generation to optimizing complex systems. Drawing on cutting-edge research and real-world applications, this talk will highlight the current capabilities, challenges, and future potential of AI-driven tools and techniques in revolutionizing how software is designed, developed, and maintained. Attendees will gain insights into how these innovations are reshaping the industry and what lies ahead.

9:40 AM — The Synergy of AI and Modular Design

Daniel Jackson

According to GitHub, programmers using Copilot, its AI-based code assistant, are now generating half their code with it. But look more carefully, and it turns out that almost all the code being generated is small fragments, often single functions. How might we use AI to generate entire apps? Prof. Daniel Jackson, a renowned authority on software modeling and design, will explain how success with AI in software development will depend on having radically modular structure in our apps. He'll describe a new kind of modularity (called concept design) and show how it can lead to better development processes and better software, whether built by humans or bots.

| 10:10 AM | **AI-Powered Integrated Development Environments** |
| | Adam Chlipala |

Integrated Development Environments (IDEs) are evolving with AI, becoming smarter and more intuitive to empower developers. In this talk, Prof. Adam Chlipala, an expert in formal methods and programming languages, will explore how AI is enhancing IDE capabilities—from intelligent code assistance and error detection to advanced refactoring and debugging tools. Highlighting the intersection of AI and programming environments, Prof. Chlipala will discuss breakthroughs, practical applications, and the road ahead for AI-driven software development workflows.

| 10:40 AM | **Networking Break** |

| 10:50 AM | **Enhancing Security via AI and Machine Learning** |
| | Diane Staheli |

This session will discuss using machine learning and AI to detect vulnerabilities, strengthen software security, and respond to emerging threats in real-time.

| 11:20 AM | **AI for Software Testing and Lifecycle Management** |

AI is revolutionizing software testing and lifecycle management, streamlining processes and improving reliability. In this talk, Prof. TBD., a pioneer in machine learning and AI-driven systems, will delve into how AI is transforming testing methodologies, defect prediction, and maintenance workflows. Drawing from his extensive research, he will showcase innovative tools and techniques that leverage AI to enhance software quality, reduce costs, and accelerate development cycles, paving the way for a more efficient software engineering ecosystem.

11:50 AM	**Industry Panel: Real-World Impacts of AI in Software Engineering**
	Lisa Amini
	Simon Lee
	Wilko Schwarting

Leaders from the industry will share their experiences leveraging AI to transform software engineering practices. This panel will explore how AI is being applied to tackle real-world challenges, from automating development workflows to enhancing system reliability and scalability. Featuring insights from IBM, Humana, and other top innovators, the discussion will provide a deep dive into the successes, lessons learned, and emerging trends shaping the future of AI-powered software engineering. Attendees will gain valuable perspectives on the practical applications and strategic considerations of integrating AI into their development processes.

12:30 PM	Forum Wrap-up and Next Steps Jim Flynn Program Director, MIT Industrial Liaison Program

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12:35 PM	Networking Lunch

1:30 PM	Afternoon Session: MIT Startup Exchange Live Demo Day