

SEMLA 2019

The 2nd International Symposium on Software Engineering for Machine Learning Applications

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Thomas G. Dietterich is Professor Emeritus in the School of Electrical Engineering and Computer Science at Oregon State University. Dietterich is one of the pioneers of the field of Machine Learning and has authored more than 200 refereed publications and two books. His research is motivated by challenging real world problems with special attention to ecological science, ecosystem management, and sustainable development. Another important research focus is the development of methodologies for ensuring that deployed human-AI systems are reliable and resilient, particularly in high-risk applications.

Dietterich has devoted many years of service to the research community. He served as President of the Association for the Advancement of Artificial Intelligence (2014-2016) and as the founding president of the International Machine Learning Society (2001-2008). Other major roles include Executive Editor of the journal Machine Learning, co-founder of the Journal for Machine Learning Research, and Program Chair of AAAI 1990 and NIPS 2000. Dietterich is a Fellow of the ACM, AAAI, and AAAS.

Keynote Title: Viewing Machine Learning Through a Software Engineering Lens

Abstract: Machine learning provides two approaches to creating software: imitation (also known as supervised learning) and optimization (also known as reinforcement learning and bandit problems). This talk will focus primarily on imitation and address the problems of (a) defining what it means for an ML-created system to be correct, (b) monitoring runtime queries to identify threats to correctness, (c) quantifying uncertainty and flagging low-confidence predictions, (d) supporting design, modularity, debugging, and evolution, and (e) preventing adverse system-level interactions among multiple learned components. Although this will primarily be a cry for help to the software engineering community, I will highlight those engineering aspects where machine learning research has something to offer as well.

What is SEMLA?

SEMLA aims at bringing together leading researchers and practitioners in software engineering and machine learning to reflect on and discuss the challenges and implications of engineering complex data-intensive software systems.

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