NEWS RELEASE

Contact: Jim Ormond
               ACM
               212-626-0505
               ormond@acm.org

World's Premier Computing Society Publishes New Journal on Probabilistic Machine Learning

Inaugural Issue of ACM TOPML Now Available

New York, NY, February 5, 2025 – ACM, the Association for Computing Machinery, has announced the publication of the first issue of *ACM Transactions on Probabilistic Machine Learning* (TOPML). The new journal focuses on probabilistic methods that learn from data to improve performance on decision-making or prediction tasks under uncertainty. In keeping with ACM's goal of being a fully Open Access publisher by the end of 2025, TOPML is a Gold Open Access journal, and published papers are free to read and share via the ACM Digital Library.

A central question in designing artificial intelligence (AI) systems has been "How can we teach machines to learn?" Recently, computer scientists have successfully accomplished this by combining vast amounts of data with special machine learning algorithms. One of the primary tools scientists use to develop machine learning algorithms is probability models. Probability models are mathematical formulas used to describe all the possible outcomes of an experiment.

While probabilistic machine learning has underpinned many AI advances to date, computer scientists believe the field also offers great potential for future breakthroughs.

Recognizing that probabilistic machine learning is a vast scientific area, the TOPML editorial board has envisioned the new journal to encompass the breadth and depth of the field. TOPML is dedicated to publishing high-quality research that advances theoretical foundations, proposes novel algorithms, and explores applications of probabilistic methods in ML, bridging the gap between theory and practice, fostering interdisciplinary collaborations, and addressing real-world challenges. The new ACM journal publishes leading edge research in the following areas:

- Theoretical, methodological, and applied contributions
- Theoretical contributions that introduce novel methodology

- Methodological and applied contributions that include proposed probabilistic approaches, which are motivated and empirically corroborated by non-trivial examples or applications
- Multidisciplinary approaches with a probabilistic structure are within the scope

The three Co-Editors-in-Chief of TOPML are Wray Buntine, Professor of Computer Science, VinUniversity (Vietnam); Fang Liu, Professor and Acting Chair, University of Notre Dame (USA); and Theodore Papamarkou, Professor at the College of Mathematical Medicine, Zhejiang Normal University (China).

In their inaugural issue, the editors note that the recent upsurge in machine learning research makes the ACM TOPML journal a welcome addition to the field.

"The volume of (research on probabilistic machine learning) submissions at top conferences and journals has dramatically increased recently," they write in their introduction to the first issue. "...posing challenges to authors to publish their works, and to publishers and reviewers of the existing venues to handle the workload. It is apparent that more outlets for publishing research on probabilistic machine learning are necessary."

TOPML is guided by the principle that machine learning researchers must be at the forefront of discovery and improvements, as well as the ethical considerations raised by the field such as data privacy and fairness.

"We invite the global research community to continue to contribute their work in advancing probabilistic ML," the editors write. "Through this journal, we hope to spark innovative ideas, disseminate impactful research, and nurture a vibrant community that will shape the future of AI systems."

Articles in the inaugural issue of TOPML include:

"[Stochastic Optimization and Learning for Two-Stage Supplier Problems,](#)" by Brian Brubach, Nathaniel Grammel, David G. Harris, Aravind Srinivasan, Leonidas Tsepenekas, and Anil Vullikanti

"[Elliptically-Contoured Tensor-variate Distributions with Application to Image Learning,](#)" by Carlos Llosa-Vite and Ranjan Maitra

"[PT-HMC: Optimization-based Pre-Training with Hamiltonian Monte-Carlo Sampling for Driver Intention Recognition,](#)" by Koen Vellenga, Alexander Karlsson, H. Joe Steinhauer, Göran Falkman, and Anders Sjögren

"[On the Importance of the Execution Schedule for Bayesian Inference,](#)" by Patrick W.A. Wijnings, Martin Roa-Villescas, Sander Stuijk, Bert de Vries and Henk Corporaal

"[DRD-GAN: A Novel Distributed Conditional Wasserstein Deep Convolutional Relativistic Discriminator GAN with Improved Convergence](#)," by Arunava Roy and Dipankar Dasgupta

"[Hierarchical Bayesian Data Selection](#)," by Simon L. Cotter

In addition to co-EiCs Buntine, Liu, and Papamarkou, the TOPML advisory team includes six Senior Advisory Editors, a Social Media Editor, 63 Senior Associate Editors, and 109 Editorial Board Members. Reflecting ACM's global membership, the TOPML editorial team is made up of professionals working in countries including Australia, Brazil, Canada, China, Denmark, Finland, France, Germany, Greece, Hong Kong, India, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Poland, Saudi Arabia, Singapore, South Africa, Sweden, Switzerland, the United Kingdom, the United States, and Vietnam.

ACM publishes more than 70 scholarly peer-reviewed journals in dozens of computing and information technology disciplines. Available online through the ACM Digital Library, ACM's high-impact journals constitute a vast and comprehensive archive of computing innovation, covering emerging and established computing research for both practical and theoretical applications.

About ACM
[ACM, the Association for Computing Machinery](#) is the world's largest educational and scientific computing society, uniting computing educators, researchers, and professionals to inspire dialogue, share resources, and address the field's challenges. ACM strengthens the computing profession's collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for life-long learning, career development, and professional networking.

###