DIMACS Workshop on On-line Decision Making

July 12-15 , 1999

Rutgers University in New Brunswick, New Jersey, USA.
Organizers: Yoav Freund (AT&T Labs) and Rakesh Vohra (Northwestern University).

The twilight of the 20th Century has seen a growing interest in the analysis of algorithms for making repeated decisions within an unknown environment. The goal is to identify decision making strategies with appealing performance guarantees that hold without assuming that a stochastic process generates the environment's behavior. Questions of this type have been asked and answered in a variety of fields:

INFORMATION THEORY: Universal coding of individual sequences, universal prediction, universal portfolios ...
GAME THEORY and DECISION THEORY: Adaptive game playing, learning in games ...
MACHINE LEARNING: Aggregating strategies, using expert advice, prediction in the worst case ...
STATISTICS: Prediction in the worst case, Prequential probabilities, Universal Calibration ...
COMPUTER SCIENCE: Competitive analysis of Online Algorithms.

This workshop will bring together researchers in these fields to give introductory talks about their work, describe the questions they are trying to solve and the tools that they use.

SPEAKERS

Philip Dawid, University College London / *The Prequential approach to probability and statistics*
Alvin Roth, Harvard University / *Reinforcement learning as a useful approximation: accuracy of prediction in experimental games*
Allan Borodin, University of Toronto and **Ran El-Yaniv**, The Technion, Israel / *An overview of the competitive analysis of online algorithms and its relation to game theory*
Sergiu Hart, Hebrew University, Jerusalem / *Adaptive strategies, regret, and approachability*
Imre Csiszar, Hungarian Academy of Sciences / *Information geometry and its applications*
Manfred Warmuth, University of California - Santa Cruz / *Relative loss bounds for online learning using divergence measures*
Robert Schapire, AT&T Labs / *Learning to play games using multiplicative weights*
Andrew Barron, Yale University / *Decision theory of regret for universal coding, gambling, and prediction*
Jason Cross, Yale University / *Fast Universal portfolios for parameterized target classes*
Ehud Kalai, Northwestern University / *Rational learning*
Eric Friedman, Rutgers University / *Reasonable learning in non-cooperative games and the Internet*
Chris Sanchirrico, Columbia University / *'Impossibility' of absolute continuity*
John Nachbar, Washington University, St. Louis / *Rational Bayesian learning in repeated games*
Dean Foster, University of Pennsylvania and **H. Peyton Young** John Hopkins University / *When rational learning fails*
Avrim Blum, Carnegie Mellon University / *Online Learning and the metrical task system problem*
Yossi Azar, Tel Aviv University / *Online load balancing and routing*
Phil Long, National University of Singapore / *Worst-case analysis of the exploration/exploitation tradeoff*
Aldo Rustichini, Tilburg University / *Minimizing regret: the general case*
Ehud Lehrer, Tel-Aviv University / *Approachability in infinite dimensional spaces and an application: a universal algorithm for generating extended normal numbers*
Alvaro Sandroni, Northwestern University / *Limits of empiricism*
Manfred Opper, Sheffield University / *Average case and worst case sample complexity of learning distributions*
Nicolo Cesa-Bianchi, University of Milan and **Gabor Lugosi**, Pompeu Fabra University / *On prediction of individual sequences relative to a set of experts*
Matt Jackson, CalTech, **Rann Smorodinsky**, Technion and **Ehud Kalai**, Northwestern University / *Bayesian representations of stochastic processes under learning - De-Finetti revisited*

For more information and to register
`http://dimacs.rutgers.edu/Workshops/OnLine/`
Email: `sequential@research.att.com`
Less than 40/100 remaining seats!
Don't forget to reserve accomodations!