DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
UNIVERSITY OF SOUTHERN DENMARK, ODENSE

COMPUTER SCIENCE COLLOQUIUM

PhD colloqium: A Comparison of Performance Measures via Online Search

Abyayananda Maiti
Department of Mathematics and Computer Science
University of Southern Denmark, Denmark

Thursday, 15 December, 2011 at 14:15
U49E

Abstract:

Though competitive analysis has been a very useful performance measure for the quality of online algorithms, it is recognised that it sometimes fails to distinguish between algorithms of different quality in practice. A number of alternative measures have been proposed, but, with a few exceptions, these have generally been applied only to the online problem they were developed in connection with. Recently, a systematic study of performance measures for online algorithms was initiated [Boyar, Irani, Larsen: Eleventh International Algorithms and Data Structures Symposium 2009], first focusing on a simple server problem. We continue this work by studying a fundamentally different online problem, online search, and the Reservation Price Policies in particular. The purpose of this line of work is to learn more about the applicability of various performance measures in different situations and the properties that the different measures emphasise. We investigate the following analysis techniques: Competitive, Relative Worst Order, Bijective, Average, Relative Interval, Random Order, and Max/Max. In addition to drawing conclusions on this work, we also investigate the measures' sensitivity to integral vs. real-valued domains, and as a part of this work, generalise some of the known performance measures.

Host: