



2ο ΕΡΕΥΝΗΤΙΚΟ ΣΕΜΙΝΑΡΙΟ ΤΗΣ ΣΧΟΛΗΣ ΕΠΙΣΤΗΜΩΝ ΠΛΗΡΟΦΟΡΙΑΣ & ΤΕΧΝΟΛΟΓΙΑΣ

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Learning to Match in Online Platforms

ΠΕΜΠΤΗ 12/12/2019, 13:15

ΑΙΘΟΥΣΑ Τ103

Τροίας 2, Νέο Κτίριο ΟΠΑ

ΠΕΡΙΛΗΨΗ

A fundamental problem arises in online platforms that requires to match users and tasks so that work is performed efficiently. For example, in collaborative online Q&A platforms, experts need to be matched to questions posed by other users, and in popular freelancing online platforms, independent professionals need to be matched to jobs posted by various businesses. This is a challenging problem because of uncertainty (about user skills and task requirements) and online decision making (users and/or tasks arrive over time and have to be matched upon their arrival).

We will first present our results on the efficiency of strategies for matching users and tasks that not only use the prior information about the task but also the information observed while matching a task to users until its successful completion. We will show how the concepts originally developed in the area of queueing networks, can be combined with learning to devise efficient matching policies. In particular, we will show throughput-optimality of a backpressure policy that accounts for the competition between different task types.

We will then present some of our results on the efficiency of matching policies that use only some summary statistics (we refer to as test scores) to represent skills of individuals, and use these test scores to match individuals to projects. On the positive side, we will show how test scores can be designed to guarantee efficiency of matches for various team production functions. On the negative side, we will show that some simple, intuitive tests scores can fail to provide efficient matches.

Joint work with Lennart Gulikers, Laurent Massoulie, and Virag Shah (first part) and Shreyas Sekar and Seyoung Yun (second part).



ΟΙΚΟΝΟΜΙΚΟ
ΠΑΝΕΠΙΣΤΗΜΙΟ
ΑΘΗΝΩΝ



ATHENS UNIVERSITY
OF ECONOMICS
AND BUSINESS



2ND RESEARCH SEMINAR OF THE SCHOOL OF INFORMATION SCIENCES & TECHNOLOGY

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THURSDAY 12/12/2019, 13:15

**Room T103,
Troias 2, New AUEB Building**

ABSTRACT

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