Rustam Tagiew, Dmitry I. Ignatov, Alexey A. Neznanov, Jonas Poelmans (Eds.)

EEML 2012 – Experimental Economics in Machine Learning

Workshop co-located with the 10th International Conference on Formal Concept Analysis (ICFCA 2012)
May 2012, Leuven, Belgium

Volume Editors

Rustam Tagiew
Institute for Computer Science
Technische Universität Freiberg, Germany

Dmitry I. Ignatov
School of Applied Mathematics and Information Science
National Research University Higher School of Economics, Moscow, Russia

Alexey A. Neznanov
School of Applied Mathematics and Information Science
National Research University Higher School of Economics, Moscow, Russia

Jonas Poelmans
Faculty of Business and Economics
Katholieke Universiteit Leuven, Belgium

Printed in Belgium by the Katholieke Universiteit Leuven with ISBN 978-9-08-140992-6.

The proceedings are also published online on the CEUR-Workshop web site in a series with ISSN 1613-0073.

Preface

In Experimental Economics, laboratory and field experiments are conducted on subjects in order to improve theoretical knowledge about human behavior in interactions. Although paying different amounts of money restricts the preferences of the subjects in experiments, the exclusive application of analytical game theory does not suffice to explain the recorded data. It exacts the development and evaluation of more sophisticated models. In some experiments, human subjects are involved into an interaction with automated agents and these agents are used for simulating human interactions. The more data is used for the evaluation, the more of statistical significance can be achieved. Since huge amounts of behavioral data are required to be scanned for regularities and automated agents are required to simulate and to intervene human interactions, Machine Learning is the tool of choice for the research in Experimental Economics. Moreover modern economics extensively involves network structures, which can be modeled as graphs or more complicated relational structures.

This volume contains the papers presented at the inaugural International Workshop on Experimental Economics and Machine Learning (EEML 2012) held on May 9, 2012 at the Katholieke Universiteit Leuven, Belgium. This year the committee decided to accept 8 full papers for publication in the proceedings and two abstracts for presentation at the conference. Each submission was reviewed by on average 3 program committee members. R. Tagiew proposes a new method for mining determinism in human strategic behavior. N. Buzun et al. present a comparison of methods and measures for overlapping community detection. A. Fishkov et al. discuss a new click model for relevance prediction in Web search. A. Drutsa et al. applied novel data visualisation techniques to socio-semantic network data. Gilabert et al. made an experimental study on the relationship between trust and budgetary slack. O. Barinova et al. proposed using online random forest for interactive image segmentation. A. Bezzubtseva et al. built a new typology of collaboration platform users. V. Zaharchuk et al. proposed a new recommender system for interactive radio network services. D. Ignatov et al. designed a prototype system for collaborative platform data analysis.

We would like to express our gratitude to all contributing authors and reviewers, especially to Malay Bhattacharyya, Hoang Thanh Lam, Olga Barinova and Alexandra Kaminskaya for their enormous efforts. We also want to thank our sponsors Amsterdam-Amstelland police, IBM Belgium, Research Foundation Flanders, Vlerick Management School, OpenConnect Systems and Higher School of Economics.

May, 2012
Leuven

Rustam Tagiew
Dmitry I. Ignatov
Alexey A. Neznanov
Jonas Poelmans

Organization

The inaugural International Workshop on Experimental Economics and Machine Learning (EEML 2012) was held on May 9, 2012 at the Katholieke Universiteit Leuven, Belgium. The workshop was co-located with the 10th International Conference on Formal Concept Analysis (ICFCA-2012).

Program Chairs

Rustam Tagiew	Technische Universität Freiberg, Germany
Dmitry I. Ignatov	National Research University Higher School of Economics, Russia
Alexey A. Neznanov	National Research University Higher School of Economics, Russia
Jonas Poelmans	Katholieke Universiteit Leuven, Belgium

Program Committee

Olga Barinova	Moscow State University, Russia
Elvina Bayburina	National Research University Higher School of Economics, Russia
Malay Bhattacharyya	Indian Statistical Institute, India
Guido Dedene	Katholieke Universiteit Leuven, Belgium
Irina Efimenko	National Research University Higher School of Economics, Russia
Boris Galitsky	University of Girona, Spain
Hoang Thanh Lam	Eindhoven Technical University, The Netherlands
Daniel Karabekyan	National Research University Higher School of Economics, Russia
Aleksandr Karpov	National Research University Higher School of Economics, Russia
Mikhail Khachay	Institute of Mathematics and Mechanics of Russian Academy of Sciences, Russia
Vladimir Khoroshevsky	Dorodnicyn Computer Centre of Russian Academy of Sciences, Russia
Vlado Menkovski	Eindhoven Technical University, The Netherlands
Xenia Naidenova	Military Medical Academy, Russia
Sergey Nikolenko	Steklov Mathematical Institute of Russian Academy of Sciences, Russia
Mykola Pechenizkiy	Eindhoven Technical University, The Netherlands
Artem Revenko	Technische Universität Dresden, Germany

Stijn Viaene	Katholieke Universiteit Leuven, Belgium
Nicola Vitucci	Politecnico di Milano, Italy
Rostislav Yavorsky	Witology, Russia
Leonid Zhukov	National Research University Higher School of Economics, Russia
Sofia Kiselgof	National Research University Higher School of Economics, Russia

Additional Reviewers

Tapas Bhadra	Indian Statistical Institute, India
Saurav Mallik	Indian Statistical Institute, India
Dmitry Zhivotvorev	Yandex and NRU HSE, Russia

Sponsoring Institutions

Amsterdam-Amstelland police, The Netherlands
IBM, Belgium
OpenConnect Systems, USA
Research Foundation Flanders, Belgium
Vlerick Management School, Belgium
National Research University Higher of School Economics, Russia

Table of Contents

Regular Papers

Online Random Forest for Interactive Image Segmentation 1
Olga Barinova, Roman Shapovalov, Sergey Sudakov and Alexander Velizhev

A New Typology of Collaboration Platform Users 9
Anastasia Bezzubtseva and Dmitry Ignatov

Innovative Methods and Measures in Overlapping Community Detection . 20
Nazar Buzun and Anton Korshunov

Socio-Semantic Network Data Visualization 32
Alexey Drutsa and Konstantin Yavorskiy

A New Click Model for Relevance Prediction in Web Search 39
Alexander Fishkov and Sergey Nikolenko

The Relationship Between Trust and Budgetary Slack: an Experimental Study 49
María Gilabert, Susana Gago and David Naranjo-Gil

CrowDM: the System for Collaborative Platform Data Analysis 61
Dmitry I. Ignatov, Alexandra Yu. Kaminskaya, Anastasia A. Bezzubtseva, Ekaterina L. Chernyak, Konstantin N. Blinkin, Daniil R. Nedumov, Olga N. Chugunova, Andrey V. Konstantinov, Nikita S. Romashkin, Fedor V. Strok, Daria A. Goncharova, Rostislav E.Yavorsky

A New Recommender System for the Interactive Radio Network FMhost . 72
Dmitry Ignatov, Sergey Nikolenko, Vasily Zaharchuk and Andrey Konstantinov

Mining Determinism in Human Strategic Behavior 85
Rustam Tagiew

Abstracts

Criteria Formation of Effective High-School Graduates Employment Based upon Data Mining Methods 92
Yuliya Akhmayzyanova and Irina Bolodurina

Image Processing Using Dynamical NK-Networks, Consisting of Binary Logical Elements 93
Daria Puchkova

Author Index 94