

# ARTEM TIMOSHENKO

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## EDUCATION

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|----------------|--|
| 2014 - present | Massachusetts Institute of Technology, Cambridge, MA, USA<br>Ph.D., Quantitative Marketing             |
| 2012 – 2014    | New Economic School, Moscow, Russia<br>M.A., Economics   |
| 2008 – 2013    | Lomonosov Moscow State University, Moscow, Russia<br>Diploma, Applied Mathematics and Computer Science |

## RESEARCH INTERESTS

Quantitative Marketing, Machine Learning, Industrial Organization, Economics of Digitization

## WORKING PAPERS

Artem Timoshenko and John R. Hauser (2017), "Identifying Customer Needs from User-Generated Content," Major Revision, *Marketing Science*

Winner, ISMS Doctoral Dissertation Proposal Award 2016

Duncan Simester, Artem Timoshenko, and Spyros I. Zoumpoulis (2017), "Optimal Targeting of Prospects Using Field Experiments," Major Revision, *Management Science*

Duncan Simester, Artem Timoshenko, and Spyros I. Zoumpoulis (2017), "Efficiently Evaluating Targeting Policies Using Field Experiments," Under Review, *Management Science*

Theodoros Evgeniou, Duncan Simester, Artem Timoshenko, and Spyros I. Zoumpoulis (2017), "Using Past Responders to Target Non-Responders," Under Review, *Marketing Science*

## WORK IN PROGRESS

"Cross-Category Product Choice: A Scalable Deep-Learning Approach," with Sebastian Gabel

"Leveraging Incomplete Customer Journeys with Deep Neural Models," with Glen Urban and Paramveer Dhillon

"Optimal Product Design with Deep Learned Visual Features," with Liu Liu

“Large Scale Coupon Optimization,” with John R. Hauser and Sebastian Gabel

## PAPERS IN PROCEEDINGS

Artem Timoshenko and John R. Hauser (2016), “Mining and Organizing User-Generated Content to Identify Attributes and Attribute Levels,” *Proceedings of the Sawtooth Software Conference*, Park City, Utah, September 28-30, 2016

## CONFERENCE PRESENTATIONS

INFORMS Marketing Science Conference, Los Angeles, CA, 2017  
Sawtooth Software Conference, Park City, UT, 2016

## AWARDS, FELLOWSHIPS AND GRANTS

Marketing Science Doctoral Consortium Fellow, 2017  
INFORMS Society for Marketing Science (ISMS) Doctoral Dissertation Proposal Award, 2016  
Graduate Fellowship, Massachusetts Institute of Technology, 2014-2019  
Graduate Fellowship, New Economic School, 2012-2014  
Scholarship by British Petroleum Public Limited Company, 2012-2014  
Best Undergraduate Research Paper Award, Lomonosov Moscow State University, 2013  
Honorable Mention Karl Menger Memorial Award, American Mathematical Society, 2008  
Russian National Mathematics Olympiad, Regional Stage Winner, 2008  
Russian National Physics Olympiad, Regional Stage Winner, 2008

## TEACHING EXPERIENCE

Teaching Assistant, MIT Sloan School of Management, Cambridge, MA, USA  
Marketing and Strategy (EMBA)                      Duncan Simester                      2015 - 2017  
Teaching Assistant, INSEAD Executive Education Program, Moscow, Russia  
Marketing Management                              Yakov Bart                              2013-2014

## SELECTED RESEARCH ABSTRACTS

*Identifying Customer Needs from User-Generated Content*  
Joint with John R. Hauser (Major Revision at *Marketing Science*)

Identifying customer needs is important to marketing strategy, product development, and marketing research. User-generated content (UGC) provides an opportunity to better identify customer needs for managerial impact. However, established methods are neither efficient nor effective for large UGC corpora because much content is non-informative and repetitive. We propose a machine-learning approach to select content for efficient review. We use a convolutional neural network to filter out non-informative content and cluster dense sentence

embeddings to avoid sampling repetitive content. We further address two key questions: Are customer needs identified in UGC comparable to customer needs identified with standard methods? Do the machine-learning methods improve customer-need identification? These comparisons are enabled by a custom data set of customer needs for oral care products identified by professional analysts using industry-standard experiential interviews. The same professional analysts coded 12,000 UGC sentences to identify if each sentence contained one or more previously identified customer needs and/or new customer needs. Results: Customer needs identified from UGC are at least as valuable for product development, likely more-valuable, than those identified by conventional methods and (2) machine-learning methods improve efficiency (unique customer needs identified per unit of professional services cost).

### *Customizing Marketing Decisions Using Field Experiments*

Joint with Duncan Simester and Spyros Zoumpoulis (Major Revision at *Management Science*)

We investigate how firms can use the results of field experiments to optimize the targeting of promotions. We evaluate seven widely-used segmentation methods using a series of two large scale field experiments. The first field experiment is used to generate a common pool of training data for each of the seven methods. We then validate the seven optimized policies provided by each method together with uniform benchmark policies in a second field experiment. We explain the relative performance of the methods in our setting using a series of simulations.

## **PH.D. COURSEWORK**

14.271	Industrial Organization I	Glen Ellison
14.272	Industrial Organization II	Michael Whinston
14.273	Advanced Topics in Industrial Organization	Nikhil Agarwal
14.282	Organizational Economics	Heikki Rantakari, Michael Whinston
14.382	Econometrics	Victor Chernozhukov
14.387	Applied Econometrics	Joshua Angrist, Victor Chernozhukov
6.867	Machine Learning	Leslie Kaelbling, Jacob White
6.864	Advanced Natural Language Processing	Regina Barzilay, Tommi Jaakkola
6.437	Inference and Information	Stefanie Jegelka, Gregory Wornell
6.438	Algorithms for Inference	Gregory Wornell
6.231	Dynamic Programming and Stochastic Control	Dimitri P Bertsekas
6.860	Statistical Learning Theory	Tomaso Poggio, Lorenzo Rosasco
15.840	PhD Seminar in Experimental Design	Dean Eckles
15.840	PhD Seminar in Marketing Strategy	T. Tony Ke
15.840	PhD Seminar in Consumer Behavior	Drazen Prelec
15.840	PhD Seminar in Social Influence	Juanjuan Zhang
15.840	PhD Seminar in Marketing Research	John R. Hauser, Birger Wernerfelt

## REFERENCES

**John R. Hauser**

Kirin Professor of Marketing  
MIT Sloan School of Management  
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**Duncan Simester**

NTU Professor of Marketing  
MIT Sloan School of Management  
simester@mit.edu