**Artem Timoshenko**

PhD in Marketing Candidate

MIT Sloan School of Management

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**Education**

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| **Massachusetts Institute of Technology**, Greater Boston Area, USAPh.D. in Marketing Candidate (3rd year) |  2014 - Now |
| **New Economic School**, Moscow, RussiaMaster of Arts in Economics | 2012 – 2014 |
| **Lomonosov Moscow State University**, Moscow, RussiaSpecialist (Diploma) in Applied Mathematics and Computer Science | 2008 – 2013 |

**Ph.D. Coursework**

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| **Course** | **Description** | **Instructors** |
|  |  |  |
| 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 |
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| 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 |
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| 15.840 | Experimental Design | Dean Eckles |
| 15.838 | Research Seminar in Marketing | MIT Sloan Marketing Group |

**Research Interests**

Quantitative Marketing, Industrial Organizations, Information Economics, Machine Learning

**Research**

* **Identifying Customer Needs from User-Generated Content**

*Joint with John R. Hauser (Working Paper)*

We investigate User-Generated Content (UGC) as a source of customer needs. Non-informative and repetitive content crowd out information about customer needs at a large corpus of UGC. We design a machine-learning hybrid approach to enhance customer-need extraction making it more effective and efficient. We use a convolutional neural network (CNN) to identify informative content. Using pre-trained word embeddings, we create numerical sentence representations to capture the semantic meaning of UGC sentences. We cluster sentence representations and sample sentences from different clusters to enhance the diversity of the content selected for manual review. The final extraction of customer needs from informative diverse sentences relies on human effort. In a proof-of-concept application to oral care, we compare customer needs identified from UGC to customer needs identified from experiential interviews. First, our analyses suggest that, for comparable human effort, UGC allows identifying a comparable set of customer needs. Second, machine learning enables analysts to identify the same number of customer needs with less effort.

* **Customizing Marketing Decisions Using Field Experiments**

*Joint with Duncan Simester and Spyros Zoumpoulis (submitted to 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.

* **Using Responders to Target Non-Responders**

*Joint with Theodoros Evgeniou, Duncan Simester, Spyros Zoumpoulis (Work in Progress)*