

# Ivan Smirnov

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## Computational social scientist

Since 2017 Group Leader, Institute of Education, HSE University

I initiated a Digital Trace project with an idea to bring computational social science to educational research in Russia. I've collected unique data sets by combining information about students' academic achievements with data on their online behavior on a popular social networking site. As part of my doctoral thesis, I used this data to estimate the effect of social/cultural segregation in the digital space. The success of the project has led to creation of Educational Data Science Group that I currently lead. Our research focuses on two broad topics: "Inequality in the Digital Age" and "Students' Well-Being in the Digital Age".

### Education

2017 PhD Candidate, National Research University Higher School of Economics (HSE University)

Segregation by Academic Performance in the Digital Space (Defence is expected in Q1 2018)

2014 M.Sc. Interdisciplinary Approaches to Life Sciences, Paris Diderot University  
Systems and Synthetic Biology

2009 Applied Mathematics and Computer Science, St. Petersburg State University  
Specialist degree (equivalent to Master) with specialization in mathematical statistics

### Research Experience

2016 Complexity Science Hub, Vienna (5 months)

I studied formation of homophily in academic performance using a unique dataset that contains information about the detailed time evolution of a friendship network of 6,000 students across 42 months.

2014 Section for Science of Complex Systems, Medical University of Vienna (3 months)

I analyzed a data set of a virtual human society of players of a massive multiplayer online game in order to see if different behavioral traits are stronger correlated in socially connected individuals.

2013 INSERM U1001, Paris Descartes University (3 months)

I studied structure and dynamics of creative searches using a game in which players search in a space of geometric shapes. I developed web application, collected information about players' behavior and analyzed data.

2012 Center for Research and Interdisciplinarity, Paris Diderot University (3 months)

I developed web-based application for learning statistics. Students can learn by doing their own research: collecting data through online surveys and then analyzing it with interactive statistical tools.

## Teaching Experience

2017 Introduction to Social Data Science, HSE University

2014 Statistics, Paris Descartes University

## Work Experience

Prior to academia, I worked as a web developer and a technical leader at several startups. I also worked on various non-profit projects and was part of Teach for Russia founding team.

## Languages

English: professional working proficiency

French: DELF B2

Russian: native proficiency

## Programming Languages

Python, R, MATLAB, JavaScript, PHP, C#

## Scholarships and Awards

2016 Institute of Education The Pioneers Award for Digital Trace project

2014 Advanced Doctoral Program Scholarship, HSE University

2013 SCIRE Foundation Excellence Scholarship

2012 French Government Scholarship

## Interests

Computational social science, education, data science, social networks, complex systems, artificial neural networks, social change, The Economist, «Eugene Onegin»

## Selected Conferences

2017 SocInfo – International Conference on Social Informatics

The Digital Flynn Effect: Complexity of Posts on Social Media Increases over Time

2017 IC2S2 – International Conference on Computational Social Science

School segregation in the digital space

2017 NetSci-X – International Conference on Network Science

Formation of homophily in academic performance

## Selected Publications

Smirnov, I., & Thurner, S. (2017). Formation of Homophily in Academic Performance: Students Change their Friends rather than Performance. To appear in *PLOS ONE*.

Smirnov, I. (2017). The Digital Flynn Effect: Complexity of Posts on Social Media Increases over Time. To appear In *International Conference on Social Informatics*.

Smirnov, I. (2017). School Segregation in the Digital Space. In preparation, was presented on IC2S2 2017

Polivanova K., & Smirnov, I. (2017). What is in my profile? Understanding interests of modern adolescents through VKontakte data. *Educational Studies*, 2, 106-122.

Smirnov, I., Sivak E., Kozmina Y. (2016). In search of lost profiles: the reliability of VKontakte data and its importance for educational research. *Educational Studies*, 4, 134-152.