

# Arseny Moskvichev

## PERSONAL DATA

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## FORMAL EDUCATION

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- 2017–Present    **MSc in STATISTICS & PhD in COGNITIVE SCIENCES**  
**University of California, Irvine**  
Advisor: [Mark STEYVERS](#)
- 2013–2015    **MSc in BIOLOGY, Saint Petersburg University**  
Specialisation: Neurobiology, Psychophysiology  
*Diploma with distinction*  
Thesis: EEG based recognition of motor imagery  
Advisor: Igor KANUNIKOV
- 2009–2013    **BSc in PSYCHOLOGY, Saint Petersburg University**  
Thesis: “Comparison of learning in “easy to difficult” and “difficult to easy” conditions (the case of recoding tasks)”  
Advisor: Ivan GORBUNOV
- 2007–2009    Physics–Mathematics Lyceum №30, Saint Petersburg

## ADDITIONAL EDUCATION

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- 2015–2017    **Computer Science Center**  
Saint Petersburg department of the [Yandex Data Analysis School](#): a theory-driven MSc level program in Machine Learning, Data Analysis and Statistics, designed for Mathematics and CS major graduates. The most relevant courses include Machine Learning (2 semesters), Statistics, and Bayesian Methods in ML. Please, read more [here](#).
- 2015    **Data Mining Labs**  
Practice-oriented Data Mining and Machine Learning program. Weekly hackatons and lectures.
- 2011–Present    **Online education**  
Numerous courses, including Algorithms, Machine Learning, Probability Theory, Linear Algebra, Logic, Artificial Intelligence, and Programming.

## RESEARCH INTERESTS

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Motto	Improving AI using insights from Cognitive Science and vice versa
Broad	Natural Language Processing, Computational Cognitive modeling, Probabilistic Machine Learning models
Current topics	Sentence Embeddings, Knowledge Graph Embeddings, Human Category Learning, learning from verbal explanations

## EXPERIENCE

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### INDUSTRY EMPLOYMENT

JUN 2015 – MAY 2016	Machine Learning Engineer at <a href="#">AUTOMATED INTELLIGENCE SYSTEMS</a> Part time. Team lead in an R&D project. Using convolutional and recurrent neural networks to predict the stock market movements on different time-frames.
JAN–OCT 2015	Junior Data Analyst at <a href="#">WRIKE</a> Part time. A / B testing, predicting customer loss, evaluating advertisement campaign results, user clustering.

### FREELANCE INDUSTRY PROJECTS

2016–2017	External Data Analysis consultant at <a href="#">BRAIN AND TRAUMA FOUNDATION GRISON</a> (Switzerland) Predicting heart attack rehabilitation quality based on physiological and psychological measurements.
2016	External consultant at <a href="#">USABILITYLAB</a> Russian Mobile Banks Functionality Ranking project. Developing the survey and ranking criteria, data analysis.
2013	External consultant at SAINT PETERSBURG PERINATAL MEDICAL CENTRE Employees satisfaction and corporate culture survey project. Survey planning, data analysis.

### RESEARCH ASSISTANTSHIPS

2015–2017	<i>A cross-cultural study of the markers of stress, health and well-being in social networks</i> Main responsibilities - Machine Learning (predicting individual Psychological traits based on behaviour in social networks (wall-post texts, comments, likes)), Statistical analysis of Psychological data.
2012-2013	<i>Neuroendo crine correlates of stress</i> Main responsibilities - data acquisition (interview, physical performance trials, collecting saliva samples), data analysis.

## WORKSHOP PARTICIPATION

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- 2016 [Summer School](#) on Computational methods for Social Science. Los-Angeles, USA.
- 2016 [Summer School](#) on Computational and Mathematical Modeling of Cognition. Dobbiaco, Italy.
- 2016–2013, 2009 Saint Petersburg State University International “Winter Psychology School”. St. Petersburg, Russia.
- 2015 [3rd Baltic-Nordic Summer School on Neuroinformatics](#) (BNNI 2015). Multiscale computational neuroscience: Neurons, networks and systems. Tartu, Estonia.
- 2015, 2014 [The New-York - St. Petersburg Institute of Linguistics, Cognition and Culture](#) (NYI). St. Petersburg, Russia.
- 2013 International school “Data Processing in EEG/MEG”. Moscow, Russia.
- 2013 Mathematical models of neurodynamics. Nizhniy Novgorod, Russia.

## TEACHING

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### COURSES:

- 2016 Online course on Neural Networks. [The course page](#) (in Russian).

### SHORT COURSES:

- 2017 Three day course on computational modeling in psychology (K.Duncker cognitive science summer school).
- 2017 Four day course on neural networks (data analysis workshop).
- 2017 Three day course on statistical methods and computational modeling in psychology at 2017 Winter Psychology School).
- 2016 One day seminar on Jackknife and Bootstrap techniques (as a part of a short course on data analysis at 2016 Winter Psychology School).

### LECTURES & TALKS:

- 2016 Introductory lecture on computational modeling in psychology. Winter Psychology School.
- 2015 Lecture on the maximum likelihood estimation. “Cognitive & Computational” project.
- 2014 Four lectures for junior biology students on types of learning in animals, one lecture on mirror neuron system. MSc teaching practice.
- 2014 Introductory lesson about BCI (Brain-Computer Interfaces) for high school students. “Open lesson” social project.
- 2014 Introductory lecture on BCI and sensory substitution. Winter Psychology School.

## GRANTS

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- 2017-PRESENT Developing an integrated model of verbal and nonverbal knowledge transfer in categorization tasks. Research grant 18-313-00249 of Russian Foundation of Basic Research (Co-PI).

## AWARDS & HONORS

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- 2017 UC Irvine Graduate Dean's Recruitment Fellowship  
2016 Winner of the [hackRussia](#) nationwide hackathon. The winning project – a data-driven violin & cello learning web application.  
2016 EdCrunch best online course [award](#) for my [course](#) on Neural Networks: 2nd place in the *Natural and Technical Sciences* nomination.  
2011–2015 Saint Petersburg University merit-based competitive stipend (10% of the class). The decision to award the stipend was made each semester.  
2013 Special distinction (recommendation for publication) for my BSc thesis (~5-10% of the class).

## PUBLICATIONS

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### IN PREPARATION:

- Moskvichev, A., Steyvers, M. (2018). Enforcing Compositionality of Sentence Embeddings Through Data Augmentation.  
Dubova, M., Moskvichev, A. (2018). Adaptation Aftereffects as Categorical Perception.

### JOURNAL ARTICLES:

- Moskvichev, A., Gorbunov, I. (2014). Comparison of learning in “easy to difficult” and “difficult to easy” conditions (the case of recoding tasks). *SPbU Department of Psychology Graduate Works Journal*. [In Russian]

### CONFERENCE PAPERS:

- Moskvichev, A., Tikhonov, R. (to be presented in 2019). The role of metacognitive processes in category structure communication. *Proceedings of the Russian Conference on Cognitive Psychology* [In Russian]  
Dubova, M., Moskvichev, A. (2018). Illusions of set as categorical perception. *Proceedings of the Russian Conference on Cognitive Psychology* [In Russian]  
Moskvichev, A., Dubova, M., Menshov, S., Filchenkov, A. (2017). Using Linguistic Activity In Social Networks To Predict and Interpret Dark Psychological Traits. In Conference on Artificial Intelligence and Natural Language. *Artificial Intelligence and Natural Language Conference (AINL FRUCT)*  
Rakovsky, A., Moskvichev, A., Filchenkov, A. (2016). Data Augmentation Method for the Image Sentiment Analysis. *Artificial Intelligence and Natural Language Conference (AINL FRUCT)*.

- Moskvichev, A., Karpov, A. (2015). Implementation and Analysis of the COVIS Computational Model. *Cognitive Science in Moscow: New Research*. [In Russian]
- Panicheva, P., Ivanov, V., Moskvichev, A., Bogolyubova, O. and Ledovaya., Y. (2015). Towards a Linguistic Model of Stress, Well-being and Dark Traits in Russian Facebook Texts. *Artificial Intelligence and Natural Language Information Extraction, Social Media and Web Search (AINL-ISMW FRUCT)*
- Moskvichev, A. (2014). Investigating unconscious information processing with the help of inattentive blindness and classical conditioning. *Lomonosov scientific forum*. [In Russian]
- Moskvichev, A. (2013). Sensory substitution as a phenomenon and as a research method". *Psychology of the XXI century*. [In Russian]

## COMPUTER SKILLS

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Basic:  $\LaTeX$ , Git, Node.js, HTML, CSS, MySQL, MongoDB  
Intermediate: C++, Java, MATLAB, R  
Advanced: Python, PyTorch

## STANDARDIZED TESTS

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GRE: Math: 169/170, Verbal: 169/170, Essay: 4.5/6  
TOEFL: 118/120

## HOBBIES & EXTRACURRICULAR ACTIVITIES

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Organizing interdisciplinary "Cognitive & Computational" workshops.  
Running (personal record - 15km in 62 minutes).  
Tutoring Math, Probability Theory, and Statistics.

## REFERENCES

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[Joachim Vandekerckhove](#)  
Department of Cognitive Sciences  
University of California, Irvine  
[joachim@uci.edu](mailto:joachim@uci.edu)

[Brian Rogers](#)  
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