

# Report on the 11<sup>th</sup> Russian Summer School in Information Retrieval (RuSSIR 2017)

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## 1 Introduction

The 11<sup>th</sup> Russian Summer School in Information Retrieval (RuSSIR 2017) was held on August 21–25 in Yekaterinburg, Russia.<sup>1</sup> The school was co-organized by Ural Federal University<sup>2</sup> and the Russian Information Retrieval Evaluation Seminar (ROMIP).<sup>3</sup>

The RuSSIR school series started in 2007 and has evolved into a renowned academic event with extensive international participation [1, 2, 3, 4]. Previously, RuSSIR has taken place in Yekaterinburg, Taganrog, Petrozavodsk, Voronezh, St. Petersburg, Yaroslavl, Kazan, Nizhny Novgorod, and Saratov. Over the years, RuSSIR courses have been taught by world-renowned researchers in Information Retrieval (IR) and related areas.

There were 91 students attending RuSSIR 2017, and about 120 participants in total (counting in students, teachers, organizers, and sponsors' representatives). The majority of participants were from Russia, there were also representatives from the Netherlands, Belarus, Austria, Italy, Latvia, Portugal, United Kingdom, Australia, and Algeria.

School participation was free of charge due to support from the school's sponsors. In addition, five international students as well as two teachers received travel support from the European Science Foundation (ESF) through ELIAS network and ACM SIGIR. Moreover, seven accommodation grants were awarded to participants by organizers.

## 2 Courses

The program of RuSSIR 2017 covered a wide variety of topics in information retrieval and cognate disciplines. This year's edition of the school had a focus on deep learning applied to texts documents, conversational data, images and video.

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<sup>1</sup><http://romip.ru/russir2017/>

<sup>2</sup><http://www.urfu.ru/en/>

<sup>3</sup><http://romip.ru/en/>

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**Foundations of Deep Learning – Russ Salakhutdinov (Carnegie Mellon University, USA)**

Russ’ lecture delivered via Skype opened the school and provided a brief survey of deep learning approaches and latest results in the field.

**Foundations of Information Retrieval and its Future – Jaap Kamps (University of Amsterdam, Netherlands)**

Jaap’s lecture consisted of two parts. The first was a general introduction to information retrieval, focusing on experimental IR in the Cranfield/TREC paradigm, its broader motivation as well as recent moves beyond this. The second focused on building more exact models (or data representations) of text, dealing with small, high-precision “significant word language models,” as well as with massive, but task-dependent, word embeddings for text search.

**Neural Networks for Information Retrieval – Alexey Borisov and Mostafa Deghani (University of Amsterdam, Netherlands)**

The course is a version of the tutorial delivered two weeks earlier at SIGIR’2017.<sup>4</sup> The lectures provided an exhaustive overview of current tried-and-trusted neural methods in different areas of IR and how they benefit IR research. The course covered the key architectures in use, as well as the most promising future directions.

**Deep Learning & Conversational AI – Mikhail Burtsev, Valentin Malykh, and Maxim Kretov (Moscow Institute of Physics and Technology, Russia)**

The course by the iPavlov team members surveyed current state of the art in deep learning techniques for natural language understanding and generation. Special attention was paid to deep reinforcement learning, which is currently on the rise in conversational AI.

**Visual Retrieval and Mining – Stefan R uger (The Open University, UK)**

The course covered techniques and approaches to facilitate visual search engines: metadata driven retrieval; piggy-back text retrieval; automated image annotation; content-based retrieval. This course started with the core ‘search by image’ scenario and went further by examining the full matrix of a variety of query modes versus document types.

**Deep Learning for Language and Vision – Efstratios Gavves (University of Amsterdam, Netherlands)**

The course had a focus on application of deep learning architectures to computer vision and language modeling. In its theoretical part, the students were taught the fundamentals of deep learning and the latest, state-of-the-art models. In the practicals, the students had a chance to implement the core versions of some of the aforementioned applications.

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<sup>4</sup>Tom Kenter, Alexey Borisov, Christophe Van Gysel, Mostafa Dehghani, Maarten de Rijke, and Bhaskar Mitra, SIGIR’17 Tutorial on Neural Networks for Information Retrieval, <http://nn4ir.com/>.

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### **An Interactive “View” of Probabilistic Models for Text Retrieval, Classification, Quantification – Giorgio Maria Di Nunzio (University of Padua, Italy)**

The course provided an overview of probabilistic models for IR by means of interactive visualizations that allowed for an intuitive understanding of the stuff. The lectures were accompanied by entertaining hands-on activities.

### **Design and Implementation of User Experiments in Information Retrieval – Ying-Hsang Liu (Charles Sturt University, Australia)**

This course provided students with an overview of the interactive information retrieval (IIR) evaluation studies, with particular reference to the modeling of users, tasks and contexts, methods for IIR studies and related experimental design issues with emphasis on search user interfaces.

### **Evaluating Personal Assistants on Mobile Devices – Julia Kiseleva (University of Amsterdam, Netherlands)**

In her lecture, Julia proposed a research agenda for developing methods to evaluate and improve context-aware user satisfaction with mobile interactions using gesture-based signals at scale.

### **Sponsor’s Lecture**

Sergei Dukanov from Mail.Ru Group, one of the RuSSIR 2017 sponsoring organizations, gave a talk on *Visual search for clothes and cars*.

## **3 Young Scientist Conference**

Two poster sessions ran over two consecutive evenings (Monday & Tuesday), during which the participants had an opportunity to discuss and exchange their research results and ideas. In total 62 posters were displayed. As in previous years, the Young Scientist Conference was one of the main highlights of the school.

## **4 Social Program**

On the first evening of the school, the RuSSIR Welcome Reception was held in *EverJazz* and offered the participants an opportunity to get to know each other in informal settings. The closing party was held on Thursday in *Dom Pechati* club located in a former printing house. Light snacks and drinks were served, the party features a DJ set.

Social program included a tour to the Boris Yeltsin museum that was opened in the home city of the first president of Russia in 2015 and became Yekaterinburg’s new highlight.

Many school attendees used a chance to climb *Vysotskiy* building located near the school venue. The tallest building in Russia outside Moscow (188 meter tall, 54 floors) is named after Vladimir Vysotskiy, a great soviet-era poet, musician and actor. An observation deck in the 52nd floor offers a panorama of the city and surroundings that stretches out 25 km. Some RuSSIR

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participants managed to make a trip to the geographical border between Europe and Asia, which is located 18 kilometers to the west of the city center.

## 5 Hackathon

After the main school program a night hackathon for the most persistent participants was organized on Friday evening.<sup>5</sup> The hackaton took place in the office of the SKB Kontur company, one of the school's sponsors. Hackaton participants had to mine characteristic sequences of user actions in the log of a web application by SKB Kontur. The dataset consisted of encoded events along with timestamps and user IDs. The dataset contained about 13 million items corresponding to approximately 10,000 users interacting with the application during nine months. Ten teams (28 people) took part in the hackathon. The winning teams are *Good evening* (Daniluk, Silaev, Shelomencev), *Amazonian* (Labintsev, Kiselev, Chertushkin), and *11friends* (Pankov, Abbache, Khudyakov).

## 6 Conclusions

The 11th Russian Summer School in Information Retrieval was a very successful event in many aspects. The school brought together participants with diverse backgrounds from Russia and abroad and facilitated cross-disciplinary exchange of experience and ideas. The RuSSIR students had a unique opportunity to learn new material that is not usually present in university curricula and receive feedback from their peers and lecturers during the poster sessions and informal communications. The event contributed to supporting a lively IR community in Russia and establishing ties with international colleagues. The organizers received very positive evaluation from attendees on various aspects of the school.

## 7 Acknowledgments

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<sup>5</sup><https://kontur.ru/russir>

<sup>6</sup><http://go.mail.ru/>

<sup>7</sup><http://yandex.com>

<sup>8</sup><http://www.exactprosystems.com/>

<sup>9</sup><https://kontur.ru/eng>

<sup>10</sup><https://pressindex.ru/>

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breaks sponsor). We express our gratitude to the Ural Federal University for financial support of the school through the Russian Academic Excellence Project<sup>11</sup>.

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<sup>11</sup><http://5top100.com/>

<sup>12</sup><http://sigir.org/>

<sup>13</sup><http://www.elias-network.eu/>

<sup>14</sup><http://www.esf.org/>