

# Ilya Boyandin

Visualization software developer and researcher

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## EDUCATION

### **PhD in Computer Science, Fribourg University, Switzerland, 2013**

*Thesis title:* Visualization of Temporal Origin-Destination Data

*Summary:* Carried out an in-depth study of temporal origin-destination data which can represent movement of people, energy, material, etc between locations in geographic space. Developed [Flowstrates](#), a novel approach for visualizing and exploring temporal origin-destination data. Carried out a qualitative [user study](#) comparing animated and small-multiple representations of changes in flow maps.

### **MSc Computer Science, St. Petersburg State University, Russia, 2003**

*Thesis title:* Statistical Query Transformations for Question Answering in the Web

*Summary:* Developed an improvement for a state-of-the-art algorithm transforming natural language questions into search engine queries achieving a better quality of [question answering](#).

## EXPERIENCE

### **Data Visualization Engineer, Interactive Things, Zurich, Switzerland – since June 2013**

- Developed numerous interactive visualizations for Neue Zürcher Zeitung, e.g. a series of [geographic visualizations about Switzerland](#), [Interactive timeline of WWI](#), pieces on [unemployment](#) and [medical care](#).
- Developed an [exploratory data analysis tool](#) for Swiss National Science Foundation related to research proposals and activities.
- Developed a [visualization of research expertise](#) for Zurich University of Applied Sciences.
- Developed [Public Value Atlas](#) for University of St. Gallen
- Developed an interactive visualization of the [trade of the world's countries with Africa](#).

### **PhD Student, Assistant, University of Fribourg, Switzerland – April 2009 - May 2013**

- Developed [JFlowMap](#), an experimental tool for the visualization of spatial interactions.
- Developed web-based [visualizations of AidData](#) (financial aid given to developing countries).
- Contributed to the [BirdEye](#) visualization library developed at the UN Centre for Advanced Visual Analytics.
- Assisted in courses on [Web technologies](#) and [Functional programming](#). Tutoring, giving occasional lectures, preparing materials, building supporting websites and utilities.
- Helped to organize and tutoring in workshops on programming and computer graphics for students and school children.
- Technical maintenance of the [research group website](#).

### **Senior Software Engineer, Technical Team Leader, IT Department, University of Applied Sciences FH Joanneum, Graz, Austria – March 2007 - April 2009**

- Developed web applications used by the students, lecturers and employees of the university for the online administration.
- Maintained the web and database server infrastructure for the online administration.
- Designed and developed a web application for collaborative data collection and consolidation which provided a statistical overview of study- and research-relevant indicators.

**Software Engineer/Research Assistant, Dept of Information Design, University of Applied Sciences FH Joanneum, Graz, Austria** – *September 2005 - March 2007*

- Designed and developed **CGVis**, a visualization tool facilitating hierarchical clustering, zooming and animation for the exploration of multidimensional datasets.
- Designed and developed a **standalone** and a **web** version of a proteomic data classification tool implementing a cancer diagnosis method based on mass-spectrometry data facilitating multi-step feature reduction and SVM classification. The tool achieves 99% classification accuracy on the NCI Cancer SELDI-TOF study dataset.
- Participated in the development of a **presentation management tool** for the information screens installed at the university. Developed the visual layout editor for arranging multimedia objects on the screen and the schedule editor similar to calendar in Outlook.
- Improved the implementation of an algorithm detecting the behavior type of a user looking at a web page based on the real-time eye-tracking data.

**Software Engineer, Ecofinance Finanzsoftware & Consulting GmbH, Graz, Austria** – *June 2004 - August 2005*

- Participated in the development of a web based treasury system for Deutsche Bahn and Commerzbank.
- Implemented the Java infrastructure and XSLT stylesheets for the runtime generation of the front end UI code from XML sources.
- Evaluated and optimized the performance of the XSL transformations.
- Implemented support for long running jobs on the server-side of the system.
- Developed the context-sensitive help for the system and the help authoring infrastructure based on DocBook.

**Software Engineer, Elbrus MCST (by contract with Sun Microsystems), St. Petersburg, Russia** – *August 2003 - May 2004*

- Worked in the Sun's Java Swing UI library maintenance team. Was responsible for fixing bugs and implementing requests for enhancements in the button classes (JButton, JRadioButton, JCheckBox, etc). Fixed a total of about 50 bugs in the Sun JDK.

**Software Engineer, Aloha, St. Petersburg, Russia** – *January 2001 - July 2003 (during studies)*

- Designed and developed a web based e-commerce system with order tracking, credit card processing, back-office, inventory, statistical reports, etc. Developed the whole system from scratch, supported and customized it adapting it to changing requirements. The system is still in use on several e-commerce websites.

**Web Developer, ALife, St. Petersburg, Russia** – *March 2000 - January 2001 (during studies)*

- Participated in the development of a system of intelligent agents capable of chatting to visitors of a website in a natural language and promoting its products. Implemented a highly dynamic web-interface for the subsystem that controlled the chats and let operators intervene in a chat if a bot was in trouble.

**Teacher, Anichkov Lyceum, St. Petersburg, Russia** – *September 1998 - April 2000 (during studies)*

- Taught school children programming.

## COMPUTER SKILLS

**Languages #1:** JavaScript/CoffeeScript, Java, Clojure

**Languages #2:** Scala, PHP, Perl, C, Python

**Web:** React.js, Node.js, Backbone, Underscore, jQuery, Express, Compojure, Spring, Wicket, HTML5

**Visualization:** D3, SVG, Tableau, Piccolo2D, Prefuse

**GIS:** Polymaps, OpenStreetMap, Google Maps API, QGIS, OpenJUMP

**Databases:** PostgreSQL, MySQL, SQL Server, MongoDB

## PUBLICATIONS

*A Qualitative Study on the Exploration of Temporal Changes in Flow Maps with Animation and Small-Multiples*, Ilya Boyandin, Enrico Bertini, Denis Lalanne.

Computer Graphics Forum, International Journal of the Eurographics Association, Eurographics/IEEE-VGTC Symposium on Visualization, Vienna, Austria, June 2012.

*Flowstrates: An Approach for Visual Exploration of Temporal Origin-Destination Data*, Ilya Boyandin, Enrico Bertini, Peter Bak, Denis Lalanne.

Computer Graphics Forum, International Journal of the Eurographics Association, Eurographics/IEEE-VGTC Symposium on Visualization, Bergen, Norway, June 2011.

*Using Flow Maps to Explore Migrations Over Time*, Ilya Boyandin, Enrico Bertini, Denis Lalanne.

Workshop in Geospatial Visual Analytics: Focus on Time, GeoVA(t), Guimarães, Portugal, May 2010.

*Statistical Query Transformations for Question Answering in the Web* (in Russian), *slides* (in English), Ilya Boyandin, Igor Nekrestyanov.

Fifth Russian Conference on Digital Libraries (RCDL'2003), St. Petersburg, Russia, October 2003.

## RECENT TALKS

- *Data visualization for media: processes and tools* at EBU DevCon 2014 in Geneva
- *Making Sense of Data with Visualization* at SICHH Forum Data Visualization & Big Data, 2014
- *Workshop on UI development with Reagent in ClojureScript* at Clojure Meetup in Zurich, 2014

## CONFERENCE PARTICIPATION

- Presented at visualization conferences: EuroVis, VisWeek, AGILE GeoVA
- Participated in developer conferences: DevOxx, Scala Days, SpringOne, JavaPolis, The Graphical Web

## OTHER ACTIVITIES

- Developed an interactive [visualization of the worldwide remittance flows](#) which was published by the newspapers [TagesWoche.ch](#) and [derStandard.at](#).
- Developed a [visualization of SBB train flows](#) in a team of several developers at the Make Opendata Camp in Zurich.
- Maintained the [website](#) of the Russian Information Retrieval Evaluation Seminar with the use of a self-made Java XSLT-engine.
- Developed [phpObjectForms](#), an open-source library for building user-friendly web forms.

## SPOKEN LANGUAGES

- Russian (mother tongue)
- English (full professional proficiency)
- German (full professional proficiency)
- French (intermediate)

## LEGAL

Residence permit for Switzerland: type B

## HOBBIES

Composing, photography, hiking, traveling.