

Sergey Kirgizov

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5/6/1988, Married, with three children

Languages

Russian, French and English

Current positions

École supérieure d'ingénieurs de recherche en matériaux et en infotronique **Dijon, France**
Research and Teaching Fellow (vacataire) 2018–present

Papers^γ — Discussion board for scientific papers **Dijon et Paris, France**
Founder, <https://papers-gamma.link> 2015–present

Page Up **Dijon et Paris, France**
R&D engineer 2017–present

- Project Citizen Mobile Network, 5th generation wireless systems, in collaboration with Airbus, SAFRAN-SAGEM, Green Communications et l'Université Paris-Sud.
- Online solution for “Elior Group”, large French multinational commercial catering and foodservice company.
- QR-code based payment system for “Famoco”.
- Smart lock gateway for “KwikWink” — trusted third party delivery solution provider.
- Other projects, one of them is about smart home data analysis: <http://www.20minutes.fr/strasbourg/2140695-20170928-strasbourg-quoi-ressemble-appartement-tour-energie-positive>

Academic CS positions

Université Bourgogne Franche-Comté **Dijon, France**
Research and Teaching Fellow (ATER), 2015–2017
Combinatorics & Network science

Université Bourgogne Franche-Comté **Dijon, France**
Postdoc Research Fellow 2014–2015

Education

Université Pierre et Marie Curie **Paris, France**
PhD in Computer Science 2011–2014

Thesis: “Empirical analysis and modeling of the Internet topology dynamics”

Altay State University **Barnaul, Russia**
Master degree in Applied Mathematics and Informatics 2009–2011

Thesis: “Data mining as a service, The workflow model”, <http://scisaas.com>

Université Pierre et Marie Curie **Paris, France**
Master 2 Training Apr–Sep 2011

Thesis: “Software architectures for decision and coordination in autonomic computing”

Université Pierre et Marie Curie **Paris, France**
Master Training Jun–Dec 2010

Thesis: “Tools for the autonomic management of resources in virtualized data centers”

Altay State University <i>B.S. in Mathematics</i>	Barnaul, Russia 2005–2009
Lyceum of Information Technologies “Kvant” <i>Thesis: “Search system for Intranet site”</i>	Barnaul, Russia 2003–2005

Honors and awards

Best Start-Up award <i>Our start-up “Scientific Saas” http://scisaas.com won the competition “IT-Start”</i>	2012
Best Paper Award <i>The Seventh International Conference on Autonomic and Autonomous Systems, ICAS</i>	2011
Prize “For the fastest solution of the most difficult task” <i>All-Russia Oracle Database Olympiad</i>	2009
Scholarship for Excellence in Studies	2009–2011
Gold Medal for Excellence in Studies	2005
Barnaul City Mayor’s Special Scholarship for Excellence in Studies	2004–2005

Previous Software development positions

Start-Up: Scientific Saas <i>Software engineer and architect, Cloud Web-Applications for Data Mining</i>	http://scisaas.com 2010–2013
<ul style="list-style-type: none"> ○ Representational principles of scientific workflows for data mining processes ○ Algorithm for parallel workflow execution ○ Infrastructure works 	
Altay State University <i>Software engineer and Team Leader</i>	Barnaul, Russia 2007–2010
<ul style="list-style-type: none"> ○ Electronic staff directory for Altay State University ○ Airlines/train tickets management system and related services ○ Electronic document processing system (with digital signatures) ○ Electronic students directory for Altay State University ○ Several educational programs for Sun SPOT. 	
Publishing House “Region” <i>Web-site administrator</i>	Barnaul, Russia 2009
<ul style="list-style-type: none"> ○ Database administration ○ Online technical support 	
Publishing House “Info-Market” <i>System and network administrator</i>	Barnaul, Russia 2006-2007
<ul style="list-style-type: none"> ○ Administration of Linux gateways ○ Postfix, Sendmail mail servers 	

Computer Skills

Programming Languages: R, Python, C, Scheme, Java (SE, EE, ME), PHP, Perl, Bash, JavaScript, SQL; some knowledge in Awk, Scala, Erlang, Haskell and *ML

Markup languages: YML, HTML, XML, XSL, JSON, AsciiDoc, Markdown

Typesetting: *TeX, TikZ

Scientific software: R, SymPy, Maple, Scilab, GNU/Octave, Maxima, Matlab

OS: Debian-like, Arch, Gentoo, FreeBSD, OpenBSD, Windows, Mac OS

RDBMS: PostgreSQL, SQLite, Redis, Oracle, MySQL

Version Control Systems: Git, Mercurial, Subversion, Darcs, GNU arch, Fossil, Bazaar

Build processes: Make, Maven, Gradle, Jenkins

Frameworks: Flask, Spring Boot, Angular, Vue 2, JHipster

Server-side software: Web-servers (e.g., Apache, Lighttpd), Squid, Postfix, Asterisk IP-PBX

IDE: Eclipse, Netbeans

Virtualization systems: Qemu, VMWare, VirtualBox

Other: ImageMagick, Gnuplot, Emacs, Arduino, Sun SPOT and LeJOS, some knowledge in FPGA design and programming

Publications

International Scientific Journals (10)

1. **Enumeration of Lukasiewicz paths modulo some patterns**
Jean-luc Baril, Sergey Kirgizov and Armen Petrossian
Discrete Mathematics, Volume 342, Issue 4, April 2019
2. **Descent distribution on Catalan words avoiding a pattern of length at most three**
Jean-luc Baril, Sergey Kirgizov and Vincent Vajnovszki
Discrete Mathematics, Volume 341, Issue 9, September 2018, Pages 2608-2615
3. **Dyck paths with a first return decomposition constrained by height**
June 2017, Jean-luc Baril, Sergey Kirgizov and Armen Petrossian
Discrete Mathematics, Volume 341, Issue 6, June 2018, Pages 1620-1628
4. **Forests and pattern avoiding permutations modulo pure descents**
Jean-luc Baril, Sergey Kirgizov and Armen Petrossian
Pure Mathematics and Applications (PUMA), Volume 27, Issue 1, 06 August 2018
5. **Patterns in treeshelves**
Jean-luc Baril, Sergey Kirgizov and Vincent Vajnovszki
Discrete Mathematics, Volume 340, Issue 12, December 2017, Pages 2946-2954
6. **The pure descent statistic on permutations**
Jean-luc Baril, Sergey Kirgizov *Discrete Mathematics*, Volume 340, Issue 10, October 2017, Pages 2550-2558
7. **Information fusion-based approach for studying influence on twitter using belief theory**
Lobna Azaza, Sergey Kirgizov, Marinette Savonnet, Éric Leclercq, Nicolas Gastineau, and Rim Faiz
Computational Social Networks, 3 (2016), pp. 1–26
8. **The complexity of deciding whether a graph admits an orientation with fixed weak diameter**
Julien Bensmail, Romaric Duvignau, Sergey Kirgizov
Discrete Mathematics and Theoretical Computer Science (DMTCS), 17(3):31-42, 2016.
9. **Suppression Distance Computation for Set Covers and Hierarchies**
François Queyroi and Sergey Kirgizov
Information Processing Letters 115.9 (2015): 689-693, 2015
10. **Towards realistic modeling of IP-level routing topology dynamics**
Clémence Magnien, Amélie Medem, Sergey Kirgizov and Fabien Tarissan
Networking Science, 3 (1-4), pp.24-33, 2013

French Scientific Journals (2)

1. **Évaluation de l'influence polarisée dans un réseau multi-relational : application à twitter**
Lobna Azaza, Marinette Savonnet, Eric Leclercq, Sergey Kirgizov, and Rim Faiz
Revue Document Numérique, 2017/1 (Vol. 20)
2. **Un observatoire pour la modélisation et l'analyse des réseaux multirelationnels : une application à l'étude du discours politique sur twitter**
Ian Basaille, Sergey Kirgizov, Éric Leclercq, Marinette Savonnet, Nadine Cullot, Thierry Grison, and Elisabeth Gavignet
Revue Document Numérique, 2017/1 (Vol. 20)

Book chapters (1)

1. **Tweets from the Campaign Trail: Researching Candidates' Use of Twitter during the European Parliamentary Elections**, co-auteur du chapitre "*SNFreezer: a Platform for Harvesting and Storing Tweets in a Big Data Context*", éditeurs Alexander Frame, Arnaud Mercier, Gilles Brachotte, and Caja Thimm. Pages 19-33. Peter Lang. 2016

Peer-Reviewed International Conferences (7)

- 1. Pattern avoiding permutations modulo pure descents**
Jean-luc Baril, Sergey Kirgizov and Armen Petrossian
Poster at *Permutation Patterns Conference*, Reykjavik University, Iceland, 2017
- 2. Temporal density of complex networks and ego-community dynamics**
Sergey Kirgizov, Eric Leclercq
Annual Conference on Complex Systems (ECCS or CCS), Amsterdam, 2016
- 3. Towards a Twitter Observatory: A multi-paradigm framework for collecting, storing and analysing tweets**
Ian Basaille, Sergey Kirgizov, Éric Leclercq, Marinette Savonnet, et Nadine Cullot
RCIS 2016, IEEE Tenth International Conference on Research Challenges in Information Science, 1-3 June 2016, *Grenoble, France*
- 4. A web application for event detection and exploratory data analysis for Twitter data** *Sergey Kirgizov, Eric Leclercq, Marinette Savonnet, Alexander Frame, Ian Basaille-Gahite*
Twitter at the European Elections 2014: International Perspectives on a Political Communication Tool, *Dijon, 2015*
- 5. Influence Assessment in Twitter Multi-Relational Network** *Lobna Azaza, Sergey Kirgizov, Marinette Savonnet, Éric Leclercq, Rim Faiz*
Eleventh International IEEE Conference on Signal Image Technologies and Internet-Based System (SITIS), *Bangkok, Thailand: 436-443, 2015*
- 6. On the complexity of turning a graph into the analogue of a clique**
Julien Bensmail, Romaric Duvignau, Sergey Kirgizov
9th International colloquium on graph theory and combinatorics (ICGT), 2014
- 7. Using Reinforcement Learning for Autonomic Resource Allocation in Clouds: towards a fully automated workflow**
Xavier Dutreilh, Sergey Kirgizov, Olga Melekhova, Jacques Malenfant, Nicolas Rivierre, and Isis Truck
In The 7th International Conference on Autonomic and Autonomous Systems (ICAS'2011), *best paper award, 2011*

Peer-Reviewed French National Conferences (10)

- 1. Packing coloring and subsets preserving path distance**
Nicolas Gastineau, Benjamin Gras, Sergey Kirgizov, Mahmoud Omidvar
Journées Graphes et Algorithmes (JGA), Paris, 2016
- 2. (Re)constituer la temporalité d'un événement médiatique sur Twitter : une étude contrastive**
Tatiana Kondrashova, Alexander Frame, and Sergey Kirgizov
XXe congrès de la SFSIC : Temps, temporalités et information-communication, *8-10 juin 2016 Metz (France)*
- 3. Évaluation de l'influence dans un réseau multi-relational : le cas de Twitter**
Lobna Azaza, Sergey Kirgizov, Marinette Savonnet, Éric Leclercq, Rim Faiz
INFORSID'2016, Le congrès INFORSID (INFormatique des ORganisations et Systèmes d'Information et de Décision, *du 31 mai au 3 juin, à Grenoble, France*
- 4. A la recherche des mini-publics : un problème de communautés, de singularités et de sémantique**
Données participatives et sociales
Eric Leclercq, Sergey Kirgizov, Maximilien Danisch
16ème conférence francophone sur l'Extraction et la Gestion des Connaissances (EGC 2016): l'atelier Données participatives et sociales, *Reims, Janvier 2016*
- 5. Evaluation de l'influence sur Twitter : Application au projet "Twitter aux Elections Européennes 2014"**

Sergey Kirgizov, Lobna Azaza, Éric Leclercq, Marinette Savonnet et Alexander Frame
Journées d'étude "Etudier le Web politique : Regards croisés", Lyon, 12-13 Mai 2015

6. **Papers^γ, Discussing board for scientific papers**
Conference SO Data 3, Paris, 26 Mars 2015
7. **Internet Topology Dynamics: stochastic process estimation from partial observations**
avec Clémence Magnien
Journée jointe des GDR ISIS et Phénix "Analyse et inférence pour les réseaux", Paris, 2013
8. **Distribution multimodale de la taille du sous-graphe des plus courts chemins dans un graphe aléatoire**
Journées Graphes et Algorithmes (JGA), Orsay, 2013
9. **Dynamique de la topologie de l'internet : impact de la fréquence de mesure sur les observations**
24ème colloque Grets, Brest, France, 2013
10. **Vers une modélisation réaliste de la dynamique de la topologie de routage au niveau IP**
Journées Automnales 2012 ResCom, Paris, 2012

Selected talks (7)

1. **Densité temporelle des réseaux complexes: détection et visualisation de l'évolution de la structure ego-communautaire**
Séminaire, Le Havre, 23 Mars 2017
2. **Patterns in treeshelves**
Séminaire Le2i "Combinatoire, Réseaux et Sciences des Données", 14 Février, Dijon 2017
3. **Densité temporelle des réseaux complexes et Évolution de la structure communautaire**
Séminaire de l'équipe ComplexNetworks team, Paris, 4 juillet, 2016
4. **Graph-streaming pour l'étude de la dynamique des sphères médiatiques et politiques**
Réunion Projet CNRS PEPS MOMIS, Paris, 2015
5. **Graph-streaming pour l'étude de la dynamique des sphères médiatiques et politiques**
Assemblée générale du Le2i, Dijon, 2015
6. **Analyse empirique et modélisation de la dynamique de la topologie de l'Internet**
seminaire au LE2I, Dijon, 6 November 2014
7. **Internet topology dynamics in ten minutes**
Masterclass-discussion with Vint Cerf, 2014

Notes, essais (5)

1. **The limit of generalised Dempster-Shafer-Smets operator**
Nicolas Gastineau, Sergey Kirgizov, Lobna Azaza, 2016
2. Chapter **How much Proteins Contact Networks are eccentric? A signaling networks perspective of PCN eccentricity**, (with Gabriele Oliva, Sergey Kirgizov, and Luisa di Paola) of unpublished book "Applications of Complex Networks Analysis to Biological Systems — From Biomolecular Structure to Gene Regulation", 2016
3. **Metric space of hierarchies**, 2013
4. **A new graph density**, 2015
5. **Stochastic process estimation from partial observations: Poisson case**, Sergey Kirgizov, François Queyroi, 2014

Communication skills

7 presentations at international conferences, 7 presentations at national french conferences, 6 other talks (including a presentation at General Assembly of Le2i research laboratory, the final presentation of a CNRS research project, and a masterclass-discussion with Vint Cerf), 1 poster presentation.

Teaching activities (in french):

Subject		Amount of hours
2018-2019, École supérieure d'ingénieurs de recherche en matériaux et en infotronique, Dijon		
Master 2 - Systèmes d'information avancés	Lectures, Tutorials, Labs	35h
Geipi 1 - Unix-like systems	Lectures	21h
2016-2017, Research and Teaching Fellow (ATER), Université de Bourgogne		
Master 2 - Machine learning: reinforcement learning	Lectures, Tutorials, Labs	12h
Licence 2 - C/C++	Lab sessions	60h
	Tutorials	8h
Licence 2 - Operating Systems (network, threads, etc)	Lab sessions	40h
For Phd Students - OpenMP	Lectures, Tutorials, Labs	10h
For Phd Students - MPI	Lectures, Tutorials, Labs	10h
Licence 1 - Java, first steps	Tutorials	36h
	Lab sessions	72h
2015-2016, Research and Teaching Fellow (ATER), Université de Bourgogne		
Licence 1 - Java, first steps	Lectures	32h
	Lab sessions	80h
Licence 2 - Operating Systems (network, threads, etc)	Lab sessions	60h
Licence 2 - C et C++	Lab sessions	40h
Licence 1 - Advanced algorithms, OOP	Lab sessions	40h
2015, postdoc, Université de Bourgogne		
Licence 1 - Visual interfaces (Java)	Lab sessions	40h
2012-2014, PhD Teaching fellow, Université Pierre et Marie Curie		
Licence 2 - Compilation and virtual machines (Scheme, C)	Lab sessions	13.5h
Licence 1 - Recursive programming (Scheme)	Tutorial and lab sessions	84h
Licence 2 - Discrete Structures (logic, automata theory)	Lab sessions	10.5h
Total		704h

Administrative responsibilities and other activities

1. Principal participant of PEPS MoMIS SEISME project — "Graph-Streaming pour l'étude de la dynamique des sphères politiques et médiatiques".
2. Founder of Papers^γ — discussing (and publishing) board for scientific papers.
3. Reviewer for ALGOTEL, IEEE Communications Letters, CompleNet, International Journal of Computer Mathematics.
4. Member of the organisation committee of
 - (a) 7th Workshop on Complex Networks, CompleNet 2016;
 - (b) ALGOTEL 2015 conference;
 - (c) MARAMI 2014 conference;
 - (d) Journée thématique "Dynamique des graphes" 2012;
 - (e) Journées Automnales 2012 ResCom à Paris 6.
5. Supervision of research trainee: L3 student of ENS Lyon.

6. Administration of ComplexNetworks team's website during my PhD.

Hobbies

Bicycle, Contemporain art