

Alina Sîrbu

CONTACT INFORMATION

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RESEARCH INTERESTS

Complex Systems Modelling, Machine learning, Evolutionary algorithms, Bioinformatics/ Computational Biology (gene regulatory networks, epigenetics)

EDUCATION

Dublin City University, Dublin, Ireland **October 2008 - present**
Centre for Scientific Computing and Complex Systems Modelling, School of Computing

Ph.D. Student, Computational Biology

- Research project: "Gene regulatory network modelling with evolutionary algorithms: an integrative approach"
- IRCSET EMBARK Programme
- Expected graduation date: September 2011.

A.I. Cuza University, Iasi, Romania

October 2004 - June 2008

Faculty of Computer Science

B.Sc., Computer Science

- Thesis: "GriW: application for visualisation of grid systems"
- Graduated with equivalent of 1st class honours (98.7% mark average)
- Relevant courses: Machine Learning, Bioinformatics, Evolutionary Algorithms, Artificial Neural Networks, Probability and Statistics, Graph Theory, Artificial Intelligence, Software Engineering, Programming (C/C++, Java, C#, Haskel, Lisp), Databases, Coding Theory and Cryptography, Computer Networks.

Stefan cel mare High School, Hirtau, Iasi, Romania

September 2000 - June 2004

Mathematics/ programming profile

- Assistant Analyst Programmer Certificate.
- Head of Class 2004.

ACADEMIC EXPERIENCE

Dublin City University, Dublin, Ireland

Centre for Scientific Computing and Complex Systems Modelling, School of Computing

Postgraduate Student

October 2008 - present

Ongoing research in gene regulatory network modelling, focusing on developing a novel evolutionary algorithm for model reverse engineering from integrated data. This involves analysis of microarray and next generation sequencing gene expression time series (pre-processing, model inference, model validation), and integration in evolutionary computation of other types of data such as binding affinities, known interactions, transcription factors, etc.

Teaching Assistant Activities

2009, 2010

- CA591-598 Object-Oriented Programming with Java. Responsibilities: assisting students with practical problems during laboratory and tutorial hours, evaluating laboratory tests.
- CA218 Introduction to Databases. Responsibilities: assisting students during laboratory hours.
- CA463 Concurrent Programming: evaluating final projects.
- CA578 Biocomputing: assisting during laboratory hours.

- CA641 Biometrics: assisting during laboratory hours.

Peer reviewing

2010

- BMC Bioinformatics
- IEEE Transactions on Neural Networks

WORK EXPERI-
ENCE/INTERNSHIPS

Code40 Summer School 2007

1 July 2007 - 10 August 2007

Code40, Software Development Company, Iasi, Romania

- Position: Web Developer
- Main activities: developed in a team of four the ASP.Net 2.0 interface of an application in the financial sector. I also participated in the design of the application user interface (CSS style-sheets, skins).

Code 40 Internship

10 August 2006 - 30 September 2006

Code40, Software Development Company, Iasi, Romania

- Position: Functional Tester
- Main activities: functional testing a web application in the financial sector, writing test cases and test reports.

Code40 Summer School 2006

1 July 2006 - 10 August 2006

Code40, Software Development Company, Iasi, Romania

- Position: Functional Tester
- Main activities: functional testing a web application in the financial sector , writing Use Case Scenarios and Test Reports, developing automated web tests and unit tests (with Microsoft Visual Studio Team Edition For Testers)

COMPUTER SKILLS

- *Programming*: advanced OOP skills, solid coding style, algorithm skills, UML, functional and unit testing, source documentation, multithreading/ parallelisation, C/network programming for Unix systems (intermediate), C++ (advanced), MPI (intermediate), MFC (intermediate), Windows SDK (intermediate), C# (advanced), ASP.Net 2.0 (intermediate), ADO.NET (basic), Java SE (advanced), bash (basic), Perl(basic), Python (basic), Haskell (intermediate), Lisp (basic), SQL (advanced), XML, CSS style-sheets, XSL, JavaScript (basic), Web services, R (intermediate), MatLab (intermediate), LaTeX (intermediate).
- *IDEs*: Microsoft Visual Studio 98/2005, NetBeans 4.1/5.0, Eclipse 3.2+, SQL Server Management Studio.
- *Source Control*: Team Foundation Server (using Team Explorer with Microsoft Visual Studio 2005), Svn (with Tortoise).
- *Operating Systems*: good knowledge of Windows (XP and Vista) and Linux (Suse, Ubuntu).

LANGUAGE SKILLS

- *Romanian*: native.
- *English*: proficient in reading, writing, listening, speaking.
- *French*: intermediate in reading, writing, listening, basic in speaking.
- *Spanish, Italian, German*: basic in reading, writing, listening, speaking.

SOFT SKILLS

- Good presentation skills (Overall 1st Prize for presentation in Faculty of Engineering and Computing Research Day, Dublin, May, 2010; Poster presentation award in COST MP0801 second meeting, Bulgaria, May 2010).
- Good pedagogical and communication skills.
- Good time management skills.
- Good mathematical skills.
- Determined, energetic, responsible.

PUBLICATIONS

Journals

- Sîrbu, A., Ruskin, H. J. and Crane, M. (2010). Comparison of evolutionary algorithms in gene regulatory network model inference, BMC Bioinformatics 11(59).
- Sîrbu, A., Ruskin, H. J. and Crane, M. (2010). Cross-platform microarray data normalisation for regulatory network inference, PLoS ONE 5(11): e13822.

Conference Proceedings

- Sîrbu, A., Ruskin, H. J. and Crane, M. (2010). Regulatory network modelling: Correlation for structure and parameter optimisation, In Proceedings of The IASTED International Conference on Computational Bioscience, Cambridge, Massachusetts, 1-3 Nov.

Book chapters

- Sîrbu, A., Ruskin, H. J. and Crane, M. (2011). Stages of Gene Regulatory Network Inference: the Evolutionary Algorithm Role, Evolutionary Algorithms, InTech, ISBN 978-953-307-171-8.

Magazines

- Sîrbu A., Ruskin H.J. and Crane M. Modelling Gene Regulatory Networks - An Integrative Approach, ERCIM News, 81(36-37), Special Issue: Computational Science/Scientific Computing. Simulation and Modelling for Research and Industry , April 2010.

CONFERENCE
PRESENTATIONS
AND POSTERS

- Sîrbu, A., Ruskin, H. J. and Crane, M. Gene regulatory network inference by integrative evolutionary computation, 8th Symposium for Networks in Bioinformatics, Amsterdam University, Netherlands, April 2011 (Presentation)
- Sîrbu, A., Ruskin, H. J. and Crane, M. Regulatory network modelling: Correlation for structure and parameter optimisation, IASTED International Conference on Computational Bioscience, Cambridge, Massachusetts, 1-3 Nov, 2010, (Presentation).
- Sîrbu, A., Ruskin, H. J. and Crane, M. Integrating heterogeneous gene expression data for gene regulatory network modelling, European Conference on Complex Systems, Lisbon, Portugal, 13-17 Sept, 2010, (Presentation).
- Sîrbu, A., Ruskin, H.J. and Crane, M. Integrating Heterogeneous Microarray Data for Regulatory Network modelling, Advances in Microarray Technology, May 2010, Dublin, (Presentation).
- Sîrbu, A., Ruskin, H.J. and Crane, M. Wavelets for analysis of time series gene expression data, 2nd COST Action MP0801 Physics of Competition and Conflicts, May 2010, Bulgaria, (Award for poster presentation).
- Sîrbu, A., Ruskin, H.J. and Crane, M. Modelling Gene Regulatory Networks: an Integrative Approach, 2nd COST Action MP0801 Physics of Competition and Conflicts, May 2010, Bulgaria, (Presentation).
- Sîrbu, A., Ruskin, H.J. and Crane, M. Modelling Gene Regulatory Networks with Evolutionary Algorithms, Faculty of Engineering and Computing Research Day, May, 2010 (Presentation, awarded with the Overall 1st Place prize).
- Sîrbu, A., Ruskin, H.J. and Crane, M. Integrating heterogeneous Gene Expression data for Regulatory Network modelling, VIBE, January 2010, Dublin, (Poster presentation).
- Sîrbu, A., Ruskin, H.J. and Crane, M. Evolutionary algorithms in genetic regulatory network modelling with microarray data, The 9th Asia-Pacific Complex Systems Conference (Complex'09), Tokyo, Japan, November 4-7, 2009, (Presentation).

CONFERENCES
ATTENDED

- Globe Forum: Smarter & Greener Innovation for a Sustainable Future, Dublin, Ireland, November 2010
- IRCSET Symposium Innovation fuelling the Smart Society, Dublin, Ireland, September 2009
- 6th Symposium for Networks in Bioinformatics, Amsterdam University, Netherlands, April 2009

OTHER INTERESTS

Karate, Judo, Tag rugby, Flamenco dance, Travelling, Foreign languages