

## Curriculum Vitae

**Name:** Gabriel Ciobanu

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**Positions** (date, position, institution) -- NOT visits shorter than 3 months

- 2001-present senior researcher, IIT, Romanian Academy (Iasi branch)
- 2006-2008 professor (editor-in-chief), A.I.Cuza University of Iasi, Romania
- 2010-2015 visiting (full) professor at Newcastle University, UK
- 2011 Apr-Jun visiting professor, University of Cagliari, Italy
- 2000-2004 research fellow, National University of Singapore
- 1995-1996 JSPS researcher, Tohoku University, Japan
- 1994 DAAD Institute of Computer Science, University of Kiel, Germany
- 1991-1992 Royal Society London research fellow, Edinburgh University, UK
- 1991-2001 assistant and associate professor, A.I.Cuza University of Iasi
- 1983-1990 programmer and researcher, A.I.Cuza University Iasi, Romania

### Fields of research/expertise:

#### Natural Computing (Membrane Systems):

- introducing several systems of mobile membranes, emphasizing the power of endocytosis and exocytosis;
- distributed algorithms over membrane systems, and links to evolutionary algorithms;
- causality and reversing computation in membrane systems and intensive parallel systems;
- defining the formal semantics of membrane systems, and implementing membranes on clusters of computers;
- using membranes to describe various biological processes (e.g., the sodium-potassium pump, immune system).

#### Distributed Systems (Process Calculi):

- semantics, behavioural equivalences, logics, verification
- introducing and studying timed distributed pi-calculus and TiMo (Timed Mobility);
- mobile ambients with timers modelling network protocols and distributed systems;
- encoding mobile ambients into the pi-calculus and into membrane computing;
- faithful pi-nets for asynchronous pi-calculus and jc-nets; metric semantics with continuations for concurrency.

#### Bridging membrane computing and process calculi

- encoding both mobile ambients and brane calculi into mobile membranes;
- encoding mobile membranes into coloured Petri nets (and verifying various systems by using CPN tools);
- extending some notions from process calculi to membrane systems (e.g., behavioural equivalences).

### **Foundations of Mathematics and Computer Science: Finitely Supported Mathematics**

- a new set theory in which any infinite structure has a finite support (expressed by permutation invariance);
- starting from the Fraenkel-Mostowski permutative model of Zermelo-Fraenkel set theory with atoms;
- connections to the logical notions of A.Tarski, Erlangen program of F.Klein, admissible sets and Gandy machines;
- inconsistency of choice axiom and other choice principles in Finitely Supported Mathematics.

### **Honours and Awards:**

- 2017 member of the Academia Europaea (?Academy of Europe?)
- 2017 Fundamenta Informaticae Special Issue on the occasion of the 60th Birthday  
<http://content.iospress.com/journals/fundamenta-informaticae/153/1-2>
- 2006-present editor-in-Chief of Scientific Annals of Computer Science:  
[www.info.uaic.ro/Annals](http://www.info.uaic.ro/Annals)
- 2010-2013 member of the National Research Council (CNCS)
- 2008-2010 Royal Society of London Joint Int'l Project (Newcastle University)
- 2013 Grigore Moisil Award (co-author of "Mobility in Process Calculi and Natural Computing", Springer)
- 2004 Octav Mayer Award for Scientific Achievements, Romanian Academy, Iasi branch
- 2000 Grigore Moisil Award for results in Theoretical Computer Science
- 1995-1996 Japan Society for the Promotion of Science Fellowship (Tohoku University)
- 1994 DAAD Research Fellowship (Institute of Computer Science, Kiel)
- 1991-1992 Royal Society of London and Romanian Academy Fellowship (Univ.Edinburgh)

**Mentored by Robin Milner (FRS, Turing Award) at University of Edinburgh (1991-92).**

### **The most cited papers/book (ScholarGoogle):**

- G.Ciobanu, Gh.Paun, M.J.Perez-Jimenez, eds.. Applications of Membrane Computing, Natural Computing Series, Springer, 2006 / 363 citations
- G.Ciobanu, L.Pan, Gh.Paun; M.J.Perez-Jimenez. P systems with minimal parallelism. Theoretical Computer Science vol.378: 117-130, 2007 / 120 citations
- G.Ciobanu, Guo Wenyan. P systems running on a cluster of computers. Lecture Notes in Computer Science vol.2933, 123-139, 2004 / 103 citations
- O.Andrei, G.Ciobanu, D.Lucanu. A Rewriting Logic Framework for Operational Semantics of Membrane Systems. Theor.Comp.Sci. vol.373, 163-181, 2007 / 73 citations

### **Two books/monographs published recently by Springer:**

- A.Alexandru, G.Ciobanu. Finitely Supported Mathematics. An Introduction. Springer 2016.
- B.Aman, G.Ciobanu. Mobility in Process Calculi and Natural Computing, Natural Computing Series, Springer, 2011.

### **Recent articles (last 5 years):**

- G.Ciobanu, R.Horne, V.Sassone. A descriptive type foundation for RDF Schema. *J.Log. Algebr. Meth. Program.* 85(5): 681-706 (2016)
- B.Aman, G.Ciobanu. Modelling and verification of weighted spiking neural systems. *Theor. Comput. Sci.* 623: 92-102 (2016)
- R.Horne, A.Tiu, B.Aman, G.Ciobanu. Private Names in Non-Commutative Logic. *CONCUR 2016*, LNCS Springer (2016)
- G.Ciobanu, M.Koutny. PerTiMo: A Model of Spatial Migration with Safe Access Permissions. *Computer J.* 58(5): 1041-1060 (2015)
- O.Agrigoroaiei, G.Ciobanu. Rewriting Systems Over Indexed Multisets. *Computer J.* 57(1): 165-179 (2014)
- G.Ciobanu, G.M.Pinna. Catalytic and communicating Petri nets are Turing complete. *Inf. Comput.* 239: 55-70 (2014)
- G.Ciobanu. General patterns of interaction in stochastic fusion. *Natural Computing* 12(3): 429-439 (2013)
- G.Ciobanu, M.Koutny. Modelling and analysis of biological systems (SI). *Theor. Comput. Sci.* 431: 2-3 (2012)
- G.Ciobanu, C.Juravle. Flexible software architecture and language for mobile agents. *Concurrency and Computation: Practice and Experience* vol.24: 559-571 (2012)
- G.Ciobanu, S.N.Krishna. Enhanced mobile membranes: computability results. *Theory of Computing Systems* vol.48: 715-729 (2011)
- Contributing to the Oxford Handbook of Membrane Computing: G.Ciobanu. Semantics of P Systems. Chapter 16 in *Oxford Handbook of Membrane Computing*, 413-436, Oxford University Press, 2010. Contributing to Scholarpedia: Computational Aspects of Mobile Membranes, Brane Calculi and Mobile Ambients, *Scholarpedia*, 5(7):9420, 2010.

**Overall**, 5 books as author, 8 volumes as editor, several special issues of journals devoted to certain workshops, more than 280 papers published in English (and some other papers published in Romanian, mainly before 1994).

According to Scholar Google, the number of citations is over 2400, with h-index 22.

According to SCOPUS, the number of citations is over 1000, with h-index 14.

### **Education:**

1990-1994 PhD studies at A.I.Cuza Univ and Edinburgh Univ (mentored by R.Milner)

1977-1982 Faculty of Mathematics and Computer Science, A.I.Cuza University Iasi

### **Professional experience:**

- Teaching and doing research in various universities around the world. Currently working as senior researcher at the Romanian Academy Iasi branch, and full professor at Cuza University, Iasi. Recently, researcher at National University of Singapore and visiting professor at Newcastle University (UK).
- Member of the National Council of Research in Romania (15 members) from 2010 to early 2013.
- PhD supervisor (8 Phd students and a large number of master students). Collaborators and co-authors from several countries (UK, France, the Netherlands, Spain, Italy, Russia, China,

Singapore, India...).

- Editor-in-chief of the Scientific Annals of Computer Science ([www.info.uaic.ro/Annals](http://www.info.uaic.ro/Annals)).
- Invited speaker at international conferences in Romania, Europe and Asia : SYNASC 2004 si 2005 (IEEE CS), CMC 2005 (Springer), ICCS 2006, ISDA 2006 (IEEE CS), IDC 2007 (Springer), BIC-TA 2008 Adelaide, CMC 2010 Jena (Springer), ICTERI (2014), FOI (2015), VeCOS (2016), Congress of the Romanian Mathematicians (2016), etc.
- Guest editor of special issues of several international journals, editor of volumes published by known publishers (Springer, IEEE Computer Society), chair and member of several program committees and boards (FCT 1999, Modelling in Molecular Biology, Singapore 2002; Theory and Applications of P Systems, Timisoara 2005, MeCBIC workshop on Membrane Computing and Biologically Inspired Process Calculi, Iasi (2008), Bologna (2009), Jena (2010), Paris (2011) and Newcastle (2012)).
- Research periods spent at Edinburgh University (1991-1992), Universite de Paris XI (1994), CWI and VU Amsterdam (1994), Tohoku and Kyoto University (1995-1996); Cottbus TU (1996); CSIC-III A Barcelona (1997,1998); University of Western Ontario (1998), National University of Singapore (2000-2004), University of Cagliari, Newcastle University.
- Short visits and talks/seminars given at universities from Germany, Japan, Taiwan, Spain, Italy, UK, Cyprus etc.
- Member of the editorial boards of Int'l Journal of Computational Intelligence Research and Computer Science Journal of Moldova. Member of several professional associations.

#### Useful links:

- [https://scholar.google.ro/scholar?as\\_vis=1&q=Gabriel+Ciobanu+autor:Ciobanu&hl=ro&as\\_sdt=1,5](https://scholar.google.ro/scholar?as_vis=1&q=Gabriel+Ciobanu+autor:Ciobanu&hl=ro&as_sdt=1,5)
- <https://scholar.google.ro/citations?user=Kx1pWGkAAAAJ&hl=ro&oi=ao>
- <https://www.scopus.com/authid/detail.uri?authorId=7003872401>
- [https://www.researchgate.net/profile/Gabriel\\_Ciobanu](https://www.researchgate.net/profile/Gabriel_Ciobanu)
- [http://dblp.org/search/index.php?query=author:Gabriel\\_Ciobanu](http://dblp.org/search/index.php?query=author:Gabriel_Ciobanu)
- <https://www.semanticscholar.org/author/Gabriel-Ciobanu/9402588?q=&sort=total-citations&ae=false>
- <https://orcid.org/0000-0002-8166-9456>

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