BRIEF CURRICULUM VITAE
of *Jacques Sakarovitch*

updated January 2023

Born the 24 Avril 1947 in Paris (France).

Present position

CNRS Emeritus Senior Research Scientist (Directeur de Recherche)
at the 'Research Institute on the Foundations of Computer Science', CNRS/Université de Paris
and   Emeritus Professor at Telecom Paris, Institut Polytechnique de Paris.

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Diplomas

1979   Docteur ès Sciences Mathématiques (mention Informatique)
1976   Docteur 3rd cycle Mathématiques (mention Informatique)
1968   Engineer of Ecole Polytechnique (Paris)

Professional curriculum

2017 –   : Professor Emeritus at Telecom Paris

2012 –   : CNRS Emeritus Senior Research Scientist

1973 – 2012 : Research Scientist at the *Centre National de la Recherche Scientifique*

1972 – 1973 : Assistant Professor in Mathematics at *University Paris 7*

1969 – 1972 : Research Scientist at the *Research Institute for Transportation*

Administration and organisation of research

1989 – 1996 : Director of the *Institut Blaise Pascal*,
               federation of the computer science laboratories of the Univ. Paris 6 and Paris 7.

1989 – 1996 : Coordinator of the *ASMICS Working Group*,
               a Basic Research Action project of the ESPRIT II & III programmes.

1989 – 1994 : Director of the *Graduate School Blaise Pascal*.

1986 – 1988 : Deputy Director of the *LITP*.

1982 – 1983 : *Chargé de mission* for Computer Science
               at the *Scientific and Technical Mission* of the *Ministry for Industry and Research*.

1975 – 1980 : Secretary of the section "Computer Science, Control Theory and
               Signal Processing" of the *Comité National de la Recherche Scientifique*.

IFIP Positions

2022 –   : IFIP Vice-President

2020 –   : French representative to IFIP

2013 – 2018 : Chair of the IFIP Technical Committee TC1 *Foundations of Computer Science*

Teaching

Graduate course (DEA and Master) at Univ. Paris 6 and Paris 7 (1983–2018)
Automata Theory, Undergraduate course at Telecom (2001–2006)
Automata Theory, Data Structures and Algorithms, for the Bull Company Continuous Education
Center (1986–1991)

Short courses at Tallin (2014), Dresden (2014) Salerno (2006), Auckland (2004), Como (2002),
Turku (1997), Saõ Paulo (1991), Palerme (1984).

Research area and scientific activity

For more than 40 years now, my area of research is *theoretical computer science* and more precisely *automata theory*, under its many various aspects, from pushdown automata and context-free languages to functions realized by finite automata, from combinatorics of words and combinatorial theory of groups and semigroups to non standard numeration systems. (Two books, six chapters in books and handbooks and about eighty publications in journals and international conferences.)

Automata theory is the *linear algebra* of of computer science, and this is a sentence with a double understanding. First, automata theory is literally linear algebra, or can be seen as such, a theory of matrices with entries taken in adequate structures. But the metaphorical sense is even more interesting. Automata theory — especially the theory of finite automata — is a basic knowledge in computer science, known by all and used by everyone, which belongs to the framework for such a long time that it is hardly noticed anymore. A finite automaton is the simplest model of a computing machine, so simple that it takes forms, it appears in contexts, it underlies applications as numerous as diverse. The concepts of automata theory, its methods and results are used from one end of computer science to the other — from computational linguistics to system verification for instance.

In 2003, I completed a comprehensive work where I tried to render the richness and the diversity of the subject while making clear its profound unity. In the last fifteen years, I have been invited to more than 20 conferences to give talks or tutorials, I have presented 10 communications, and I have been invited to give lectures in the universities of Palermo, Jerusalem, Bar-Ilan (Tel-Aviv), Turku, Hanoï, Hong-Kong, Como, Nigata, Ookayama, Auckland, Montréal, Liège and Salerno, Tokyo, Oxford, etc.

Research Administration and Organisation

Since the beginning of my career as a researcher, I have been interested in the organisation and the administration of research. I have sit in several committees and occupied a few direction positions.

The main activity of that kind has been the direction the federation of the four computer science laboratories on the Jussieu campus, one of the largest reasearch institute in Computer Science in France. The federation eventually did not survive the strained relationship between the two universities Paris 6 and Paris 7. A stressful but instructive experience.

Main publications

A selection of works spanning my whole career, each one contributing with an original idea to automata theory.

- Trees and languages with periodic signature, *Indagationes Mathematicae* **28**, 2017. With V. Marsault.

- The validity of weighted automata, *Int. J. Algebra and Comput.* **23**, 2013. With S. Lombardy.

- Lexicographic decomposition of k-valued rational relations, *Theory of Computing Systems* **47**, 2010. With R. de Souza.

- *Elements of Automata Theory*, Cambridge University Press, 2009.
  Corrected English translation of *Éléments de théorie des automates*, Vuibert, 2003.

- Powers of rationals modulo 1 and rational base number systems, *Israel J. Math.* **168**, 2008. With S. Akiyama and Ch. Frougny.

- Conjugacy and Equivalence of Weighted Automata and Functional Transducers, *in Proc. of CSR 2006* (D. Grigoriev et al., eds.), LNCS 3967, 2006, 58–69. With M.-P. Béal and S. Lombardy.

- Squaring transducers, *Theoret. Comput. Sci.* **292**, 2003. With M.P. Béal, O. Carton and Ch. Prieur.

- Automatic conversion from Fibonacci numeration system to golden mean base, and generalization, *Int. J. of Algebra and Computation* **9**, 1999, 351–384. With Ch. Frougny.

- Synchronized rational relations, *Theoret. Comput. Sci.* **108**, 1993. With Ch. Frougny.

- The "last" decision problem for rational trace languages, *in Proc. of LATIN 92*, LNCS 583, 1992.

- Easy multiplications I. The realm of Kleene's theorem, *Inform. and Comput.* **74**, 1987.

- Un théorème de transversale rationnelle pour les automates à pile déterministes, *in Proc. of the 4th G.I. Conf. on Theoret. Comput. Sci.*, LNCS 67, 1979.