

# CURRICULUM VITÆ

## PERSONAL INFORMATION

**Name:** Giovanni Viglietta  
**Address:** 330 Chapel Street, Apt. 605, Ottawa, ON K1N 7Z4, Canada  
**Languages:** Italian (native), English (fluent), French (basic)  
**Citizenship:** Italian citizen, Canadian permanent resident  
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## CURRENT POSITION

Postdoctoral Fellow at the University of Ottawa, Canada

## POSITIONS HELD

**2015:** Contract Instructor at Carleton University, Ottawa, Canada  
**2013–2014:** Research Associate at Carleton University, Ottawa, Canada  
**2012–2013:** Visiting Scholar at Carleton University, Ottawa, Canada

## EDUCATION

**2012:** Ph.D. in Computer Science at the University of Pisa, Italy; thesis: *Guarding and Searching Polyhedra*, supervised by Linda Pagli  
**2008:** Master's degree in Computer Science at the University of Pisa, Italy, *summa cum laude*; thesis: *Enumerazioni e Pattern in Strutture Combinatorie (Enumerations and Patterns in Combinatorial Structures)*, supervised by Francesco Romani and Pietro Majer  
**2004:** Bachelor's degree in Computer Science at the University of Pisa, Italy, *summa cum laude*; thesis: *Una Nuova Tecnica di Compressione (A New Compression Technique)*, supervised by Paolo Ferragina  
**2001–2005:** Paid scholarship at Scuola Normale Superiore of Pisa, Italy

## RESEARCH INTERESTS

Distributed Computing  
Discrete and Computational Geometry  
Applied Computational Complexity

## JOURNAL PAPERS

1. P. Flocchini, G. Prencipe, N. Santoro, and G. Viglietta. Distributed Computing by Mobile Robots: Uniform Circle Formation. *Distributed Computing*, vol. 30, no. 6, pp. 413–457, 2017.
2. C. Cooper, A. Lamani, G. Viglietta, M. Yamashita, and Y. Yamauchi. Constructing Self-Stabilizing Oscillators in Population Protocols. *Information and Computation*, vol. 255, no. 3, pp. 336–351, 2017. **Special issue for SSS'15.**
3. G. A. Di Luna, P. Flocchini, S. Gan Chaudhuri, F. Poloni, N. Santoro, and G. Viglietta. Mutual Visibility by Luminous Robots Without Collisions. *Information and Computation*, vol. 254, no. 3, pp. 392–418, 2017. **Special issue for SSS'14.**
4. P. Flocchini, N. Santoro, G. Viglietta, and M. Yamashita. Rendezvous with Constant Memory. *Theoretical Computer Science*, vol. 621, pp. 57–72, 2016.
5. L. Pagli, G. Prencipe, and G. Viglietta. Getting Close Without Touching: Near-Gathering for Autonomous Mobile Robots. *Distributed Computing*, vol. 28, no. 5, pp. 333–349, 2015.
6. G. Viglietta. Reprint of: Face-Guarding Polyhedra. *Computational Geometry: Theory and Applications*, vol. 48, no. 5, pp. 415–428, 2015. **Special issue for CCCG'13.**
7. G. Aloupis, E.D. Demaine, A. Guo, and G. Viglietta. Classic Nintendo Games Are (Computationally) Hard. *Theoretical Computer Science*, vol. 586, pp. 135–160, 2015. **Special issue for FUN'14.**

8. G. Viglietta. Lemmings Is PSPACE-Complete. *Theoretical Computer Science*, vol. 586, pp. 120–134, 2015. **Special issue for FUN’14.**
9. G. Viglietta. Face-Guarding Polyhedra. *Computational Geometry: Theory and Applications*, vol. 47, no. 8, pp. 833–846, 2014. **Special issue for CCCG’13.**
10. G. Viglietta. Gaming Is a Hard Job, but Someone Has to Do It! *Theory of Computing Systems*, vol. 54, no. 4, pp. 595–621, 2014. **Special issue for FUN’12.**
11. G. Viglietta. Searching Polyhedra by Rotating Half-Planes. *International Journal of Computational Geometry & Applications*, vol. 22, no. 3, pp. 243–275, 2012.

**CONFERENCE PAPERS (the underlined authors did the presentation talks)**

1. G. A. Di Luna, P. Flocchini, N. Santoro, G. Viglietta, and Y. Yamauchi. Shape Formation by Programmable Particles. In *Proceedings of the 21st International Conference on Principles of Distributed Systems (OPODIS)*, to appear.
2. G. A. Di Luna, P. Flocchini, G. Prencipe, N. Santoro, and G. Viglietta. Line Recovery by Programmable Particles. In *19th International Conference on Distributed Computing and Networking (ICDCN)*, to appear.
3. G. A. Di Luna, P. Flocchini, L. Pagli, G. Prencipe, N. Santoro, and G. Viglietta. Gathering in Dynamic Rings. In *Proceedings of the 24th International Colloquium on Structural Information and Communication Complexity (SIROCCO)*, to appear. **Invited to special issue.**
4. G. A. Di Luna, P. Flocchini, N. Santoro, G. Viglietta, and M. Yamashita. Meeting in a Polygon by Anonymous Oblivious Robots. In *Proceedings of the 31st International Symposium on Distributed Computing (DISC)*, pp. 14:1–14:15, 2017.
5. G. A. Di Luna, P. Flocchini, N. Santoro, G. Viglietta, and Y. Yamauchi. Brief Announcement: Shape Formation by Programmable Particles. In *Proceedings of the 31st International Symposium on Distributed Computing (DISC)*, pp. 48:1–48:3, 2017.
6. G. A. Di Luna, P. Flocchini, T. Izumi, T. Izumi, N. Santoro, and G. Viglietta. On the Power of Weaker Pairwise Interaction: Fault-Tolerant Simulation of Population Protocols. In *Proceedings of the 37th IEEE International Conference on Distributed Computing Systems (ICDCS)*, pp. 2472–2477, 2017.
7. S. Das, G. A. Di Luna, P. Flocchini, N. Santoro, and G. Viglietta. Mediated Population Protocols: Leader Election and Applications. In *Proceedings of the 14th Annual Conference on Theory and Applications of Models of Computation (TAMC)*, pp. 172–186, 2017.
8. G. A. Di Luna, P. Flocchini, T. Izumi, T. Izumi, N. Santoro, and G. Viglietta. Population Protocols with Faulty Interactions: the Impact of a Leader. In *Proceedings of the 10th International Conference on Algorithms and Complexity (CIAC)*, pp. 454–466, 2017. **Invited to special issue.**
9. P. Flocchini, N. Santoro, G. Viglietta, and M. Yamashita. Universal Systems of Oblivious Mobile Robots. In *Proceedings of the 23rd International Colloquium on Structural Information and Communication Complexity (SIROCCO)*, pp. 242–257, 2016.
10. M. Mamino and G. Viglietta. Square Formation by Asynchronous Oblivious Robots. In *Proceedings of the 28th Canadian Conference on Computational Geometry (CCCG)*, pp. 1–6, 2016.
11. G. A. Di Luna, P. Flocchini, G. Prencipe, N. Santoro, and G. Viglietta. A Rupestrian Algorithm. In *Proceedings of the Eighth International Conference on Fun with Algorithms (FUN)*, pp. 14:1–14:20, 2016.
12. E. D. Demaine, G. Viglietta, and A. Williams. Super Mario Bros. Is Harder/Easier than We Thought. In *Proceedings of the Eighth International Conference on Fun with Algorithms (FUN)*, pp. 13:1–13:14, 2016.
13. C. Cooper, A. Lamani, G. Viglietta, M. Yamashita, and Y. Yamauchi. Constructing Self-Stabilizing Oscillators in Population Protocols. In *Proceedings of the 17th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS)*, pp. 187–200, 2015. **Best Paper Award. Invited to special issue.**
14. P. Bose, J.-L. De Carufel, M. G. Dobbins, H. Kim, and G. Viglietta. The Shadows of a Cycle Cannot All Be Paths. In *Proceedings of the 27th Canadian Conference on Computational Geometry (CCCG)*, pp. 70–75, 2015.

15. P. Flocchini, G. Prencipe, N. Santoro, and G. Viglietta. Distributed Computing by Mobile Robots: Solving the Uniform Circle Formation Problem. In *Proceedings of the 18th International Conference on Principles of Distributed Systems (OPODIS)*, pp. 217–232, 2014.
16. G. A. Di Luna, P. Flocchini, S. Gan Chaudhuri, N. Santoro, and G. Viglietta. Robots with Lights: Overcoming Obstructed Visibility Without Colliding. In *Proceedings of the 16th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS)*, pp. 150–164, 2014. **Invited to special issue.**
17. G. A. Di Luna, P. Flocchini, F. Poloni, N. Santoro, and G. Viglietta. The Mutual Visibility Problem for Oblivious Robots. In *Proceedings of the 26th Canadian Conference on Computational Geometry (CCCG)*, pp. 348–354, 2014.
18. G. Viglietta. Lemmings Is PSPACE-Complete. In *Proceedings of the Seventh International Conference on Fun with Algorithms (FUN)*, pp. 340–351, 2014. **Invited to special issue.**
19. G. Aloupis, E. D. Demaine, A. Guo, and G. Viglietta. Classic Nintendo Games Are (Computationally) Hard. In *Proceedings of the Seventh International Conference on Fun with Algorithms (FUN)*, pp. 40–51, 2014. **Invited to special issue.**
20. G. Viglietta. Rendezvous of Two Robots with Visible Bits. In *Proceedings of the 9th International Symposium on Algorithms and Experiments for Sensor Systems, Wireless Networks and Distributed Robotics (ALGOSENSORS)*, pp. 291–306, 2013.
21. G. Viglietta. Face-Guarding Polyhedra. In *Proceedings of the 25th Canadian Conference on Computational Geometry (CCCG)*, pp. 277–282, 2013. **Invited to special issue.**
22. G. Viglietta. Partial Searchlight Scheduling Is Strongly PSPACE-Complete. In *Proceedings of the 25th Canadian Conference on Computational Geometry (CCCG)*, pp. 55–60, 2013.
23. P. Flocchini, N. Santoro, G. Viglietta, and M. Yamashita. Rendezvous of Two Robots with Constant Memory. In *Proceedings of the 20th International Colloquium on Structural Information and Communication Complexity (SIROCCO)*, pp. 189–200, 2013.
24. Z. Abel, E. D. Demaine, M. L. Demaine, S. Eisenstat, A. Lubiw, A. Schulz, D. L. Souvaine, G. Viglietta, and A. Winslow. Algorithms for Designing Pop-Up Cards. In *Proceedings of the 30th International Symposium on Theoretical Aspects of Computer Science (STACS)*, pp. 269–280, 2013.
25. L. Pagli, G. Prencipe, and G. Viglietta. Getting Close Without Touching. In *Proceedings of the 19th International Colloquium on Structural Information and Communication Complexity (SIROCCO)*, pp. 315–326, 2012.
26. G. Viglietta. Gaming Is a Hard Job, but Someone Has to Do It! In *Proceedings of the Sixth International Conference on Fun with Algorithms (FUN)*, pp. 357–367, 2012. **Invited to special issue.**
27. G. Viglietta. *Hardness of Mastermind*. In *Proceedings of the Sixth International Conference on Fun with Algorithms (FUN)*, pp. 368–378, 2012.
28. G. Viglietta. Partial Searchlight Scheduling Is Strongly PSPACE-Complete. In *Proceedings of the 28th European Workshop on Computational Geometry (EuroCG)*, pp. 101–104, 2012.
29. N. M. Benbernou, E. D. Demaine, M. L. Demaine, A. Kurdia, J. O’Rourke, G. T. Toussaint, J. Urrutia, and G. Viglietta. Edge-Guarding Orthogonal Polyhedra. In *Proceedings of the 23rd Canadian Conference on Computational Geometry (CCCG)*, pp. 461–466, 2011.
30. G. Viglietta and M. Monge. The 3-Dimensional Searchlight Scheduling Problem. In *Proceedings of the 22nd Canadian Conference on Computational Geometry (CCCG)*, pp. 9–12, 2010.

## CONFERENCE TALKS

- 2017:** *Brief Announcement: Shape Formation by Programmable Particles*. DISC’17, Vienna, Austria.
- 2017:** *Meeting in a Polygon by Anonymous Oblivious Robots*. DISC’17, Vienna, Austria.
- 2017:** *On the Power of Weaker Pairwise Interaction: Fault-Tolerant Simulation of Population Protocols*. ICDCS’17, Atlanta, USA.
- 2017:** *Mediated Population Protocols: Leader Election and Applications*. TAMC’17, Bern, Switzerland.
- 2016:** *Square Formation by Asynchronous Oblivious Robots*. CCCG’16, Vancouver, Canada.
- 2016:** *Universal Systems of Oblivious Mobile Robots*. SIROCCO’16, Helsinki, Finland.

**2016:** *Super Mario Bros. Is Harder/Easier than We Thought.* FUN'16, La Maddalena, Italy.  
**2016:** *A Rupestrian Algorithm.* FUN'16, La Maddalena, Italy.  
**2015:** *The Shadows of a Cycle Cannot All Be Paths.* CCCG'15, Kingston, Canada.  
**2014:** *Distributed Computing by Mobile Robots: Solving the Uniform Circle Formation Problem.* OPODIS'14, Cortina d'Ampezzo, Italy.  
**2014:** *The Mutual Visibility Problem for Oblivious Robots.* CCCG'14, Halifax, Canada.  
**2014:** *Lemmings Is PSPACE-Complete.* FUN'14, Lipari Island, Italy.  
**2014:** *Nintendo Games Are (Computationally) Hard.* FUN'14, Lipari Island, Italy.  
**2013:** *Rendezvous of Two Robots with Visible Bits.* ALGOSENSORS'13, Sophia Antipolis, France.  
**2013:** *Face-Guarding Polyhedra.* CCCG'13, Waterloo, Canada.  
**2013:** *Partial Searchlight Scheduling Is Strongly PSPACE-Complete.* CCCG'13, Waterloo, Canada.  
**2013:** *Rendezvous of Two Robots with Constant Memory.* SIROCCO'13, Ischia, Italy.  
**2012:** *Getting Close Without Touching.* SIROCCO'12, Reykjavik, Iceland.  
**2012:** *Gaming Is a Hard Job, but Someone Has to Do It!* FUN'12, Venice, Italy.  
**2012:** *Hardness of Mastermind.* FUN'12, Venice, Italy.  
**2012:** *Partial Searchlight Scheduling Is Strongly PSPACE-Complete.* EuroCG'12, Assisi, Italy.  
**2011:** *Edge-Guarding Orthogonal Polyhedra.* CCCG'11, Toronto, Canada.  
**2010:** *The 3-Dimensional Searchlight Scheduling Problem.* CCCG'10, Winnipeg, Canada.

#### INVITED TALKS AND GUEST LECTURES

**2015:** *Distributed Computing by Mobile Robots: Solving the Uniform Circle Formation Problem.* GRASTA-MAC'15 workshop, Montreal, Canada.  
**2014:** *Video Games Are Hard!* Special lecture for 7606 Computation Theory, Nagoya, Japan.  
**2011:** *Edge-Guarding Orthogonal Polyhedra.* AlgoDEEP Project, Rome, Italy.  
**2010:** *Hardness of Mastermind.* Followup to WSOFT<sub>galileo</sub> workshop, Pisa, Italy.  
**2010:** *Guarding and Searching Polyhedral Environments.* AlgoDEEP Project, Bertinoro (FC), Italy.

#### SELECTED SEMINARS

**2014:** *Theorems with Balls.* Carleton Algorithms Seminars, Ottawa, Canada.  
**2013:** *Designing Pop-Up Cards.* Carleton Algorithms Seminars, Ottawa, Canada.  
**2013:** *The Art Gallery Problem for Polyhedra.* Carleton Algorithms Seminars, Ottawa, Canada.

#### TEACHING

**Fall 2015:** *Design and Analysis of Algorithms I (COMP/MATH 3804).* School of Computer Science, Carleton University, Ottawa, Canada.

#### TEACHING ASSISTANCE

**Fall 2017:** *Principles of Distributed Computing (CSI 5308).* School of Electrical Engineering and Computer Science, University of Ottawa, Canada.  
**Fall 2016:** *Principles of Distributed Computing (CSI 5308).* School of Electrical Engineering and Computer Science, University of Ottawa, Canada.  
**Fall 2015:** *Principles of Distributed Computing (CSI 5308).* School of Electrical Engineering and Computer Science, University of Ottawa, Canada.  
**Fall 2014:** *Principles of Distributed Computing (CSI 5308).* School of Electrical Engineering and Computer Science, University of Ottawa, Canada.  
**Fall 2013:** *Principles of Distributed Computing (CSI 5308).* School of Electrical Engineering and Computer Science, University of Ottawa, Canada.  
**Fall 2012:** *Principles of Distributed Computing (CSI 5308).* School of Electrical Engineering and Computer Science, University of Ottawa, Canada.  
**Spring 2011:** *Parallel and Distributed Algorithms.* Department of Computer Science, University of Pisa, Italy.

#### OTHER TEACHING AND SUPERVISING ACTIVITIES

**2015:** Co-supervising Bailey D'Amour (Carleton University) on his Undergraduate Research Internship project.  
**2015:** Mentoring Harish Prakash (University of Ottawa) on his Master's Thesis research.  
**2014:** Mentoring Giulia Santini (University of Rome Tor Vergata) on her Master's Thesis research.  
**2002–2008:** Organizing the Italian Mathematical Olympiad, proposing problems for the national competitions, refereeing, and lecturing at several Senior Seminars held in Pisa, Italy.

## RESEARCH VISITS AND RESEARCH WORKSHOPS

- 2016:** Visiting Simon Fraser University, Vancouver, Canada, for one week.
- 2015:** Attending the 30th Bellairs Winter Workshop on Computational Geometry in Holetown, Barbados.
- 2014:** Visiting Nagoya University, Ritsumeikan University, and Osaka University, Japan, for two weeks.
- 2013:** Attending *Research Meeting on Distributed Computing by Mobile Robots*, Ischia, Italy.
- 2013:** Invited to the 28th Bellairs Winter Workshop on Computational Geometry in Holetown, Barbados (declined).
- 2013:** Visiting Kyushu University, Fukuoka, Japan, for one week.
- 2011:** Visiting MIT, Cambridge (MA), USA, for three months.
- 2011:** Visiting Scholar for three months at Smith College, Northampton (MA), USA.
- 2010:** Attending *Research Meeting and School on Distributed Computing by Mobile Robots*, Ottawa, Canada.

## PROGRAM AND ORGANIZING COMMITTEE DUTIES

- 2016:** Program Committee member for the 8th International Conference on Fun with Algorithms (FUN 2016), La Maddalena, Italy.
- 2014:** Program Committee member for the 1st Workshop on Self-Organization in Swarms of Robots: from Molecular Robots to Mobile Agents, held in conjunction with the 33rd IEEE Symposium on Reliable Distributed Systems (SRDS 2014), Nara, Japan.
- 2013:** Publicity Chair for the 9th International Symposium on Algorithms and Experiments for Sensor Systems, Wireless Networks and Distributed Robotics (ALGOSENSORS 2013), Sophia Antipolis, France.

## REFEREE OR SUBREFEREE FOR

- Distributed Computing
- Graphs and Combinatorics
- IEEE Transactions on Parallel and Distributed Systems
- Information Processing Letters
- Journal of Discrete Algorithms
- SIAM Journal on Discrete Mathematics
- The Computer Journal
- Theoretical Computer Science
  
- ACM-SIAM Symposium on Discrete Algorithms (SODA)
- ACM Symposium on Principles of Distributed Computing (PODC)
- Annual International Workshop on Cellular Automata and Discrete Complex Systems (AUTOMATA)
- Australasian Computer Science Conference (ACSC)
- Canadian Conference on Computational Geometry (CCCG)
- IEEE International Parallel & Distributed Processing Symposium (IPDPS)
- IEEE Symposium on Foundations of Computer Science (FOCS)
- International Colloquium on Automata, Languages, and Programming (ICALP)
- International Colloquium on Structural Information and Communication Complexity (SIROCCO)
- International Conference and Workshop on Algorithms and Computation (WALCOM)
- International Conference on Algorithms and Complexity (CIAC)
- International Conference on Algorithms and Discrete Applied Mathematics (CALDAM)
- International Conference on Combinatorial Optimization and Applications (COCOA)
- International Conference on Distributed Computing and Networking (ICDCN)
- International Conference on Fun with Algorithms (FUN)
- International Conference on Principles of Distributed Systems (OPODIS)
- International Symposium on Algorithms and Experiments for Sensor Systems, Wireless Networks and Distributed Robotics (ALGOSENSORS)
- International Symposium on Computational Geometry (SoCG)
- International Symposium on Distributed Computing (DISC)
- International Symposium on Fundamentals of Computation Theory (FCT)
- Japan Conference on Discrete and Computational Geometry and Graphs (JCDCG<sup>2</sup>)
- Latin American Theoretical Informatics Symposium (LATIN)
- Scandinavian Symposium and Workshops on Algorithm Theory (SWAT)

Workshop on Self-Organization in Swarms of Robots: from Molecular Robots to Mobile Agents  
(WSSR)