

FABIEN DUFOULON

3550 Main Street, Apartment 6116, Houston, TX, 77002 | 📞 +13464732814

✉ fabien.dufoulon.cs@gmail.com | 🌐 FabienDufoulon.github.io

Research Interests

My research interests lie in the areas of algorithms and distributed computing. Distributed networks play a fundamental role in modern computer science applications. Among these, I am particularly interested in secure peer-to-peer networks (with applications to blockchains), green computing (or sustainable computing), swarm robotics, and wireless networks.

Academic Experience

| | |
|---|--------------------------|
| University of Houston <i>Postdoc with Gopal Pandurangan</i> | Texas, USA 2021 – now |
| Technion <i>Postdoc with Shay Kutten, Yuval Emek and Keren Censor-Hillel</i> | Israel 2019 – 2021 |
| Université Paris-Saclay <i>Ph.D. in Computer Science co-advised by Joffroy Beauquier and Janna Burman, Overcoming Interference in the Beeping Communication Model</i> | Paris 2016 – 2019 |

Education

| | |
|---|----------------------|
| Centrale Supélec, Grande École d'Ingénieurs <i>Engineering Degree with a Computer Science Major</i> | Paris 2013 – 2016 |
| Lycée Stanislas, Preparatory Classes for Grandes Écoles <i>Two-year undergraduate intensive course in mathematics and physics</i> | Paris 2011 – 2013 |

Refereed Publications

- *Fabien Dufoulon, William K. Moses Jr. and Gopal Pandurangan*
Distributed MIS in $O(\log \log n)$ Awake Complexity
42nd ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing (PODC 2023), 2023, Core Ranking A*
- *Fabien Dufoulon, Yuval Emek and Ran Gelles*
Beeping Shortest Paths via Hypergraph Bipartite Decomposition
14th Innovations in Theoretical Computer Science (ITCS 2023), 2023, pp. 45:1–45:24, Core Ranking A
- *Fabien Dufoulon, Shay Kutten, William K. Moses Jr., Gopal Pandurangan and David Peleg*
An Almost Singularly Optimal Asynchronous Distributed MST Algorithm
36th International Symposium on Distributed Computing (DISC 2022), 2022, pp. 19:1–19:24, Core Ranking A
- *Fabien Dufoulon, Shay Kutten and William K. Moses Jr.*
Efficient Deterministic Leader Election for Programmable Matter
40th ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing (PODC 2021), 2021, pp. 103–113, Core Ranking A*

- *Fabien Dufoulon, Janna Burman and Joffroy Beauquier*
Can Uncoordinated Beeps tell Stories?
39th ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing (PODC 2020), 2020, pp. 408–417, Core Ranking A*
- *Joffroy Beauquier, Janna Burman, Peter Davies and Fabien Dufoulon*
Optimal Multi Broadcast with Beeps using Group Testing
26th International Colloquium on Structural Information and Communication Complexity (SIROCCO 2019), 2019, pp. 66-80, Core Ranking B
- *Fabien Dufoulon, Janna Burman and Joffroy Beauquier*
Beeping a Deterministic Time-Optimal Leader Election
32nd International Symposium on Distributed Computing (DISC 2018), 2018, pp. 20:1–20:17, Core Ranking A
- *Fabien Dufoulon, Janna Burman and Joffroy Beauquier*
Brief Announcement: Beeping a Time-Optimal Leader Election
37th ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing (PODC 2018), 2018, pp. 237–239, Core Ranking A*
- *Joffroy Beauquier, Janna Burman, Fabien Dufoulon and Shay Kutten*
Fast Beeping Protocols for Deterministic MIS and $(\Delta + 1)$ -Coloring in Sparse Graphs
IEEE Conference on Computer Communications (INFOCOM 2018), 2018, pp. 1754-1762, Core Ranking A*
- *Alexandre Dambreville, Joanna Tomasik, Johanne Cohen, Fabien Dufoulon*
Poster: Load Prediction for Energy-Aware Scheduling for Cloud Computing Platforms
IEEE 37th International Conference on Distributed Computing Systems (ICDCS 2017), 2017, pp. 2604-2607, Core Ranking A

Manuscripts

- *John Augustine, Fabien Dufoulon and Gopal Pandurangan*
Fully-Distributed Byzantine Agreement in Sparse Networks
- *Fabien Dufoulon, William K. Moses Jr. and Gopal Pandurangan*
Time- and Communication-Efficient Overlay Network Construction via Gossip
- *Fabien Dufoulon, Shreyas Pai, Gopal Pandurangan, Sriram Pemmaraju and Peter Robinson*
The Message Complexity of Distributed Approximation

Internships

| | |
|--|----------------|
| Technion and Université Paris-Saclay (with Shay Kutten, Janna Burman and Joffroy Beauquier) <i>Verification Protocols in the Beeping model</i> | 5 months, 2016 |
| Université Paris-Saclay (with Johanne Cohen and Lin Chen) <i>Game Theory in Communication Networks</i> | 2 months, 2015 |

Talks and Conference Presentations

I will soon be presenting “Distributed MIS in $O(\log \log n)$ Awake Complexity” at PODC 2023. Please find my previous talks and conference presentations listed below.

- Conference talk at ITCS 2023: Beeping Shortest Paths via Hypergraph Bipartite Decomposition

- Seminar talk at ENS Saclay (December 2022): Sleeping is Superefficient
- Seminar talk at Université Paris Cité (December 2022): Sleeping is Superefficient
- Seminar talk at Université Paris-Saclay (December 2022): Sleeping is Superefficient
- Seminar talk at Université de Bordeaux (December 2022): Sleeping is Superefficient
- Conference talk at DISC 2022: An Almost Singularly Optimal Asynchronous Distributed MST Algorithm
- Poster presentation at WOLA 2021: Efficient Deterministic Leader Election for Programmable Matter
- Conference talk at PODC 2021: Efficient Deterministic Leader Election for Programmable Matter
- Invited talk at Université de Bordeaux (March 2021): Can Uncoordinated Beeps tell Stories?
- Contributed talk at HALG 2020: Can Uncoordinated Beeps tell Stories?
- Conference talk at PODC 2020: Can Uncoordinated Beeps tell Stories?
- Seminar talk at Université de Bordeaux (October 2019): Overcoming Interference in the Beeping Communication Model
- Seminar talk at Université Paris-Saclay (October 2019): Overcoming Interference in the Beeping Communication Model
- Seminar talk at Université Aix-Marseille (September 2019): Overcoming Interference in the Beeping Communication Model
- Seminar talk at Technion (May 2019): Can Uncoordinated Beeps tell Stories?
- Seminar talk at Université Sorbonne (March 2019): Can Uncoordinated Beeps tell Stories?
- Conference talk at SIROCCO 2019: Optimal Multi Broadcast with Beeps using Group Testing
- Conference talk at PODC 2018: Beeping a Time-Optimal Leader Election
- Conference talk at DISC 2018: Brief Announcement: Beeping a Time-Optimal Leader Election
- Conference talk at INFOCOM 2018: Fast Beeping Protocols for Deterministic MIS and $(\Delta + 1)$ -Coloring in Sparse Graphs

Professional Service

- **Conference Committee:** Publicity co-chair for PODC 2023.
- **External Reviewer (conference):** PODC 2023, STACS 2023, ITCS 2023, SAND 2022, LATIN 2022, STOC 2022, ICDCS 2022, STACS 2022, SSS 2022, DISC 2022, PODC 2022, PODC 2021, DISC 2020, SPAA 2020, PODC 2020, SSS 2019, OPODIS 2018, DISC 2018, PODC 2018.
- **External Reviewer (journals):** Distributed Computing, Theoretical Computer Science and IEEE Wireless Communications.

Teaching Experience

I was a teaching assistant at University Paris-Saclay for computer science courses during two years of my Ph.D. (2016-2018), amounting to a total of 128 hours. Of these, 52 hours were for an "Introduction to Computer Science and Complexity Theory" course, 32 hours for a "Numerical Computing" course and 44 hours for an "Object Oriented Programming (Advanced)" course.

Contact Information of References

- **Janna Burman**, Associate Professor at Université Paris-Saclay,
Bâtiment 650 Ada Lovelace, Université Paris Saclay, 91405 Orsay Cedex, France
Email: burman@lri.fr
- **Shay Kutten**, Professor at the Technion - Israel Institute of Technology,
Technion City, Haifa, 3200003, Israel
Email: kutten@ie.technion.ac.il
- **Gopal Pandurangan**, Professor at the University of Houston,
4800 Calhoun Rd, Houston, TX 77004, United States
Email: gopalpandurangan@gmail.com
- **David Peleg**, Professor at the Weizmann Institute of Science,
234 Herzl St. PO Box 26, Rehovot 7610001, Israel
Email: david.peleg@weizmann.ac.il
- **Sriram Pemmaraju**, Professor at the University of Iowa,
256 Macbride Hall, Department of Computer Science, The University of Iowa,
Iowa City, IA 52242-1419
Email: sriram-pemmaraju@uiowa.edu