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Married, two children

Arnaud Casteigts

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This document presents the professional activities I have carried out during my career, in the areas of research, teaching, and administration. The document begins with an overview of these activities, followed by sections dedicated to: academic path (Page 3); supervision (Page 3); scientific activities and outreach (Page 5); mobility and research stays (Page 8); administrative duties (Page 9); and finally the list of my scientific productions (Pages 10 to 13).

Overview of the career

Since September 2023, I am a professor of computer science at the University of Geneva (Switzerland). Until then, I was a professor at the University of Bordeaux (France), where I joined as an assistant professor in 2012. I earned my PhD in computer science in Bordeaux in 2007. Between the two, I spent nearly 5 years as a postdoc at the University of Ottawa (Canada). I obtained an "habilitation à diriger les recherches" in 2018.

Research (and Transfer)

I am interested in the many facets of theoretical computer science and network science, ranging from distributed algorithms to network analysis, graph theory, computational complexity, and specific applications such as networks of robots/drones, wireless sensors, and vehicular networks. Most real-world networks have a dynamic structure, which makes their study challenging. One of my contributions has been to model, using temporal graphs, the various properties that these networks have. This and the related questions led me to produce scientific results in several fields, notably in distributed algorithms (e.g., [C11; C24; C22; C14]), general algorithms (e.g.,[C26; J16]), graph theory (e.g.,[C29; J14]), language theory [C17], social network analysis [J17], intelligent transportation systems [J1], and robotic algorithms [J2]. One of the first papers where we began to classify dynamic networks based on their temporal properties [J3] gained some visibility (over 900 citations to date); the concepts presented therein are now used by colleagues from various backgrounds, ranging from communication networks to biology and medical fields, including the analysis of complex systems and social networks. Beyond these application areas, the emerging theory of temporal graphs raises more fundamental questions, both algorithmic and structural. For instance, the notion of a spanning tree is not universal: there are networks with $\Theta(n^2)$ edges where each one is necessary for connectivity. However, we have shown that there always exist sparse spanners of size $O(n \log n)$ when the underlying network has a complete topology (ICALP 2019 [C26]); moreover, we have shown that quasi-optimal spanners of size $2n + o(n)$ exist *almost surely* in any connected network when the presence times of the edges are chosen at random (FOCS 2021 [C29]). Since 2012, I have supervised four completed PhD theses and three ongoing ones, mainly focusing on algorithmic questions, whether sequential or distributed, and related to dynamic networks. Aside from these activities, I have also ventured into more distant subjects, such as the analysis of the Canadian healthcare systems with a sociologist from the University of Ottawa (Louise Bouchard) [CR1], and the challenge of health data exchange without disclosure, with a physician from the Montfort Hospital in Ottawa (Marie-Hélène Chomienne) [CR2]. On the industrial side, I recently undertook a transfer mission on behalf of the company MBDA systems (a subsidiary of Airbus), aimed at characterizing the algorithmic complexity of an assignment problem with quadratic constraints, and then assisting the company's researchers in solving this problem. Lastly,

I am interested in cryptography and cybersecurity challenges. One of the ongoing theses (mentioned above, at 100%) is a CIFRE thesis with the company Idemia, on the issue of white-box cryptography, a topic that has intrigued me for about ten years, following another mission I undertook in 2011 for the account of Irdeto Canada [CR3], a global leader in binary code obfuscation.

Teaching

I perform the vast majority of my teaching at the Computer Science department of the IUT (Institut Universitaire de Technologie) of Bordeaux. I have taught subjects such as *Algorithmics of Data Structures; Languages and Automata; Graph Theory; and Distributed Algorithmics*, as well as more applied courses like *Android Programming; Machine learning; Operating Systems; and Networking.* I have been in charge of five of these courses, including the creation of two new courses and the adaptation of two others for our international group, to whom I teach about 40h a year in English. I also created the content of 6 ECTS Masters course entitled *Mobility Algorithmics*, which I've been leading since 2016 in the *Communication Networks and Internet* track of the Masters in Bordeaux, and which I also taught in the 2nd year at ENSEIRB from 2017 to 2020. This course rely on the JBotSim library, a pedagogical tool intended for learning distributed algorithms, graph theory, and network algorithms. I've been developing this tool for about fifteen years, and it is now used by colleagues from other universities (including Sorbonnes U.; U. Paris cité; U. Aix-Marseille; and U. Strasbourg), as well as at ENSEIRB by Cyril Gavoille (2nd year) and Akka Zemmari (student projects). Since 2012, I have delivered nearly 2200 hours of teaching in Bordeaux, as well as some lectures abroad and in summer schools. Some of my courses rely on innovative practices, such as having students interact in the classroom to execute distributed algorithms "in person".

Administration and Responsibilities

Since 2012, I have been in charge of various duties, the most notable being head of the *Distributed Algorithms* research group at LaBRI, consisting of about a dozen faculty members. I was also deputy head of the *Programming, Networks, and Systems* department from 2013 to 2016 consisting of approximately 14 faculty members. I held several local elective mandates, such as being a member of the laboratory council from 2016 to 2020 and representing it in the scientific council (before sitting on it as a group head), as well as being a member of our IUT department council. I also led the weekly distributed algorithms seminar at LaBRI from 2018 to 2021, which amounted to about 90 presentations during that period. On the educational side, I co-managed student recruitment at the IUT for three years and I managed external teachers for two years (sourcing and managing temporary teaching staff, ATERs, monitors, and tutors), a role that is increasingly important in the current context. On a national scale, I was an appointed member of section 27 (Informatique) of the National University Council (CNU) from 2019 to 2022. I also organized the ALGOTEL and CORES conferences in 2016 (as chair). I have acted as a reviewer for two "habilitations à diriger les recherches" and seven PhD theses, two of which were abroad (Denmark and Spain). I was scientific lead for one of the partners (LaBRI) in the ANR ESTATE grant from 2016 to 2022 (with Verimag and LIP6), and I am the main PI of the ANR TEMPOGRAL grant approved in 2022 (involving LaBRI, IRIF, and LITIS, for a total of 20 members). Internationally, I organized several conferences, including a rank A conference as co-chair with Ralf Klasing (FCT 2017). I evaluated large-scale national grants for several countries, including France, Austria, Hong Kong, Israel, USA, and a €1.5M ERC project in 2021. Finally, I frequently participate in conference program committees (of good standing) and am one of the editors of the journal *Theoretical Computer Science* (Track A), a leading journal in computer science.

The rest of the CV provides detailed information on these aspects, as well as any information deemed relevant for evaluating my career.

Academic Path

2023 – present **Professor** at the University of Geneva
Head of the Algorithms and Complexity group (CS Department).

2022 – 2023 **Professor** at the University of Bordeaux
Habilitation à diriger des recherches (HDR) obtained in June 2018
Title: A Journey through Dynamic Networks (with Excursions).
Reviewers: Clémence Magnien, Antonio F. Anta, Sébastien Tixeuil.
Examiners: Emmanuel Godard, Nicolas Hanusse, Philippe Jacquet, Joseph Peters.

2012 – 2022 **Assistant/Associate Professor** at the University of Bordeaux
Researcher at LaBRI / Teacher at IUT (Dept. Computer Science)

2008 – 2012 **Postdoctoral Researcher** at the University of Ottawa (Ontario, Canada)
* Distributed algorithmics in dynamic networks (2010-12)
with Paola Flocchini and Nicola Santoro
* Routing in sensor networks / vehicular networks (2008-09)
with Amiya Nayak and Ivan Stojmenovic

2009 – 2010 **Associate Researcher** at the Institute for Population Health (Ottawa)
Analysis of health networks & Data matching of confidential data
with Louise Bouchard (sociologist) and Marie-Hélène Chomienne (doctor)

2007 – 2008 **Lecturer** at the "UF d'informatique" of the University of Bordeaux

2004 – 2007 **PhD Student/Candidate** in Computer Science at the University of Bordeaux
Funding: ministry scholarship (merit-based, 2nd/25 in Masters)
Title: Local computation and graph relabeling in mobile networks
Supervisor: Serge Chaumette
Reviewers: Frédéric Guinand and David Simplot-Ryl

Before 2004 **Undergraduate studies** at the University of Pau et Pays de l'Adour

Supervision

Below are the PhD students, postdocs, master's students, and interns from "École nationale supérieure" (ENS) that I have supervised. A brief mention of three other unofficial (and older) participation to the supervision of PhD students during my Canadian experience follows the list.

PhD students (current)

- Daniele CARNEVALE, *Spanners and labeling problems in temporal graphs (co-sup. Gianlorenzo D'Angelo and Pierluigi Crescenzi, in L'Aquila).* (Nov. 2023 –)
- Agathe HOUZELOT, *White-box digital signature algorithms (co-sup. Christophe Giraud at IDEMIA).* (Nov. 2021 –)
- Timothée CORSINI, *Reachability problems in temporal graphs* (Sept. 2021–)

PhD student (former)

The theses mentioned below have all been defended.

- Luiz BRITO, *Efficient data structures for querying dynamic graphs* (Nov. 2019 –)
  (co-sup. Marcelo Keese Albertini and Bruno Travençolo in Uberlandia).
  Main publication: See [J17] (SNAM journal).

- Jason SCHOETERS, *Collective movements with spatio-temporal constraints* (2017–21)
  Main publication: See [C26] (ICALP 2019), extended version in JCSS [J15]
  Current position: Postdoc at LITIS with Eric Sanlaville (Le Havre)

- Yessin M. NEGGAZ, *Automatic classification of dynamic graphs* (2013–16)
  Main publication: See [C25] (SIROCCO 2017), extended version in TOCS [J12]
  Current position: Researcher and lecturer at Efrei (Paris)

- Matthieu BARJON, *Group maintenance algorithms based on circulating tokens* (2013–16)
  Main publication: See [C19] (OPODIS 2016), extended version in *The Computer Journal* [J11]
  Current position: HPC Consultant at ATOS (Paris)

- In addition to these supervisions, I was significantly involved in the supervision of two other doctoral students during my postdocs in Ottawa (Walter Quattrociocchi and Ahmed Jedda), and a Spanish doctoral student I hosted for three months at LaBRI in 2014 (Carlos Gómez Calzado). These supervisions led to publications [J3], [J5], and [C22], respectively.

Postdoctoral Level

- Petra Wolf, *Temporal graphs algorithms* (12 months, 2023–24)
  Funding: ANR TEMPOGRAL project.

- Rémi Laplace, *The JBotSim project* (18 months, 2018–20)
  → This software is described in the "Software" section of the "Teaching" part.

Masters student

1. Timothée Corsini, *Graph properties motivated by temporal graphs* (2020)
   (co-sup. H. Hocquard)
2. Kinda Al Chahid, *Extensions development for the JBotSim simulator* (2018)
3. Jason Schoeters, *Traveling salesman with acceleration constraints* (2017)
4. Yessin M. Neggaz, *Covering forest in dynamic networks* (2013)
   (co-sup. C. Johnen and S. Chaumette)
5. Matthieu Barjon, *Temporal connectivity test algorithms* (2013)
   (co-sup. C. Johnen and S. Chaumette)
6. Robin Despouys, *Coordination of mobile robots* (2013)
   (co-sup. S. Chaumette)
7. Ahmed Jedda, *"Scatternet" type formation in Bluetooth networks* (2011)
   (co-sup. G.V. Jourdan)

Undergraduate Level (L3 ENS and CMI)

1. Benjamin Duhamel (ENS Lyon), *Expressivity of temporal graphs* (2023)
   (co-sup. Marthe Bonamy and Timothée Corsini)
2. Writika SARKAR (CMI Chennai), *Temporal graph generation algorithms* (2022)
   Through the UMI ReLaX (student recommended by Pascal Weil).

3. Neven VILLANI (ENS Paris-Saclay), *Dynamic network trace analysis* (2021)
   → This work led to a presentation by Neven at the 5th edition of the workshop "*Algorithmic Aspects of Temporal Graphs*" (aligned with ICALP 2021).
4. Valentin PASQUALE (ENS Lyon), *Temporal spanners and sorting networks* (2019)
5. Noël NADAL (ENS Cachan), *Robustness of graph coverings* (2016)

Scientific Activities and Outreach

Membership in Program Committees and Editorial Activities

- **Editorial Activities:**
  - Member of the editorial board of *Theoretical Computer Science* (Track A) (Q1/Q2).
  - PC co-chair of the *3rd Symposium on Foundations of Dynamic Networks (SAND)* 2024.
- **Program Committees:**
  - *23rd Symposium on Fundamentals of Computation Theory (FCT 2021)* (Core A)
  - *31st International Workshop on Combinatorial Algorithms (IWOCA 2020)* (Core B)
  - *10th International Conference on FUN with Algorithms (FUN 2020)* (Core B)
  - *21st Symposium on Fundamentals of Computation Theory (FCT 2017)* (Core A)
  - As well as SAND 2022 & 2023, ALGOSENSORS 2021, WISARN 2019, PIMRC 2018, AEN@ECAI 2016, DYNO@ASONAM 2016, ADHOCNOW 2009 & 2013, ICCCN 2013, GLOBECOM WSN 2010 & 2012, IUCC 2011, LOCALGOS 2010
- **National Program Committees:**
  - ALGOTEL (2016, 2017, and 2019) - CORES (2016, 2018, and 2020), NOTERE/CFIP (2012)

In 2021-22, I participated in the creation of the SAND conference (International Symposium on Foundations of Dynamic Networks) as a member of the advisory board and a member of the program committee for the first edition, upon invitation from James Aspnes (Yale) and Othon Michail (Liverpool). See also `https://www.sand-conf.org/`.

Lastly, I frequently review papers for journals and conferences in my research areas, including:

- **Conferences (beyond PC membership):** ICALP, PODC, STACS, DISC, INFOCOM, ICDCS, OPODIS, FOMC, SIROCCO, ADHOCNOW, WoWMoM, ALGOTEL, CORES, NOTERE/CFIP.
- **Journals:** Journal of Computer and System Science (Elsevier); Theory of Computing Systems (Springer); Theoretical Computer Science (Elsevier); IEEE Trans. Vehic. Tech.; IEEE J. on Selected Areas in Comm.; Inf. Processing Letters (Elsevier); Pervasive and Mobile Computing (Elsevier); Wireless Comm. and Mobile Comp. (Wiley); Telecomm. Systems (Elsevier).

Habilitation reviewer

- Binh-Minh Bui-Xuan, *Temporality, geometry, and efficient algorithms of graphs*, 2023
  Habilitation à diriger les recherches (Sorbonne Université, Paris).
- Yoann Pigné, *Mobilité dans les graphes dynamiques*, 2023
  Habilitation à diriger les recherches (Université du Havre).

- Thomas Nowak, *Agreement problems in dynamic networks*, 2022
  Habilitation à diriger les recherches (Univ. Paris-Saclay and École polytechnique).

PhD reviewer

- Alexis Baudin, *Enumeration problems in massive graphs and applications*, 2023
  Supervised by Clémence Magnien and Lionel Tabourier (Sorbonne Université, Paris).
- Louis Penet de Monterno, *Synchronization in Dynamic Networks*, 2023
  Supervised by Bernadette Charron-Bost (ENS Paris & École Polytechnique).
- Hasan Heydari, *Revisiting Dynamic Weighted Quorum Systems and Related Problems*, 2022
  Supervised by Guthemberg Silvestre (École nationale de l'aviation civile, Toulouse).
- Valentin Rohm (MSc), *From Temporal Graphs to Temporal Trees*, 2021
  Supervised by Rolf Niedermeier (TU Berlin, Germany).
- Mathilde Vernet, *Models and algorithms for dynamic graphs*, 2020
  Supervised by Yoann Pigné and Éric Sanlaville (LITIS, Le Havre).
- Kamaldeep Singh Oberoi, *Spatio-Temporal Modeling of Urban Road Traffic*, 2019
  Supervised by Géraldine Del Mondo, Yohan Dupuis and Pascal Vasseur (LITIS, Rouen).
- Christopher Ryther, *Metrics and embeddings for problems in complex networks*, 2019
  Supervised by Jakob Grue Simonsen (Copenhagen University, Denmark).
- Fabien Dufoulon, *Overcoming Interference in the Beeping Communication Model*, 2019
  Supervised by Janna Burman and Joffroy Beauquier (LRI, Univ. Paris-Sud).
- Carloz Gómez Calzado, *Contributions on Agreement in Dynamic Distributed Systems*, 2015
  Supervised by Mikel Larrea and Alberto Lafuente (UPV, San Sebastian, Spain).

PhD examiner

- Denis Janneau, *Failure Detectors in Dynamic Distributed Systems*, 2018
  Sup. Pierre Sens and Luciana Arantes, DELYS group (Sorbonne University, Paris).
- Quentin Bramas, *Energy-Centric Wireless Sensor Networks*, 2016
  Sup. Sébastien Tixeuil, NPA group (Sorbonne University, Paris).
- Tiphaine Viard, *Link streams for modeling interactions over time*, 2016
  Sup. Matthieu Latapy and Clémence Magnien (Sorbonne Université, Paris).
- Hamza Kaaouachi, *Distributed covering problems in highly dynamic systems*, 2016
  Sup. Swan Dubois, Franck Petit, and François Jouen (Sorbonne Université, Paris).
- Vincent Autefage, *Heterogeneous swarm of autonomous mobile entities*, 2014
  Sup. Damien Magoni and Serge Chaumette (University of Bordeaux).

Member of hiring committees

- Full professor position at University of Geneva (profile: HPC) 2024
- Assistant professor position at Université Paris-Saclay 2023
  (profile: "Distributed algorithms or graph algorithms")
- Assistant professor position at Sorbonne Université 2022
  (profile: "Networking and complex distributed systems")
- Assistant professor position at University of Versailles Saint-Quentin-en-Yvelines 2018
- Assistant professor position at University of Bordeaux (profile: "Networking") 2016

Grant evaluation

- Vienna Science and Technology Fund – WWTF 2022
  → Project of approximately €499 K (Information and Communication Technology)
- European Research Council – ERC Starting Grant 2021 Call 2021
  → Project of approximately €1.5 M budget in phase 2 (full file)
- Farman Institute (ENS Paris-Saclay) 2018
  → Small project of €5K (AAP 2018 FR 3311)
- National Agency for Scientific Research – ANR 2017, 2020
  → Project of approximately €200 K in 2020 (Normandy region call, evaluated by ANR)
  → Project of approximately €340 K in 2017 (generic call)
- U.S.-Israel Binational Science Foundation – BST 2015
  → Project of approx $230 K between Ben Gurion (Israel) and Northeastern U. (USA)
- Hong Kong Research Grant Council – RGC 2015
  → Project of approximately €300 K ($\sim 2M$ HK$)
- Agence Nationale de la Recherche et de la Technologie – ANRT 2014, 2022
  → CIFRE scholarships

Invited Speaker

Only the talks resulting from an authentic invitation are listed. This list excludes regular talks at conferences, ANR project meetings, or seminars at my own initiative.

1. "Spanner problems in temporal graphs" 2021
   Inter-university seminar in Berlin *Facets of Complexity* (bi-monthly)
   (Invited by Günter Rote and Rolf Niedermeier)
2. "Efficient generation of simple temporal graphs up to isomorphism" 2019
   Workshop *Algorithmic Aspects of Temporal Graphs III*, co-located with ICALP
   (Invited by Eleni Akrida, George Mertzios, Victor Zamaraev, and Paul Spirakis)
3. "Sparsification techniques that preserve temporal connectivity" 2019
   Workshop *Algorithmic Aspects of Temporal Graphs II*, co-located with ICALP
   (Invited by Eleni Akrida, George Mertzios, Victor Zamaraev, and Paul Spirakis)
4. "Exploiting temporal properties in dynamic networks: An overview" 2019
   Workshop *Distributed Algorithms for Dynamic Networks*, co-located with DISC
   (Invited by Tomasz Jurdzinski and Miguel Mosteiro)
5. Three talks at the *RESCOM* summer school 2019
   - Course: "Introduction to Graph Theory (with a Networking Sensitivity)"
   - Use case: "Finding and exploiting structure in highly dynamic networks"
   - Tutorial: "The case of periodic networks (lab session with JBotSim)"

   (Invited by Hind Castel, Enrico Natalizio, and Congduc Pham)
6. "On robust temporal structures in highly dynamic networks" 2018
   Workshop *Algorithmic Aspects of Temporal Graphs*, co-located with ICALP
   (Invited by Eleni Akrida, George Mertzios, Victor Zamaraev, and Paul Spirakis)

7. "Finding and exploiting structure in highly dynamic networks" 2017
   Charles Hermite days in Nancy (LORIA/IECL)
   (Invited by Enrico Natalizio and Pascal Moyal)

8. "Impact of network dynamics on the feasibility of distributed problems: Early results"
   21st Jornadas de Concurrencia y Sistemas Distribuidos (JCSD 2013) – **Opening talk**
   (Invited by Mikel Larrea)

Besides these talks and paper presentations at conferences, I frequently give presentations during ANR meetings and in seminars. For instance, over the last three years, I've given multiple talks during joint meetings of the ANR projects DESCARTES and ESTATE, as well as in the recurring seminars of the following LaBRI teams: *Distributed Algorithms*; *Graphs and Optimization*; *Combinatorial Interactions* (these three teams belong to the *Combinatorial and Algorithmic* department); and also *Bench to Knowledge and Beyond* (from the *Systems and Data* department); and the cross-sectional seminar on *Quantum Computing*. I've also given presentations at TU Berlin (2019), SFU Vancouver (2017), LIF Marseille (2017), L3I La Rochelle (2016), LIP6 Paris (2013 and 2015), and SEECS Ottawa (2012).

Mobility and Research Stays

Here, I mention the various universities I have visited during research stays, ranging from a few weeks to several years.

Postdoctoral Fellowships (4 and a half years)

1. *University of Ottawa* (and *Carleton University*), Ottawa, Canada 2010–12
   with Paola Flocchini and Nicola Santoro

2. *University of Ottawa*, Canada 2008–09
   with Amiya Nayak and Ivan Stojmenovic

Long Research Stays (more than 1 month)

1. Two months at *Technische Universität, Berlin (Germany)* 2019
   (Invited by Rolf Niedermeier)

2. Two months at *Simon Fraser University, Vancouver (Canada)* 2017
   (Invited by Joseph Peters)

3. Five weeks at *Macquarie University, Sydney (Australia)* 2011
   (Invited by Bernard Mans)

Short Research Stays (from one week to one month)

1. *Aix-Marseille University (France)* 2017
   (Invited by the DALGO team)

2. *Simon Fraser University, Vancouver (Canada)* 2011
   (Invited by Joseph Peters and Emmanuel Godard)

3. *University of Le Havre (France)* 2010
   (Invited by Frédéric Guinand)

Administrative duties

This section lists the administrative duties related to research or teaching, as well as responsibilities related to the organization of scientific events.

Administrative Responsibilities and Elected Positions

- Leader of the ANR TEMPOGRAL project (Temporal Graph Algorithms) 2022–27
  €532K – hubs: LaBRI, IRIF, LITIS
- Head of the Distributed Algorithms research group at LaBRI 2021–23
  12 permanent members
- Appointed member of section 27 of CNU 2019–22
- Coordinator of adjunct faculty members, CS department, IUT Bordeaux 2020–23
- Local leader of the ANR ESTATE project 2016–22
  (Enhancing Safety and self-sTabilization in Time-Varying distributed Environments)
  €543K with €151K at LaBRI – other hubs: LIP6 (leader) and VERIMAG
- Elected member of the laboratory council and scientific council of LaBRI 2016–21
- Scientific head of the JBotSim project from the `SysNum` cluster 2018–20
  including notably 18 months of postdoc supervision
- Deputy head of the PROGRESS research group at LaBRI 2013–16
  14 permanent members
- In charge of the LaBRI evaluation report for HCERES, with Éric Sopena 2014
- Coordinator of student recruitment for the computer science department at IUT 2013–16
  with Pierre Moreau (2013-14), then Colette Johnen (2014-16).
- Elected member of the computer science department council at IUT 2020–23
- In charge of the distributed algorithms seminar at LaBRI 2018–21
  Almost weekly: about 90 talks organized over four years.

Organization of Scientific Events

I was involved in the organization of the following scientific events, often as organization chair.

- First *Dagstuhl* seminar on temporal graphs (2021)
  co-chair with Kitty Meeks (U. Glasgow), George Mertzios (U. Durham) and Rolf Niedermeier (TU Berlin). We co-authored a scientific report on this seminar [TR6].
- 31st Int. Workshop on Combinatorial Algorithms (IWOCA 2020)
  Member of the organizing committee – `https://iwoca2020.labri.fr/`
- Yves Métivier turns 61 (one-day event in 2018)
  organization **chair** – `https://ym61.labri.fr/`
- 21st Int. Symposium on Fundamentals of Computer Theory (FCT 2017, Core A)
  organization **co-chair** with Ralf Klasing, `https://fct2017.labri.fr/`
- 18th Meeting on the Algorithmic Aspects of Telecommunications (ALGOTEL 2016) + CORES 2016
  organization **chair** – `https://algotel2016.labri.fr/`
- 1st and 2nd WS on Computing in Dynamic Networks (DGDC 2016, CODYN 2017)
  general **chair** with Swan Dubois (in conj. with DISC 2016 and DISC 2017)

List of Works and Publications

This section summarizes my scientific productions (publications and software). Some contributions are mentioned in the overview presented at the beginning of the document.

Personal or collective books (in progress)

[B2] Arnaud Casteigts. "Finding Structure in Dynamic Networks". *CoRR* abs/1807.07801, 75p (2018)

→ This is the main part of my habilitation, written with the intention of being published as a small book. Two years ago, Michel Raynal proposed publishing it in the *Distributed Computing Theory* series (Morgan & Claypool publishers), of which he is the editor-in-chief. (The offer is still valid...)

[B1] Arnaud Casteigts, Jérémie Chalopin, Emmanuel Godard, Yves Métivier, Mohamed Mosbah, John Michael Robson, and Akka Zemmari. *Autour des algorithmes distribués, 209p.* https://algodist.labri.fr/pmwiki/uploads/Main/PolyAlgoDistMetivier.pdf

→ A work of about 200 pages, which several campus lecturers in Bordeaux use for teaching distributed algorithmics (latest public version from 2017).

Book Chapters

[BC2] Arnaud Casteigts, Amiya Nayak, and Ivan Stojmenovic. "Topology Control in Sensor, Actuator and Mobile Robot Networks". In. Wiley, 2010. Chap. 7 of Wireless Sensor and Actuator Networks - Algorithms and Protocols for Scalable Coordination and Data Communication, Nayak, A. and Stojmenovic, I. (Eds.)

[BC1] Arnaud Casteigts, Amiya Nayak, and Ivan Stojmenovic. "Multicasting, Geocasting and Anycasting in Sensor and Actuator Networks". In. Wiley, 2010. Chap. 5 of Wireless Sensor and Actuator Networks - Algorithms and Protocols for Scalable Coordination and Data Communication, Nayak, A. and Stojmenovic, I. (Eds.)

Journal articles

For each article, the *Scimago* ranking is given (https://www.scimagojr.com/), as well as the *Core* ranking for journals (http://portal.core.edu.au/jnl-ranks/) when it is considered as A*.

[J17] Luiz F. A. Brito, Marcelo K. Albertini, Arnaud Casteigts, and Bruno A. N. Travençolo. "A dynamic data structure for temporal reachability with unsorted contact insertions". *Social Network Analysis and Mining* 12.1 (2022), p. 22 — Q2

[J16] Arnaud Casteigts, Anne-Sophie Himmel, Hendrik Molter, and Philipp Zschoche. "Finding temporal paths under waiting time constraints". *Algorithmica* (2021), pp. 1–49 — Q1 (A*)

[J15] Arnaud Casteigts, Joseph G. Peters, and Jason Schoeters. "Temporal cliques admit sparse spanners". *Journal of Computer and System Sciences* 121 (2021), pp. 1–17 — Q1 (A*)

[J14] Arnaud Casteigts, Swan Dubois, Franck Petit, and John Michael Robson. "Robustness: a New Form of Heredity Motivated by Dynamic Networks". *Theoretical Computer Science* 806 (2020), pp. 429–445 — Q1/Q2

[J13] Arnaud Casteigts, Yves Métivier, John M. Robson, and Akka Zemmari. "Deterministic Leader Election Takes $\Theta(D + \log n)$ Bit Rounds". *Algorithmica* 81 (5 2019), pp. 1901–1920 — Q1 (A*)

[J12] Arnaud Casteigts, Ralf Klasing, Yessin Neggaz, and Joseph Peters. "Computing Parameters of Sequence-based Dynamic Graphs". *Theory of Computing Systems* 63 (3 2019), pp. 394–417 — Q2

[J11] Matthieu Barjon, Arnaud Casteigts, Serge Chaumette, Colette Johnen, and Yessin Neggaz. "Maintaining a Distributed Spanning Forest in Highly Dynamic Networks". *The Comp. Journal* 62.2 (2019), pp. 231–246 — Q2

[J10] Arnaud Casteigts, Yves Métivier, John M. Robson, and Akka Zemmari. "Counting in One-Hop Beeping Networks". *Theoretical Computer Science* 780 (2019), pp. 20–28 — Q1

[J9] Arnaud Casteigts, Yves Métivier, John M. Robson, and Akka Zemmari. "Design Patterns in Beeping Algorithms: Examples, Emulation, and Analysis". *Information and Computation* 264 (2019), pp. 32–51 — Q2

[J8] Arnaud Casteigts, Paola Flocchini, E. Godard, Nicola Santoro, and Masafumi Yamashita. "On the Expressivity of Time-Varying Graphs". *Theoretical Computer Science* 590 (2015), pp. 27–37 — Q1

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Software

JBotSim: a Tool for Fast Prototyping of Distributed Algorithms in Dynamic Networks. See reference [C21] above, as well as:

- Website: `http://jbotsim.io`
- Youtube Channel JBotSim ($\geq$ 30 videos): `http://www.youtube.com/channel/UCRxLymv10MiADCW-TwcfoZA`
- GitHub: `http://github.com/acasteigts/JBotSim`
- "Algorithmique de la Mobilité": `https://arnaudcasteigts.net/teaching/algomob/`