

# Tiphaine Viard

Personal information	born on 12/12/1990, french
Address	Bureau 3A319, Telecom Paris 19 place Marguerite Perey 91600 Palaiseau
Email	<a href="mailto:tiphaine.viard@telecom-paris.fr">tiphaine.viard@telecom-paris.fr</a>
Google Scholar	<a href="https://frama.link/tviard">https://frama.link/tviard</a>
Languages	French (mothertongue), English (C1 – IELTS 8/9), Japanese (intermediate)

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*Current situation and summary:* Associate professor in the Digital, Organisation and Society team, i3, Telecom Paris.

My publications are mainly into computer science venues, spanning **complex networks**, **theoretical computer science** and **machine learning**.

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## Selected Publications

- [1] Tiphaine Viard, Henry Soldano, Guillaume Santini. Exploring and mining attributed sequences of interactions. Conference on Complex Networks and their Applications, 2022.
- [2] Audrey Wilmet, Tiphaine Viard, Robin Lamarche-Perrin, Matthieu Latapy. Outlier Detection in IP Traffic Modelled as a Link Stream using the Stability of Degree Distributions over Time. Computer Networks, 2019.
- [3] Tiphaine Viard, Raphaël Fournier-S'niehotta. Augmenting content-based rating prediction with link stream features. Computer Networks, 2019.
- [4] Matthieu Latapy, Tiphaine Viard, Clémence Magnien. Stream graphs and link streams for the modelling of interactions over time. Social Networks Analysis and Mining, 2018.
- [5] Tiphaine Viard, Matthieu Latapy, Clémence Magnien. Computing maximal cliques in link streams. Theoretical Computer Science, 609, 245-252, 2016.
- [6] Pimprenelle Parmentier, Tiphaine Viard, Benjamin Renoust, Jean-Francois Baffier. Introducing multilayer stream graphs and layer centralities. 8th International Conference on Complex Networks and their Applications, Lisbon, Portugal, 2019.
- [7] Tiphaine Viard, Raphaël Fournier-S'niehotta. Encoding temporal and structural information in machine learning models for recommandation. ECML/LEG workshop, Würzburg, Germany, 2019. (short version of [3])
- [8] Tiphaine Viard, Matthieu Latapy, Clémence Magnien. Revealing contact patterns among high-school students using maximal cliques in link streams. ASONAM'15/DyNo workshop, Paris, France.

## Grants and Awards

1. 2017: Laureate of a 2-year postdoctoral grant of the Japanese Society for the Promotion of Science (JSPS) through overseas nomination.
2. 2017: Shortlisted for the *Complex Systems PhD award* organized by the Complex Systems Institute (ISC-PIF) (24 participants, 6 on shortlist)
3. 2016: Co-supervisor of the FLAMS project, accepted in the PEPS SISC (Sécurité Informatique et des Systèmes Cyber-physiques) 2016 program (4 partners, 5k€).
4. 2013-2016: Doctoral Grant from the French Ministry of Defense (Délégation Générale de l'Armement)

## Selected talks

1. Tiphaine Viard, Raphaël Fournier-S'niehotta, Takanori Maehara. Graphs and link streams for recommender systems. AIP-PAIR workshop 2019, Taipei, Taiwan.
2. Hindol Rakshit, Tiphaine Viard, Robin Lamarche-Perrin. Aggregation of link streams for multiscale analysis. Conference on Complex Systems 2016, Amsterdam, Netherlands.
3. "Modelling IP traffic as link streams for event detection". Journées Rescom 2016, Lille, France.
4. "Modelling interaction streams with link streams". Seminar given at National Institute of Informatics, Tokyo, Japan.
5. "Cliques in link streams". Journées ResCom 2015, Paris, France.
6. "A new density for link streams". Journées ResCom 2014, Lyon, France.
7. Multiple talks alongside a collaboration with THALES Group.

## Education and Work Experience

- 2022 - Associate professor at Telecom Paris, Numérique, Organisation et Société team.
- 2021 - Invited researcher, Sorbonne Université.
- 2020 - 2022 Associate professor at Telecom Paris, DIG team.
- 2019 - 2020 Post-doctoral researcher at LIPN, Paris.
- 2018 - 2019 Post-doctoral researcher at RIKEN AIP.
- 2016 - 2017 Post-doctoral researcher at CEDRIC, CNAM.
- 2013 - 2016 PhD in Computer Science from Université Pierre et Marie Curie, entitled "Link streams for the modelling of interactions over time and application to the analysis of IP traffic". Supervised by Matthieu Latapy and Clémence Magnien.
- 2015 - 2015 3-months research exchange at the *Fukuda Lab*, National Institute of Informatics, Tokyo, Japan.
- 2013 - 2013 Master's degree with honours from Université Pierre et Marie Curie, specialization in Networks.
- 2008 - 2013 Engineering diploma (master's level) from Efrei, specialization in Networks and Security.
- 2008 - 2011 Bachelor of Science in Mathematics and Computer Science from Université de Marne-la-Vallée, France.

## Supervisions

### PhD students

- Simon Delarue (2022 - ) : Graphs models for transparent machine learning. 50%, co-supervised with Thomas Bonald
- Dilia Olivo (2022 - ) : Explicabilité de l'intelligence artificielle dans la sécurité financière : Une perspective pluridisciplinaire . 50%, co-supervised with Winston Maxwell

### Internships

- Nina Varchavsky (M1, 02/2022-06/2022) : uncovering dense groups by clique fusion in temporal networks. 50%, co-supervised with Simon Delarue.
- Haileleul Haile (M1, 12/2021-07/2022) : Understanding the dynamics of the Ethiopian civil war through retweets. 50%, co-supervised with Valérie Beaudouin.
- Simon Delarue (M2, 07/2021 - 01/2022) : Graphs models for transparent machine learning. 50%, co-supervised with Thomas Bonald.
- Eloi Tanguy (M1, 04/2021 - 08/2021) : Completing Wikidata with Wikipedia using language models and abstract reasoning. 50%, co-supervised with Thomas Bonald.

Year	Duration	Intern	Origin	Level	Co-advising	Topic
2019	6 months	Mirwaisse Djanbaz	Université Paris Sud	M2	Raphaël Fournier-S'niehotta	Graphs and link streams for recommender systems
2019	3 months	Tu Anh Nguyen	University of Hanoi	L3	Satoshi Sekine	Community detection in link streams
2019	4 months	Pimprenelle Parmentier	École Polytechnique	M1	Jean-François Baffier, Benjamin Renoust	A formalism for multilayer stream graphs
2018	3 months	Anna Deza	University of Toronto	L2	Takanori Maehara	Link stream features for recommender systems
2016	6 months	Audrey Wilmet	ENS Lyon	M2	Matthieu Latapy	Event detection in IP traffic modelled as a link stream
2016	10 weeks	Mridul Seth	IIT Karaghpur	L3	Robin Lamarche-Perrin	An Aggregation Algorithm for Multiscale Analysis of Dynamical Networks (practical point of view)
2016	6 months	Hindol Rakshit	IIT Karaghpur	M2	Robin Lamarche-Perrin	An Aggregation Algorithm for Multiscale Analysis of Dynamical Networks (theoretical point of view)
2014	6 months	Thibaud Arnoux	ENS Cachan	M2	Matthieu Latapy	An Algorithm for clique detection with varying $\Delta$ in link streams
2013	3 months	Lucy Yu	MIT	L2	Matthieu Latapy	Community detection in link streams: proof of concept on the Debian mailing-list archive

## Scientific responsibilities

TALIA LABORATORY (2020 – 2022)

Co-head (with Thomas Bonald) of the TalIA laboratory, a joint academic and industry effort around natural language processing. 6 permanent researchers, total budget: 2.3 million euros over 5 years. Participated in setting up the laboratory project, drafting PhD topics, and participating and co-organizing a weekly scientific seminar.

CONFERENCES

1. Program Committee member of the Machine Learning on Graphs workshop, ECML-PKDD 2022.
2. Co-chair of the Graph Embeddings and Mining workshop at ECML-PKDD 2021.
3. Co-chair of the Graph Embeddings and Mining workshop at ECML-PKDD 2020, Ghent, Belgium.

4. Program Committee member of DyNo 2018, a workshop of ASONAM 2018, Barcelona, Spain.
5. Program Committee member of the Interdisciplinary Workshop on Recommender Systems (InWoRS) 2018, Paris, France.
6. Program Committee and Organizing Committee member of the Interdisciplinary Workshop on Recommender Systems (AISR) 2017, Paris, France.
7. Program Committee member of Complex Systems Conference 2016, Amsterdam, Netherlands.
8. Program Committee member of DyNo 2016, a workshop of ASONAM 2016, Davis, USA.
9. Elected council member of the Council of the Complex Systems Society (2014 - 2017)
10. Board member of eYRNCS, an e-workshop dedicated to young researchers of CS-DC 2015 conference.
11. Organizing Committee member of ASONAM 2015, Paris, France.
12. Organizing Committee member of MARAMI 2015, Paris, France.
13. Reviewer for international journals and international conferences: WWW'22, Expert Systems with Applications, Transactions on Knowledge and Data Engineering, Transactions on Big Data, Social Networks Analysis and Mining, Applied Network Science, Transactions on Visualization and Computer Graphics, Computer Networks, Information Sciences, WWW'15, TRAC'15, NetSciCom'15, NetSciCom'16.

## Teaching and vulgarization

### TEACHING

All my teachings have been done at Université Paris Diderot and Efrei Engineering school, and afterwards at Telecom Paris.

### OTHER

1. 2015 – Talk at the CoFestival, an inclusive event to convey technical and scientific knowledge. Talk title: "How research works in computer science", with Noé Gaumont.
2. 2013,2014 – Stand holder at la "Fête de la Science", an annual french event for the promotion of science.
3. 2014 – Participation in a program welcoming a high school student for one week to show how a laboratory works.

Year	Course name	Level	Size	Load	Goal
2021–2022	<i>Exploring and mining massive datasets</i>	M1	Full (150 students)	25h CM, 12h TP	Learn the fundamentals of cleaning, mining and exploring large real-world datasets.
	<i>Computer Science Project</i>	L2	18 students	4h TD, 16h TP	Students projects' supervision, in groups of 4.
2016–2017	<i>Data Structures</i>	L2	1 TD group, 1 TP group (30 students)	20h TD, 7h TP	Learn essential algorithms and data structures in computer science.
2015–2016	<i>Internet and Object</i>	L1	1 group TP (23 students)	43h TD, 14h TP	Learn the fundamentals of Web development.
	<i>Computer Science Project</i>	L2	18 students	4h TD, 16h TP	Students projects' supervision, in groups of 4.
2014–2015	<i>Object-oriented programming and graphical interfaces</i>	L2	2 groups (30 students)	64h TD/TP	Introduction to object-oriented programming and graphical interfaces, in Java.
2013–2014	<i>Introduction to programming</i>	L1	2 groups (45 students)	64h TP	Introduction to programming in Java.