

Anastasios Giovanidis, Dr.-Ing., HDR

CONTACT INFORMATION	Scientific Researcher CNRS CR CN Sorbonne Université, Lab LIP6 4 place Jussieu 75252 Paris Cedex 05 FRANCE	Date of birth: 20.08.1982 anastasios.giovanidis@lip6.fr <i>WWW:</i> anastasiosgiovanidis.net
RESEARCH AREAS (TO DATE)	Networks: Data Analysis, Performance Evaluation and Optimisation 5G-6G cellular networks, social networks, content recommendations, quantum internet.	
SKILLS	Strong analytical skills (with teaching and publications) in: <ul style="list-style-type: none">• Probability (Markov chains, queuing, stochastic geometry, Bayesian methods)• Complex Networks, graphs, algorithms• Optimisation (mixed-integer, convex, decompositions)• Reinforcement Learning, Statistical Learning Programming languages: Python, scikit-learn, pytorch	
LANGUAGES	Greek (native), English (fluent), German (fluent), French (fluent).	

APPOINTMENTS	<ul style="list-style-type: none">• CNRS Research Scientist CR1 (now CN) [10/2017 - today]<ul style="list-style-type: none">- UMR 7606 CNRS-LIP6, Sorbonne UPMC, Paris, France.- Department "Networks and Systems", Team NPA.• CNRS Research Scientist CR2 (now CN) [10/2013 - 09/2017]<ul style="list-style-type: none">- UMR 5141 CNRS-LTCl, Télécom ParisTech, Paris, France.• Postdoctoral Researcher on stochastic modeling [09/2011 - 08/2013] INRIA/ENS Paris - DYOGENE (ex TREC), Paris, France. (Host: Francois Baccelli)• Postdoctoral Researcher on discrete optimisation [04/2010 - 08/2011] Zuse Institute Berlin (ZIB) and TU Berlin, Germany. (Host: Martin Grötschel)
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EDUCATION	<ul style="list-style-type: none">• Habilitation (HDR) Sorbonne University [defence date 04/12/2020] Title: "Contents through Networks: wireless access, caching, social diffusion". Jury: M. Debbah, J. Kurose, E. Leonardi, F. Baccelli, S. Fdida, E. Jorswieck, L. Muscariello, T. Spyropoulos. Link: [HDR research report]• Dr.-Ing., TU Berlin - CommIT, Germany [09/2005 - 04/2010] Title: <i>Modeling and Analysis of Wireless Communications Systems using Automatic Retransmission reQuest (ARQ) Protocols</i> - Advisors: (1) Holger Boche - TU München, (2) Sławomir Stańczak - TU Berlin
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- **Dipl.-Eng.**, [National TU Athens](#), Greece [09/2000 - 07/2005]
[Electrical and Computer Engineering](#) - Area: Wireless networks, Control theory
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OTHER
PROFESSIONAL
EXPERIENCE

- **Research Associate** [09/2005 - 04/2010]
[Fraunhofer Heinrich Hertz Institute HHI](#), Berlin, Germany
- Activities: Contributions in R&D projects mostly on cellular networks between academia and the industry with: Samsung, Nokia, Siemens, Alcatel-Lucent)
- **Practical Training** [06/2004 - 09/2004]
[Fraunhofer FGAN Institute](#), Bonn, Germany
Activities: Practical Training on Radar Signal Processing

SCIENTIFIC
PUBLICATIONS

4 published books and book-chapters
4 submitted papers (under review)
10 peer-reviewed Journal papers
29 peer-reviewed Conference/Workshop papers, w. Proceedings
2 Conference papers, w/o. Proceedings (abstract only)
1 Patent
3 Unpublished Reports

Academic Responsibilities

STUDENTS

PhDs:

- *Nouamane Arhachoui* - Sorbonne University, begin Oct. 2022.
Subject: *Mitigation strategies against fake news in online social platforms*, so-supervised by Vincent Gauthier (Tlcom SudParis - Institute Polytechnique de Paris, SAMOVAR).
- *Paolo Fittipaldi* - Sorbonne University, begin Oct. 2021.
Subject: *Dynamic Routing through quantum repeaters*.
- *Effrosyni Papanastasiou* - Sorbonne University, begin Oct. 2020.
Subject: *Temporal Prediction and Control of User Behaviour in a Social Platform*.
- *Ricardo José Lopez Dawn* - Sorbonne University, begin Feb. 2020.
Subject: *Modeling dynamic post diffusion in realistic online social platforms*.
- *Theodoros Giannakas* - EURECOM (directed by Th. Spyropoulos, 2017 - 2020).
Subject: *Joint Optimization of Content Caching and Recommendation for Mobile Edge Systems*.

- *Jonatan Krolkowski* - Université Paris-Saclay (co-supervised by Marco Di Renzo, from CNRS-L2S & Centrale SUPELEC, 2015 - 2018).
Subject: *Optimal Content Management and Dimensioning in Wireless Networks*.
- *Luis David Alvarez-Corrales* - Télécom ParisTech (co-sup. Philippe Martins from Télécom ParisTech, 2014 - 2017).
Subject: *Cooperative Communications in Very Large Cellular Networks*.
- *Chedia Jarray* - University of Gabes, Tunisia (Visitor in 2015)
Subject: *Caching and Association in Device-to-Device (D2D) Networks*.

Diploma/Master/Bachelor: 9 students 2009-2022 (Sorbonne, ParisTech, TU Berlin)

FUNDING

- 2022-2025 Thesis EDITE (110 KEuro).
Research topic “Mitigation strategies against fake news in online social platforms”
- 2021-2024 Thesis Project Plan Quantique National (120 KEuro).
Research topic “Dynamic routing through quantum repeaters”
- 2020-2024 ANR Young Researcher (JCJC) project (266 KEuro).
Topic: ”Engineering Fair Online Social Platforms (FairEngine)”. - In this project mathematical models and algorithms for social platforms (like Facebook and Twitter) are developed. These incorporate realistic aspects of the platform structure (Walls, Feeds), and realistic user behaviour (Likes, Shares).
- 2018-2019 LIP6 Projets 2019 – Student project (8.3 KEuro).
Topic: ”How can the frequency of Newsfeed posts improve influence in a social network?” Duration: 6 + 6 months.
- 2015-2018 Digiteo-Digicosme – Projet de Thèse (104 KEuro).
Topic: ”Optimal Content Management and Dimensioning in Wireless Networks (CONTAIN)”.
- 2015 CNRS JCJC INS2I – Operational Costs (6 KEuro).
Topic: ”Adding Memory and Managing Content in Wireless Networks”.
- 2014-2017 Fondation Télécom – Thèses Futur & Ruptures (108 KEuro).
Topic: ”Cooperative Communications in Very Large Cellular Networks”.
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TEACHING COURSES

- *Data Analysis for Networks* ([GitHub link](#))
- Master 2 on Networks, Sorbonne University (NDA: **2019 - 2023**) Content (28h course, 28h lab): Intro to Probability and Statistics, Bayes, Estimation, Regression, Classification, Regularisation, Tree-based Methods, Clustering, Anomaly Detection, Principal Components Analysis, Time-series.
- *Optimisation (with elements of Numerical Analysis)*
- Master 1, Telecom ParisTech, responsible Prof. Olivier Hudry, (MDI210: **2016 - 2019**) Content: Intro to Algebra, Eigenvalues, SVD, Solution of linear systems: Gauss, LU, Choleski, Iterative methods for eigenvalues, Linear Programming, Duality, Simplex Algorithm, Non-linear optimisation without constraints, Non-linear optimisation with constraints, Convex Programming, KKT conditions.

- *Queuing and Network Performance*
- Master 1, Telecom ParisTech, RES711: responsible Thomas Bonald (**2012 - 2015**), and Marceau Coupechoux (**2015 - 2017**) Content: Intro to Probability, Poisson and Exponential processes, Markov Chains discrete and continuous, Queues with one, many, infinite servers, Erlang-B, -C.
- *Wireless Access and Scheduling*
- Master 2, Telecom ParisTech, (SOCOM207 & RES222: **2013 - 2020**) Content: Random Access Protocols, ALOHA, CSMA/CA, CSMA/CD, Multiple Access OFDMA, Waterfilling.
- *Introduction to Telecommunication Networks*
- Master 1, UPMC, (UE RTEL (4I002) and UE CELL (5I050): **2016 - 2017**) Content: Basic Principles of Network coding and applications (butterfly network, throughput improvement and TCP error correction, Advanced modelling of cellular networks using Stochastic Geometry)

Professional Activity

PHD THESIS COMMITTEE

- Hernan Felipe Arrano Scharager (Paris-Saclay, Jan. 2020), Dalia-Georgiana Popescu (Paris-Saclay, Nov. 2018), Tu Lam Thanh (Paris-Saclay, Jun. 2018), Qi Liao (TU Berlin, Nov. 2016)

EDITOR

- Elsevier Computer Communications (COMCOM), 2020.
- EURASIP Journal on Wireless Communications and Networking, 2017-2019.

REVIEWER / TPC MEMBER

- IEEE/ACM Transactions on Networking, ACM TOMPECS, IEEE Transactions on Mobile Computing, IEEE Journal on Selected Areas in Communications, IEEE Transactions on Wireless Communications, IEEE Transactions on Communications

TPC Member

- INFOCOM'2021, '2020, '2019 [**distinguished reviewer**], '2018, WWW'2019, Valuetools'2019, GLOBECOM'2017, ICC'2017, '2016, WIOPT'2017, '2016, '2015.

PROGRAM COMMITTEE

Chair

- GAMENETS'19 - Game Theory for Networks, Paris, France (GENERAL Co-chair)
- 15th International Symposium on Modeling and Optimization in Mobile, Ad Hoc and Wireless Networks (WIOPT), Paris, France (GENERAL Co-chair), 2017

Publications

UNDER REVIEW / IN PREPARATION

1. “A Fast Algorithm for Ranking Users by their Influence in Online Social Platforms”
with N. Arhachoui, E. Bautista Ruiz, M. Danisch.
submitted June 2022, arXiv:2206.09960
2. “SlateFree: a Model-Free Decomposition for Reinforcement Learning with Slate Actions”
A. Giovanidis,
submitted May 2022
3. “Optimal Influencer Marketing Campaign under Budget Constraints using Frank-Wolfe”
R.-J. Lopez-Dawn and **A. Giovanidis**,
under Major Revisions, IEEE Trans. on Network Science and Engineering, June 2022
4. “Inference of a Social Graph with Trace Feasibility Guarantees using Expectation-Maximisation”
E. Papanastasiou, **A. Giovanidis**,
in preparation 2022

BOOKS AND BOOKCHAPTERS

1. “Randomised Geographic Caching and its Applications in Wireless Networks”
A. Giovanidis and B. Blaszczyszyn
Chapter in IET book “Edge Caching for Mobile Networks”, Editors: Vincent Poor and Wei Chen, ISBN-13: 978-1-83953-122-4, October 2021.
2. “Contents through Networks: wireless access, caching, social diffusion”
A. Giovanidis.
Habilitation to supervise research Thesis [HDR] – defended 04 December 2020.
3. “Game Theory for Networks” .
K. Avrachenkov, L. Huang, J.R. Marden, M. Coupechoux, **A. Giovanidis**.
Proceedings of the 8th International EAI Conference, GameNets 2019, Paris, France, April 25-26, 2019
4. “ARQ protocols in wireless communications: modeling, analysis and optimization”. **A. Giovanidis**.
SVH Verlag, ISBN 978-3-8381-2055-3. (from my Dr.-Ing. Thesis) (2010)

PATENTS

1. “Method and apparatus for positioning pilot in an OFDMA mobile communication system” .
US Patent No: 7,869,341.
SAMSUNG ELECTRONICS CO., LTD.
Yeon-Ju Lim, Jae-Chon Yu, Hwan-Joon Kwon, Dong-Hee Kim, Yu-Chul Kim, Jin-Kyu Han, Stefan Schiffermuller, Sezgin Aydin, **Giovanidis Anastasios**

1. “MDP-based network friendly recommendations”
Th. Giannakas, **A. Giovanidis**, Th. Spyropoulos.
ACM Transactions on Modeling and Performance Evaluation of Computing Systems (TOMPECS), Vol. 6, Iss. 4, December 2021, Article No.: 16, pp 1–29,
DOI: <https://doi.org/10.1145/3513131>
2. “Ranking online social users by their influence”
A. Giovanidis, B. Baynat, C. Magnien, and A. Vendeville.
IEEE/ACM Trans. on Networking
DOI: 10.1109/TNET.2021.3085201 (2021) [[HAL link](#)].
3. “Hyperbolic K-means for traffic-aware clustering in cloud and virtualized RANs”
H. Djeddal, L. Touzari, **A. Giovanidis**, Ch.-D. Phung, S. Secci.
Elsevier Computer Communications, vol. 176, 1 August 2021, pp. 258–271, 2021
DOI: 10.1016/j.comcom.2021.06.021 (2021) [[HAL link](#)].
4. “A Decomposition Framework for Optimal Edge-Cache Leasing”.
J. Krolikowski, **A. Giovanidis**, M. Di Renzo.
IEEE Journal on Selected Areas in Communications, vol.36, no.6, pp.1345–1359.
DOI: 10.1109/JSAC.2018.2844986 (2018).
5. “Successful file transmission in mobile D2D networks with caches”.
Ch. Jarray, **A. Giovanidis**.
Elsevier Computer Networks vol. 147, pp. 162-179,
DOI: 10.1016/j.comnet.2018.10.009 (2018).
6. “Spatial multi-LRU Caching for Wireless Networks with Coverage Overlaps”.
A. Giovanidis and A. Avranas.
ACM SIGMETRICS Performance Evaluation Review. Vol.44, iss.1, pp.403–405.
DOI: 10.1145/2964791.2901483 (2016)
7. “A Stochastic Geometry Framework for Analyzing Pairwise-Cooperative Cellular Networks”.
F. Baccelli and **A. Giovanidis**.
IEEE Trans. on Wireless Communications, vol.14, no.2, pp.794-808.
DOI: 10.1109/TWC.2014.2360196, Feb. (2015)
8. “Measurement-Adaptive Cellular Random Access Protocols”.
A. Giovanidis, Q. Liao, and S. Stańczak.
Springer Wireless Networks.
DOI 10.1007/s11276-014-0689-y. Dec. (2013).
9. “Stability and Distributed Power Control in MANETs with per Hop Retransmissions”.
A. Giovanidis and S. Stańczak.
IEEE Trans. on Communications. Vol. 59, Iss: 6, pp. 1632-1643, June (2011).
DOI: 10.1109/TCOMM.2011.042111.090486
10. “Optimal Control of a Single Queue with Retransmissions: Delay–Dropping Trade-offs”.
A. Giovanidis, G. Wunder, and J. Bühler.
IEEE Trans. on Wireless Communications. Vol. 8, no. 7, pp. 3736-3746.
DOI: 10.1109/TWC.2009.080959 (July 2009)

1. “Opening up echo chambers via optimal content recommendation”
A. Vendeville, **A. Giovanidis**, E. Papanastasiou, B. Guedj,
11th International conference on Complex Networks and their Applications CNA
2022, arxiv:2206.03859
2. “A Linear Algebraic Framework for Quantum Internet Dynamic Sceduling”
P. Fittipaldi, **A. Giovanidis**, F. Grosshans,
IEEE Quantum Week (QCE’22), Colorado, USA, September 2022, arxiv:2205:10000
3. “Bayesian Inference of a Twitter Graph with Trace Feasibility Guarantees”
Ef. Papanastasiou and **A. Giovanidis**.
In: *Proc. of IEEE/ACM International Conference on Advances in Social Net-
works Analysis and Mining (ASONAM) 2021*, (The Hague, Netherlands) Virtual
Conference 2021 [[HAL link](#)].
4. “Social Influencer Selection by Budgeted Portfolio Optimization”
R.J. Lopez–Dawn and **A. Giovanidis**.
In: *Proc. of 19th International Symposium on Modeling and Optimization in Mo-
bile, Ad Hoc, and Wireless Networks (WiOpt) 2021*, (Philadelphia, USA) Virtual
Conference 2021 [[HAL link](#)].
5. “SOBA: Session optimal MDP-based network friendly recommendations”
Th. Giannakas, **A. Giovanidis**, Th. Spyropoulos.
In: *Proc. of INFOCOM 2021*, virtual conference 2021 [[Arxiv](#)].
6. “Sequential Resource Access: Theory and Algorithm”
Lin Chen, **A. Giovanidis**, Wei Wang, Shan Lin.
In: *Proc. of INFOCOM 2021*, virtual conference 2021 [[Arxiv](#)].
7. “Fairness in Network-Friendly Recommendations”
Th. Giannakas, P. Sermpezis, **A. Giovanidis**, Th. Spyropoulos, G. Arvanitakis.
In: *Proc. 22nd IEEE International Symposium on a World of Wireless, Mobile
and Multimedia Networks (WoWMoM) 2021*, virtual conference 2021 [[Arxiv](#)].
8. “Performance Analysis of Online Social Platforms”.
A. Giovanidis, B. Baynat, A. Vendeville.
In: *Proc. of INFOCOM 2019*, pp 2413-2421, Paris, France, 2019.
9. “Optimal Cache Leasing from a Mobile Network Operator to a Content Provider”.
J. Krolikowski, **A. Giovanidis**, M. Di Renzo.
In: *Proc. of INFOCOM 2018*, pp. 2744-2752, Honolulu, USA, 2018.
10. “Wireless Node Cooperation with Resource Availability Constraints” L. D. Alvarez-
Corrales, **A. Giovanidis**, P. Martins, and L. Decreusefond
In: *International Workshop on Spatial Stochastic Models for Wireless Networks
(SPASWIN), part of the 15th WIOPT*, Paris, FRANCE, May (2017).
11. “Fair distributed user-traffic association in cache equipped cellular networks” J.
Krolikowski, **A. Giovanidis**, and M. Di Renzo
In: *International Workshop on Content Caching and Delivery in Wireless Net-
works (CCDWN), part of the 15th WIOPT*, Paris, FRANCE, May (2017).
12. “Coverage Gains from the Static Cooperation of Mutually Nearest Neighbours”.
L.-D. Alvarez-Corrales, **A. Giovanidis** and P. Martins.
In: *Proc. of GLOBECOM’16*. (2016)

13. “Performance of spatial Multi-LRU caching under traffic with temporal locality”.
A. Avranas and **A. Giovanidis**.
In: *International Symposium on Turbo Codes & Iterative Information Processing (ISTC), 5G Workshop*, Brest, France. (*invited*), Sept. (2016).
14. “Spatial Multi-LRU Caching for Wireless Networks with Coverage Overlaps”.
A. Giovanidis and A. Avranas.
In: *ACM SIGMETRICS/IFIP Performance*, Antibes, France.
(Short Paper 3 pp. and arXiv extended version 14 pp.), June (2016).
15. “The Effects of Mobility on the Hit Performance of Cached D2D Networks”.
C. Jarray and **A. Giovanidis**.
In: *International Workshop on Spatial Stochastic Models for Wireless Networks (SPASWIN), part of the 14th WIOPT*, Arizona, USA, May (2016).
16. “Analyzing Interference from Static Cellular Cooperation using the Nearest Neighbour Model”.
A. Giovanidis, L. D. Alvarez-Corrales and L. Decreusefond.
In: *International Workshop on Spatial Stochastic Models for Wireless Networks (SPASWIN), part of the 13th WIOPT*, Mumbai, India. May (2015).
17. “Optimal Geographic Caching in Cellular Networks”.
B. Błaszczyszyn and **A. Giovanidis**.
In: *Proc. of the International Conference on Communications (ICC)*, London, UK. June (2015).
18. “Coverage by Base Station Cooperation under Adaptive Geometric Policies”.
F. Baccelli and **A. Giovanidis**.
In: *Proc. of the 47th Annual Asilomar Conference on Signals, Systems and Computers*, Monterey, USA. (*invited*). November (2013).
19. “A 0-1 program to form minimum cost clusters in the downlink of cooperating base stations”.
A. Giovanidis, J. Krolkowski and S. Brück.
In: *Proc. of the 2012 IEEE Wireless Communications and Networking Conference (WCNC)*, Paris, France. April (2012).
20. “A distributed interference-aware load balancing algorithm for LTE multi-cell networks”.
A. Giovanidis, Q. Liao and S. Stańczak.
In: *Proc. of the 16th International ITG Workshop on Smart Antennas (WSA)*, Dresden, Germany. March (2012).
21. “Conditions for the Stability of Wireless ARQ Protocols and Reliable Communications”.
A. Giovanidis and S. Stańczak.
In: *Proc. of the 15th European Wireless Conference*, Aalborg, Denmark. May (2009).
22. “Retransmission Aware Congestion Control and Distributed Power Allocation in MANETs”.
A. Giovanidis and S. Stańczak.
In: *5th Int. Workshop on Resource Allocation, Cooperation and Competition in Wireless Networks (RAWNET), part of the 7th WIOPT*, Seoul, S. Korea. June (2009).

23. “A Short-Term Throughput Measure for Communications with ARQ Protocols”.
A. Giovanidis, G. Wunder, and H. Boche.
In: *Proc. 7th International ITG Conference on Source and Channel Coding (SCC)*, Ulm, Germany. January (2008).
24. “Optimal Control of Transmission Errors with Power Allocation and Stability in ARQ Downlink”.
A. Giovanidis, G. Wunder, H. Boche, and S. Stefanov.
In: *Proc. 42nd Annual Conference on Information Sciences and Systems (CISS)*, Princeton, USA. March (2008).
25. “Optimal Power Allocation Policies for the Reliable Transmission of a Single Packet via ARQ Protocols”.
M. Wiese, **A. Giovanidis**, and G. Wunder.
In: *Proc. of 42nd Annual Asilomar Conf. on Signals, Systems, and Computers*, Monterey, USA. Oct. (2008).
26. “An Optimal Stopping Approach to ARQ Protocols with Variable Success Probabilities per Retransmission”.
A. Giovanidis, G. Wunder, and H. Boche.
In: *Proc. of 45th Annual Allerton Conference on Communication, Control, and Computing*, Monticello, IL USA. September (2007).
27. “Maximization of the Single User Rate in OFDMA Assuming Equal Power on Allocated Subcarriers”.
A. Giovanidis, T. Haustein, E. Jorswieck, and D. Kim.
In: *Proc. of the IEEE 65th Vehicular Technology Conference (VTC’07 - Spring)*, Dublin, Ireland. April (2007).
28. “Dynamic User Grouping and Shared Frequency Resource Assignment Strategies for OFDMA”.
A. Giovanidis, A. Sezgin, U. Mönich, and D. Kim.
In: *Proc. of the IEEE 65th Vehicular Technology Conference (VTC’07 - Spring)*, Dublin, Ireland. April (2007).
29. “Multiuser Scheduling using Equal Power in Allocated Subcarriers for OFDM Uplink”.
A. Giovanidis, T. Haustein, Y. Hadisusanto, A. Sezgin, and D. Kim.
In: *Proc. of the 40th Annual Asilomar Conference on Signals, Systems and Computers*, Monterey, USA. Nov. (2006).

CONFERENCE
PUBLICATIONS
WITHOUT
PROCEEDINGS

1. “Game theoretic model for the downlink in cellular mobile networks: Nash equilibria and algorithmic convergence”.
J. Krolkowski, **A. Giovanidis**, and T. Harks.
In: *Proc. of the 21st International Symposium on Mathematical Programming (ISMP)*, Berlin, Germany. (oral presentation, Abstract). August (2012).
2. “Models for network design under varied demand structures”.
J. Pulaž and **A. Giovanidis**.
In: *Proc. of the 21st International Symposium on Mathematical Programming (ISMP)*, Berlin, Germany. (oral presentation, Abstract). August (2012).
ZIB Report: 11-31 available at [OPUS server](#).

UNPUBLISHED

- MATERIAL/REPORTS
1. “Analysis of Static Cellular Cooperation between Mutually Nearest Neighboring Nodes.”
L. D. Alvarez-Corrales, **A. Giovanidis**, P. Martins, and L. Decreusefond.
In: *arXiv:1611.02614* (2016)
 2. “Spatial multi-LRU: Distributed Caching for Wireless Networks with Coverage Overlaps”.
A. Giovanidis and Apostolos Avranas.
In: *arXiv:1612.04363* (2016)
 3. “How to group wireless nodes together?”
A. Giovanidis.
In: *arXiv:1602.03906*, (2016).