ARISTIDIS ANAGNOSTOPOULOS
Curriculum Vitae (ai fini della pubblicazione)

Rome, 16/10/2021

Part I – General Information

Full Name	Aristidis Anagnostopoulos
Spoken Languages	Greek, Italian, English

Part II – Education

Type	Year	Institution	Notes (Degree, Experience,…)
University graduation	2000	University of Patras, Greece	Diploma in Computer Engineering and Informatics (5-year program)
Post-graduate studies	2002	Brown University, U.S.A.	Master in Computer Science
Post-graduate studies	2005	Brown University, U.S.A.	Master in Applied Mathematics
Ph.D.	2006	Brown University, U.S.A.	Ph.D. in Computer Science Thesis: "Probabilistic Techniques in the Analysis of Dynamic Processes" Advisor: Eli Upfal

Part III. Appointments

IIIA – Academic Appointments

Start	End	Institution	Position
9/2015	Current	Sapienza University of Rome	Associate Professor
4/2012	8/2015	Sapienza University of Rome	Assistant Professor (RTI)
3/2014	2/2015	IMT Institute for Advanced Studies Lucca	Visiting Research Fellow/Professor
6/2013	10/2013	Aalto University, Helsinki, Finland	Visiting Professor (spent 7 weeks in total during the period indicated)
10/2012	10/2013	IMT Institute for Advanced Studies Lucca	Visiting Research Fellow/Professor
6/2010	3/2012	Sapienza University of Rome	Marie-Curie Fellow
10/2008	5/2010	Sapienza University of Rome	Postdoc

IIIB – Other Appointments

Start	End	Institution	Position
10/2013	10/2019	Sapienza School for Advanced Studies (SSAS) of Sapienza University of Rome	Junior Research Fellow (Chosen after a selection procedure. The position requests teaching courses to the SSAS students, supervising research theses, and participating in other activities of the school).
8/2016	9/2016	Simons Institute, Berkeley University, USA	Visiting Scientist (invited for a whole semester, but because of teaching activities in Sapienza, visited for 1 month)
9/2006	9/2008	Yahoo Research, Santa Clara, CA, USA	Postdoctoral fellow
6/2005	8/2005	IBM Watson Research Lab, Hawthorne, NY, USA	Summer Intern
7/2004	9/2004	IBM Watson Research Lab, Hawthorne, NY, USA	Summer Intern

Part IV – Teaching experience and service

Year	Institution	Lecture / Course
2013 – 2021 (10 semesters)	DIAG, Sapienza University of Rome	Data Mining (3 CFU for 2015–16, 6 CFU for all other semesters)
2015 – 2021 (7 semesters)	Master in Data Science, Sapienza University of Rome,	Algorithmic Methods of Data Mining (6 out 9 CFU)
2012 – 2017 (6 semesters)	DIAG, Sapienza University of Rome (Latina)	Architettura dei Calcolatori Elettronici (6 CFU)
2018 – 2021 (4 semesters)	DIAG, Sapienza University of Rome	Social Networks and Online Markets (3 or 6 CFU depending on the year)
2011	DIAG, Sapienza University of Rome	Web Information Retrieval (6 CFU)
2009 – 2011 (3 semesters)	DIAG, Sapienza University of Rome	I designed and co-taught the course of "Online Social Networks and Network Economics" and the course on "Models and Mining of Social Networks"
2014 – 2021 (6 semesters)	Sapienza School for Advanced Studies (SSAS), Sapienza University of Rome	During this period I have designed co-tought courses for 6 semesters either on the topic of Algorithms for Science and Technology, or on Data Science.

Advising/Supervising

- I have been the advisor of three Ph.D. students who have defended:
  - Reem Atassi (defended 2017)
  - Mara Sorella (defended 2018)
  - Cristina Menghini (defended 2021)

  and the co-supervisor of two more students:
  - Adriano Fazzone (defended 2017)
  - Noor Alawad (defended 2017)

  I am currently the advisor of three Ph.D. students:
  - Luca Maiano
  - Andrea Mastropietro
  - Stefano Piersanti
- I have served on the Ph.D. body of faculty of the Ph.D. program in Computer Engineering of Sapienza University of Rome, from 2012 to 2017 and I am in the Ph.D. body of professors of the Ph.D. program in Data Science of Sapienza University of Rome since 2018.
- I have supervised over 50 master theses in the master program of Computer Engineering and the master program in Data Science of Sapienza University of Rome.
- I have been a Junior Research Fellow for Sapienza School for Advanced Studies (SSAS) of Sapienza University of Rome from 2013 – 2019. During my service, I taught courses, supervised undergraduate student projects, and supervised a SSAS Ph.D. student.

Service for the university

- I was a member of the team that designed the Data Science master program at Sapienza.
- I am the faculty responsible for student mobility (RAM) for the Data Science master program of Sapienza University of Rome since 2015.
  - I have written and I maintain the software that calculates the assignments for the Erasmus applicants to foreign destinations for the Faculty of Information Engineering, Informatics, and Statistics, since 2019
- I have been at the InfoSapienza university committee for three years (2015 – 2018), and during that period, in the subcommittee that evaluated the offers for the new version of the software used for handling all student records (Infostud).

Part V - Society memberberships, Awards and Honors

Year	Title
2016	Junior Research Fellow, Sapienza School for Advanced Studies, Sapienza University of Rome (Renewed, after an evaluation.)
2014	Invited by the Rector of Sapienza University to give a speech during the inauguration of the academic year 2014–2015.
2014	Google Focused Research Award (1 of 6 PIs, see Part VI) (These types of awards are very rare: Google has given very few awards of this type in the world, this was the first time such a grant was given to an Italian team.)
2014	Leader of project that was a finalist at Telecom Italia Big Data Challenge
2013	Junior Research Fellow, Sapienza School for Advanced Studies, Sapienza University of Rome (Chosen out of a selection process.)
2011	Best Poster Award for paper "Stochastic Query Covering" at the 4th ACM International Conference on Web Search and Data Mining," WSDM 2011
2010	Marie-Curie International Incoming Fellowship (see Part VI)
2005	Best Paper runner up for the paper "Sampling Search-Engine Results" at the 14th International World Wide Web Conference, WWW 2005
2007 - 2021	Member of the program committee or senior program committee of more than 110 conferences in the areas of data mining, web search, algorithms, AI, databases, and related fields
2000-01, 2001-02, 2004-05, 2005-06	Paris Kanellakis Fellowship, Brown University

Part VI – Funding Information [grants as PI-principal investigator or I-investigator]

I have been a PI or Co-PI for the following grants:

Year	Title	Program	Grant value
2020*	SoBigData++: European Integrated Infrastructure for Social Mining and Big Data Analytics	H2020 RIA	220K EUR (site budget)
2020	Interpretability in Machine Learning with Applications to Genomics and Finance	University Research Grant	11K EUR
2017	EGS: Evolving Graph Signals	University Research Grant	9K EUR
2014*	Web Algorithmics for Large-Scale Data Analysis	Google Focused Research Award	350K USD (site budget)
2012	Models and Algorithms for Social Collaboration Applications (MASCA)	University Research Grant	9K EUR
2011	Algorithmic Principles for Dynamic Processes and Applications in Social Networks	Personal Research Grant, Swedish Research Foundation	200K EUR (declined; condition was to accept a position of Associate Professor at Chalmers University, Sweden)
2010	SNAPS: Social Networks: Algorithms, Privacy, and Applications	Marie-Curie International Incoming Fellowship	160K EUR

* Co-PI: Stefano Leonardi

I have also been an investigator (not responsible for the project) for the following grants:

Year	Title	Program	Grant value
2020	Master Degree in Industry 4.0 (Ind4.0)	Erasmus+ CBHE (Capacity building in higher education)	55K EUR (site budget)
2019	ALGADIMAR: Algorithms, Games, and Digital Markets	MIUR PRIN	140K EUR (site budget)
2018	Algorithmic and Mechanism Design Research for Online Markets (AMDROMA)	ERC Advanced grant	1780K
2012	MULTIPLEX: Foundational Research on MULTIlevel comPLEX networks and systems	EU FET	370K (site budget)
2010	Associated partner to Piotr Sankovski's ERC Starting Grant 259515 Practical Approximation Algorithms (PAAl)	ERC Starting grant	330K EUR (site budget)
2011, 2014, 2016	3 projects in total	University Research Grant	3 · 40K EUR

Part VII – Research Activities

Research statement

My research interests lie on two main areas: algorithms and data mining (DM). On the one hand, I enjoy designing models for applied problems and then analyzing them rigorously using techniques from theoretical computer science and validating them using real-world data. On the other hand, I find great value in taking advantage and analyzing real-world data for useful applications.

The applications areas of my research vary, as over the years my interests have expanded. As a result, my research work **spans multiple areas** of computer science, in which I have publications in the top corresponding journals/conferences: theory and algorithms (SICOMP, RS&A, FOCS, SODA, ICALP), web search and data mining (WWW, KDD, WSDM, CIKM), optimization (J. Scheduling, IPCO, CPAIOR), databases (VLDB J., PODS, SIGMOD), information retrieval (TOIS, SIGIR), artificial intelligence (IJCAI, NIPS). Through my university education (Diploma in Computer Engineering, M.Sc. and Ph.D. In Computer Science, M.Sc. in Applied Mathematics) I have acquired a diverse set of mathematical, statistical, and engineering skills, which I apply on the problems that I study and, since the period I've hold positions in research labs I have been acquiring experience on applying them on real-world problems.

In the last few years I have developed a deep interest in **data science**, a field that is transforming multiple fields, not only technical but also life sciences and even humanities. In the next paragraphs I itemize some domain applications on which I have been working.

Early in my research I started following a data-science approach on **social-network analysis**. We all form part of several (offline and online) social networks (friendship network, network of colleagues, facebook, etc.), and our behavior is largely affected by that of our peers in those networks. The availability of traces in online networks, allows us to study our social behavior in ways that just 10-15 years ago was almost impossible. Examples of important types of processes that takes place on networks are that of diffusion of information and of influence of behavior, and understanding them has both a tremendous scientific sociological, psychological, and anthropological value, as well as direct applications in areas such as business (viral marketing is a popular marketing approach). For example, we have studied such processes and we designed statistical tests that allow to distinguish *influence* processes from *homophily* (the tendency of similar entities to from a tie); essentially, we addressed the notorious question of **correlation vs. causation**. Analyzing deeper, we have measured the extent to which an individual is influenced by her peers or by what we call authorities (e.g., popular celebrities or media), by studying the diffusion of information. Such types of studies are only possible because of the existence of such online traces of users' online activities. Applying similar ideas in the topic of **fake news**, we contrast the diffusion of true vs. the diffusion of false information. Rather surprisingly, we find that the diffusion of false information can present strong similarities to that of true one, and we identify that effect of opinion polarization in the diffusion of information and misinformation. Even sources such as **Wikipedia** may lead to **polarized** opinions in subtle ways, not because of their content but because of their link structure: they may hinder the exposure to the opposite viewpoint.

Medicine is a producer of data and a field where data science may offer a very high contribution. The use of wearable devices can allow to perform real-time measurements of temperature, heart rate, blood pressure, and other human health values. This technology gives the possibility for the immediate detection of health risks and prevention of further complications. Along these lines, along with my collaborators we have shown how deep-learning (DL) approaches can be used for immediate detection and classification of heart arrhythmias. Other ongoing projects on medicine regard the evaluation of risk of thyroid and of diabetic patients.

During the last year I have initiated collaborations for the application of data science in the fields of biostatistics and philology for which I am very excited. The former attempts to observe genetic information of large population samples (73M mutations of 500K users) for discovering through statistical approaches genes that may be responsible for some disease. Yet traditional approaches are typically based on simple

linear regression: these scale well but have difficulty discovering complex **epistatic interactions** between genes, which together may affect the phenotype. With my group we have developed a DL-based approach for discovering such interactions and (collaborating with biologists) we can propose new, unknown pathways that may lead to elevated blood pressure. In philology, we have been able to apply DL-based approaches to the problem of **authorship attribution** of old Italian texts (14th century), confirming existing theories by philologists and proposing some new ones. A common theme and difficulty in such multidisciplinary projects is the need to establish a common language (in terms of vocabulary used, research questions asked, etc.) with the domain expert. Another common theme is the necessity of the use of simple interpretability techniques, which explain why a model produces a given output. (What gene combinations are able to predict a high systolic blood pressure? What words have led a given text to be attributed to Petrarca?). Publications on these topics are in preparation.

Moving away from data science, since my undergraduate studies I have been interested in topics related to **information security**: my diploma thesis was the study of cryptographic techniques for e-payments. During my research career I have applied both algorithmic and DM/ML approaches for problems regarding the authenticity of data. For instance, my first and one of my most cited papers, regarded the design of authenticated data structures. In further work I have looked into the recovery of conversations. Recently, I have been attracted by the topic of **mutlimedia forensics,** specifically, the application of DM/ML approaches for the evaluation of the authenticity of multimedia data. With my coauthors we have recently published a survey on the use of approaches based on DL and we have started producing results in the area.

In the last ten years, humans have started interacting with the machines in novel ways. **Crowdsourcing** involves the use of humans as computing elements. In this area, I have been interested in the modeling the errors/inconsistencies that humans can make when responding, and analyzing rigorously the computation when humans are involved. Algorithms are also being used for **automatic creation of groups** of people, groups that satisfy various constraints, for applications such as MOOCs or online labor markets. Such algorithms must consider user profiles, time constraints and so on, and they lead to interesting optimization problems.

Recommender systems form an important component of many companies that offer services to users. The typical paradigm regards collections of users to whom the company should recommend items. In my research I have addressed various more complicated variants, ranging from recommendation of queries to web search users, to recommendation of social media information, to recommendations of touristic packages, and to advertising. Recently, I have studied mathematical approaches for **reducing bias** the recommendations provided, as a means for reducing polarization.

An ongoing paradigm in my research is the application of **probabilistic techniques** on the design of algorithms and the analysis of stochastic processes. Typically in theoretical computer science we study problems in worst-case scenarios. This approach is sometimes inappropriate because it may lead to the design of algorithms that perform as well as possible in the worst-case, yet they may not be efficient in the typical case. An alternative is to apply probabilistic modeling, and in the case that the input is online, this leads to a natural modeling of the computational processes that take place as stochastic processes. Then one can apply mathematical tools from Markovian processes, queuing theory, renewal theory, and martingales, among others, and analyze the long-term behavior of the system under study. A series of works studies such processes.

In contrast to the probabilistic modeling mentioned above, **approximation algorithms** provide guarantees for any input. They are often more cumbersome, but on the other hand, they reduce the uncertainty for the solution quality. With my coauthors we have studied a variety of problems under the context of approximation algorithms: machine-scheduling problems, coclustering (we provided the first approximation algorithm for the coclustering problem, a generalization of clustering used extensively in computational biology), and team formation variants. **Game theory** is another theoretical area that keeps attracting my attention: I have studied how altruism can lead agents arrive at worse equilibria compared to the setting that they behave selfishly, how procrastination behavior can affect groups, or how to design auctions for fantasy-sport games.

Past work of mine has had important results in **web search**. These include:
• sampling of search-engine results which has many potential applications as it allows for efficient scan of the entire result set of a query (the work was a runner up for the best paper at the WWW);
• the use of a search engine for efficient classification of a large collection of documents;
• query-log analysis for caching, by modeling the problem as a stochastic-optimization problem (this work obtained the best poster award at the WSDM 2011 conference);
• query-log analysis for query recommendation (again through a stochastic-optimization modeling); and
• computational advertising (Yahoo applied our approach in some of its services).

Finally, during my Ph.D. studies I looked at the Traveling Tournament Problem, a sports scheduling problem. It is a notoriously hard combinatorial optimization problem whose main difficulty lies on the combination of scheduling constraints and cost minimization. Previous attempts to solve the problem involved the use of advanced combinatorial optimization techniques such as the combination of integer programming and constraint satisfaction techniques. Our approach to the problem was the use simulated annealing on a rich neighborhood structure and a large set of meta-heuristics inspired from various areas of combinatorial optimization. The results obtained were significantly better than the competition on all problem instances, and as of now, over 15 years later, although there have been additional efforts, our results are still superior—they have been only surpassed by extensions of our approach from my group at the time. (Prof. Michael Trick maintains a web page with new results on the problem:
 http://mat.gsia.cmu.edu/TOURN/)

Selected invited talks to internationally established conferences, workshops, and schools:
- "The Wisdom of Crowds: How Wise Are They and how to Use Their Wisdom?," Opinions, Conflict, and Abuse in a Networked Society (OCeANS) workshop, ACM KDD 2018.
- "The Wisdom of Crowds: Network effects, and the Importance of Experts," School for Advanced Sciences of Luchon, 2015.
- "Wisdom of Crowds?," Lipari Summer School on Computational Science, 2014.
- "Models and Algorithms for Online Collaborative Systems," 7th Athens Colloquium on Algorithms and Complexity (ACAC 2012), Athens, Greece, 2012 (keynote speaker).
- "Distinguishing Influence from Correlation in Social Networks," 2nd Meeting on Methodology for Empirical Research on Social Interactions, Social Networks, and Health (MERSIH 2009), Harvard University, Cambridge, USA, 2009.

Conference Organization:
- General chair, 9th Italian Information Retrieval Workshop (IIR 2018)
- Web presence chair, Panel co-chair, 24th International World Wide Web Conference (WWW 2015).
- Local chair, Publicity and web presence chair, 6th International Conference on Web Search and Data Mining (WSDM 2013).
- Special sessions co-chair, 4th International Conference on Machine Learning, Optimization, and Data Science (LOD 2018)

Program Committee Co-chair:
- NetSci 2020, Computer Science Track

Steering committee member: IIR (Italian Information Retrieval Workshop, since 2018)

Senior Technical Program Committee Member:
- CIKM 2013, WSDM 2013, WSDM 2014, WSDM 2016, IJCAI 2017, WSDM 2017, WSDM 2018, IJCAI 2019, WSDM 2019, IJCAI 2020, IJCAI 2021, SDM 2022, WSDM 2022.

Technical Program Committee Member:
- 2022: WWW
- 2020: CIRCLE, CSoNet, MLG, SDM, SocInfo, WWW
- 2019: DSAA, MLG, WWW
- 2018: AAAI, ASONAM, DSAA, ICWSM, IJCAI-ECAI, MLG, WWW
- 2017: ASONAM, ECML/PKDD, ICML, ICWSM, KDD, MLG, SDM, SPIRE, VLDB, WWW
- 2016: ASONAM, CIKM, ECML/PKDD, ECML/PKDD Journal, ICML, IJCAI, KDD, MLG, SDM, SIGIR, WWW
- 2015: ASONAM, ECML/PKDD, IEEE BigData, KDD, MOD, SKG, WSDM, WWW
- 2014: BigData, CIKM, ECML/PKDD, ICWSM, IEEE BigData, WWW
- 2013: BDDS, ECML/PKDD, ICDM Ph.D., IEEE BigData, MLG, WWW
- 2012: ECML/PKDD, ICDE, ICDM Ph.D., MLG, SocialCom, WSDM, WWW
- 2011: AICCSA, ECML/PKDD, IA, KDD, MFCS, MLG, SocialCom, WSDM, WWW
- 2010: CASoN, ECML/PKDD, ICDM, KDD, SocialCom, WSDM, WWW
- 2009: CASoN, ICDM, MSM, PAKDD, SNAS, SocialCom, WWW
- 2008: ECML/PKDD, EuroSys, ICDM, Infoscale, SNA-KDD

Reviewer for the journals: ACM Computing Surveys, Data Mining and Knowledge Discovery, Information Systems, Journal of Computational Science, Journal of Discrete Algorithms, Journal of Graph Algorithms and Applications, Journal of Scheduling, Journal of Heuristics, Journal of Systems and Software, Journal of the ACM, Knowledge and Information Systems, Machine Learning Journal, Operations Research Letters, Random Structures & Algorithms, SIAM Journal on Computing, Theoretical Computer Science,Transactions on Algorithms, Transactions on Knowledge Discovery from Data, Transactions on Knowledge and Data Engineering, Transactions on the Web,
and conferences: APPROX, CIKM, DISC, EC, ECDL, ESA, FOCS, GLOBALCOM, ICALP, ICDE, IJCAI, ISAAC, LATIN, MFCS, Sirocco, SEA, SODA, STACS, STOC, SWAT, TAMC, WAOA, WSDM, WWW.

Participation in national Ph.D. committees:
- Gran Sasso Science Institute (GSSI), 2017
- University of Milan, 2021

Part VIII – Summary of Scientific Achievements

Product type	Number	Database
Papers (journal, international)	20	DBLP
Papers (conference, international)	42	DBLP
Papers (journal, international)	19 (incl. a review article)	Scopus
Papers (conference, international)	46	Scoups
Total impact factor	40.47	JCR (2020)
Total impact factor	36.27	JCR (publication year)*
Impact factor per publication	40.47 / 20 = 2.023	JCR (2020), DBLP
Impact factor per publication	36.27 / 20 = 1.813	JCR (publication year)*, DBLP
Total citations	3453	Google scholar
Total citations	1756	Scopus
Average citations per product	3453 / 65 = 53.1	Google scholar, Scopus
Average citations per product	1756 / 65 = 27.0	Scopus
Hirsch (H) index	25	Google scholar
Hirsch (H) index	18	Scopus
Normalized H index †	1.25	Google scholar
Normalized H index †	0.90	Scopus

* For two journals in which JCR starts providing data later (TIST 2011, ToC 2012), the earliest year available of JCR is used.
† H index divided by the academic seniority (2001 to 2021 = 20 years).

Part IX– Selected Publications

List of the 16 publications selected for the evaluation:

#	Publication	Citations[1]		IF / GGS[2]
		Scholar	**Scopus**	**JCR**
1.	A. Anagnostopoulos, A. Fazzone, and G. Vettraino "S*kyline in Crowdsourcing with Imprecise Comparisons*," In Proceedings of the 30th ACM International Conference on Information and Knowledge Management (CIKM 2021), 2021	–	–	A+
2.	I. Amerini, A. Anagnostopoulos, L. Maiano, and L. Ricciardi Celsi "*Learning Double-Compression Video Fingerprints Left From Social-Media Platforms*," In Proceedings of the 2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2021), 2021	3	1	A
3.	A. Anagnostopoulos, L. Becchetti, E. Cruciani, F. Pasquale, and S. Rizzo, "*Biased Opinion Dynamics: When the Devil is in the Details*," In Proceedings of the 29th International Joint Conference on Artificial Intelligence (IJCAI-20), 2020.	5	2	A++
4.	A. Anagnostopoulos, L. Becchetti, A. Fazzone, C. Menghini and C. Schwiegelshohn "*Spectral Relaxations and Fair Densest Subgraphs*," In Proceedings of the 29th ACM International Conference on Information and Knowledge Management (CIKM 2020), 2020	4 (12 with ArXiV version)	3	A+
5.	A. Anagnostopoulos, C. Castillo, A. Fazzone, S. Leonardi, and E. Terzi, "*Algorithms for Hiring and Outsourcing in the Online Labor Market*," In Proceedings of the 24th International Conference on Knowledge Discovery and Data Minining (KDD 2018), London, UK, 2018	9	6	A++
6.	A. Anagnostopoulos, F. Grandoni, S. Leonardi, and A. Wiese, "*A Mazing 2+ε Approximation for Unsplittable Flow on a Path*," In ACM Transactions on Algorithms, Volume 14, Number 4, 2018	4 (50)	3 (34)	2020: 1.140 2018: 0.817
7.	A. Anagnostopoulos, F. Petroni, and M. Sorella, "T*argeted Interest-Driven Advertising in Cities Using Twitter*," In Data Mining and Knowledge Discovery, Volume 32, Issue 3, 2018	(17)	10 (14)	2020: 3.670 2018: 2.879
8.	A. Anagnostopoulos, R. Atassi, L. Becchetti, A. Fazzone, and F. Silvestri, "*Tour Recommendation for Groups*," In Data Mining and Knowledge Discovery, Volume 31, Issue 5, 2017	45	27	2020: 3.670 2017: 2.481
9.	A. Anagnostopoulos, J. Łacki, S. Lattanzi, S. Leonardi, and M. Mahdian, "*Community Detection on Evolving Graphs*," In Proceedings of the 30th Annual Conference on Neural Information Processing Systems (NIPS 2016), Barcelona, Spain, 2016	22	12	A++
10.	A. Anagnostopoulos, L. Becchetti, A. Fazzone, I. Mele, and M. Riondato, "*The Importance of Being Expert: Efficient Max-Finding in Crowdsourcing*" In Proceedings of the 2015 ACM SIGMOD International Conference on Management of Data (SIGMOD 2015), Melbourne, Australia, 2015	22	9	A+
11.	A. Anagnostopoulos, L. Becchetti, I. Bordino, S. Leonardi, I. Mele, and P. Sankowski, "*Stochastic Query Covering for Fast Approximate Document Retrieval*," ACM Transactions on Information Systems, Volume 33, Issue 3, 2015	22 (42)	10 (20)	2020: 2.935 2015: 0.977

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1   The number in the parenthesis includes also the citations of the conference version of the paper.

2   Impact factor (JCR) for journal publications and GII-GRIN-SCIE Conference Rating (GGS 22/6/2021) for conference publications.

12.	P. Rozenshtein, A. Anagnostopoulos, A. Gionis, and N. Tatti, "*Event Detection in Activity Networks,*" In Proceedings of the 20th International Conference on Knowledge Discovery and Data Mining (KDD 2014), New York City, New York, USA, 2014	113	65	A++
13.	A. Anagnostopoulos, L. Becchetti, C. Castillo, A. Gionis, and S. Leonardi, "*Online Team Formation in Social Networks,*" In Proceedings of the 21st International World Wide Web Conference (WWW 2012), Lyon, France, 2012	322	193	A++
14.	A. Anagnostopoulos, A. Z. Broder, E. Gabrilovich, V. Josifovski, and L. Riedel, "*Web-Page Summarization for Just-in-Time Contextual Advertising,*" ACM Transactions on Intelligent Systems and Technology, Volume 3, Number 1, 2011	19 (128)	10 (81)	2020: 4.654 2013: 9.390
15.	A. Anagnostopoulos, R. Kumar, and M. Mahdian, "*Influence and Correlation in Social Networks,*" In Proceedings of the 14th ACM International Conference on Knowledge Discovery and Data Mining (KDD 2008), Las Vegas, Nevada, 2008	899	504	A++
16.	A. Anagnostopoulos, A. Z. Broder, and D. Carmel, "*Sampling Search-Engine Results,*" World Wide Web Journal, Volume 9, Number 4, 2006 (The Conference version was runner up for best paper award in WWW 2005.)	(108)	16 (46)	2020: 2.715 2006: 0.794

Part X – Contribution to Industry

During my position at Yahoo Research I collaborated with product groups in the areas of web search and social networks, consulting on what approaches to follow. For instance, the method in the paper "14. Web-Page Summarization for Just-in-Time Contextual Advertising" was used for computational advertizing.

Patents and patent applications:
  • US Patent: M. Mahdian, R. Kumar, and A. Anagnostopoulos, "Identification and Measurement of Social Influence and Correlation," Patent #: US 8,401,984, Date: Mar 19, 2013.
  • US Patent Application: A. Anagnostopoulos, R. Kumar, M. Mahdian, and E. Upfal, "System, Method, and Apparatus for Sorting at Least Partially Dynamic Data," Publication #: US 2010/0228745 A1, Filing date: Mar 3, 2009.
  • US Patent Application: M. Slaney, A. Jaffe, R. Kumar, A. Anagnostopoulos, M. Mahoney, M. Mahdian, M. Rothenberg, and A. Ghosh, "Suggesting Contacts for Social Networks," Publication #: US 2009/0319288 A1, Filing date: Jun 24, 2008.
  • US Patent Application: A. Anagnostopoulos, A. Broder, E. Gabrilovich, V. Josifovski, and L. Riedel "Just-in-Time Contextual Advertising Techniques," Publication #: US 2009/0024718 A1, Filing date: Jul 20, 2007.

Part XI – Full List of Publications

Journal pubblications

1. Amerini, A. Anagnostopoulos, L. Maiano, and L. Ricciardi Celsi. "*Deep Learning for Multimedia Forensics,*" Computer Graphics and Vision, Volume 12, Issue 4, 2021.
2. L. Maiano, I. Amerini, L. Ricciardi Celsi, and A. Anagnostopoulos. "*Identification of Social-Media Platform of Videos through the Use of Shared Features,*" In Journal of Imaging, Volume 7, Issue 8, 2021.
3. A. Scirè, F. Tropeano, A. Anagnostopoulos, and I. Chatzigiannakis, "*Fog-Computing-Based Heartbeat Detection and Arrhythmia Classification Using Machine Learning,*" In Algorithms, Volume 12, Issue 32, 2019.
4. G. Mylonas, D. Amaxilatis, I. Chatzigiannakis, A. Anagnostopoulos, and F. Paganelli, "*Enabling Sustainability and Energy Awareness in Schools Based on IoT and Real-World Data,*" In IEEE Pervasive Computing, Volume 17, Number 4, 2018.
5. A. Anagnostopoulos, F. Grandoni, S. Leonardi, and A. Wiese, "*A Mazing $2 + \varepsilon$ Approximation for Unsplittable Flow on a Path,*" In ACM Transactions on Algorithms, Volume 14, Number 4, 2018.
6. A. Anagnostopoulos, F. Petroni, and M. Sorella, "*Targeted Interest-Driven Advertising in Cities Using Twitter,*" In Data Mining and Knowledge Discovery, Volume 32, Issue 3, 2018.
7. A. Anagnostopoulos, R. Atassi, L. Becchetti, A. Fazzone, and F. Silvestri, "*Tour Recommendation for Groups,*" In Data Mining and Knowledge Discovery, Volume 31, Issue 5, 2017.
8. A. Bessi, F. Petroni, M. Del Vicario, F. Zollo, A. Anagnostopoulos, A. Scala, G. Caldarelli, W. Quattrociocchi, "*Homophily and Polarization in the Age of Misinformation,*" In The European Physical Journal Special Topics, Volume 225, Number 10, 2016.
9. A. Anagnostopoulos, F. Grandoni, S. Leonardi, and P. Sankowski, "*Online Network Design with Outliers,*" In Algorithmica, Volume 76, Number 1, 2016.
10. A. Anagnostopoulos, L. Becchetti, B. de Keijzer, and G. Schäfer, "*Inefficiency of Games with Social Context,*" Theory of Computing Systems, Volume 57, Issue 3, 2015. (invited, selected papers from SAGT 2013).
11. A. Anagnostopoulos, L. Becchetti, I. Bordino, S. Leonardi, I. Mele, and P. Sankowski, "*Stochastic Query Covering for Fast Approximate Document Retrieval,*" ACM Transactions on Information Systems, Volume 33, Issue 3, 2015.
12. A. Anagnostopoulos, A. Dasgupta, and R. Kumar, "A *Constant-Factor Approximation Algorithm for Co-clustering,*" Theory of Computing, Volume 8, 2012.
13. A. Anagnostopoulos, A. Z. Broder, E. Gabrilovich, V. Josifovski, and L. Riedel, "*Web-Page Summarization for Just-in-Time Contextual Advertising*." ACM Transactions on Intelligent Systems and Technology, Volume 3, Number 1, 2011.
14. A. Anagnostopoulos, R. Kumar, M. Mahdian, and E. Upfal, "*Sorting and Selection on Dynamic Data,*" Theoretical Computer Science, Volume 412, Number 24, 2011 (invited, selected papers from ICALP 2009).
15. M. Vlachos, A. Anagnostopoulos, O. Verscheure, and P.S. Yu, "*Online Pairing of VoIP Conversations,*" VLDB Journal, Volume 18, Number 1, 2009.
16. A. Anagnostopoulos, A. Z. Broder, and K. Punera, "*Effective and Efficient Classification on a Search-Engine Model,*" Knowledge and Information Systems, Volume 16, Number 2, 2008 (invited, selected papers from CIKM 2006).
17. A. Anagnostopoulos, A. Z. Broder, and D. Carmel, "*Sampling Search-Engine Results,*" World Wide Web Journal, Volume 9, Number 4, 2006 (invited, selected papers from WWW 2005).
18. A. Anagnostopoulos, L. Michel, P. Van Hentenryck, and Y. Vergados, "*A Simulated Annealing Approach to the Traveling Tournament Problem,*" Journal of Scheduling, Volume 9, Number 2, 2006.
19. A. Anagnostopoulos, I. Kontoyiannis, and E. Upfal, "*Steady State Analysis of Balanced-Allocation Routing,*" Random Structures & Algorithms, Volume 26, Issue 4, 2005.
20. A. Anagnostopoulos, A. Kirsch, and E. Upfal, "*Load Balancing in Arbitrary Network Topologies with Stochastic Adversarial Input,*" SIAM Journal on Computing, Volume 34, Number 3, 2005.
21. A. Anagnostopoulos, R. Bent, E. Upfal, and P. Van Hentenryck, "*A Simple and Deterministic Competitive Algorithm for Online Facility Location,*" Information and Computation, Volume 194, Issue 2, 2004 (special issue in the honor of Paris Kanellakis).

Conference pubblications

1. A. Anagnostopoulos, A. Fazzone, and G. Vettraino "*Skyline in Crowdsourcing with Imprecise Comparisons,*" In Proceedings of the 30th ACM International Conference on Information and Knowledge Management (CIKM 2021), 2021.

2. A. Catalani, I. Chatzigiannakis, A. Anagnostopoulos, G. Akrivopoulou, D. Amaxilatis, and A. Antoniou "*Hardware-assisted and Deep-Learning techniques for Low-Power Detection of Cardiovascular Abnormalities in Smart Wearables,*" In Proceedings of the Hardware-assisted and Deep-Learning techniques for Low-Power Detection of Cardiovascular Abnormalities in Smart Wearables (SmartIoT 2021), 2021.

3. I. Amerini, A. Anagnostopoulos, L. Maiano, and L. Ricciardi Celsi "*Learning Double-Compression Video Fingerprints Left From Social-Media Platforms,*" In Proceedings of the 2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2021), 2021.

4. A. Anagnostopoulos, A. Gionis, and N. Parotsidis, "*Collaborative Procrastination,*" In Proceedings of the 10th International Conference on Fun with Algorithms (FUN 2021), 2021.

5. A. Anagnostopoulos, L. Becchetti, E. Cruciani, F. Pasquale, and S. Rizzo, "*Biased Opinion Dynamics: When the Devil is in the Details,*" In Proceedings of the 29th International Joint Conference on Artificial Intelligence (IJCAI-20), 2020.

6. A. Anagnostopoulos, L. Becchetti, A. Fazzone, C. Menghini and C. Schwiegelshohn "*Spectral Relaxations and Fair Densest Subgraphs,*" In Proceedings of the 29th ACM International Conference on Information and Knowledge Management (CIKM 2020), 2020.

7. T. Aliaj, A. Anagnostopoulos, and S. Piersanti, "*Firms Default Prediction with Machine Learning,*" In Proceedings of the 4th ECML–PKDD Workshop on Mining Data for Financial Applications (MIDAS 2019), September 2019.

8. C. Menghini, A. Anagnostopoulos, and E. Upfal, "*Wikipedia Polarization and Its Effects on Navigation Paths,*" In Proceedings of the 2019 IEEE International Conference on Big Data (BigData 2019), Los Angeles, CA, USA, December 2019.

9. I. Chatzigiannakis, L. Maiano, P. Trakadas, A. Anagnostopoulos, F. Bacci, P. Karkazis, P. Spirakis, and T. Zahariadis, "*Data-Driven Intrusion Detection for Ambient Intelligence,*" In Proceedings of the 2019 European Conference on Ambient Intelligence (AmI 2019), Rome, Italy, November 2019.

10. A. Anagnostopoulos, I. Cohen, S. Leonardi and J. Łacki, "*Stochastic Graph Exploration,*" In Proceedings of the 46th International Colloquium on Automata, Languages, and Programming (ICALP 2019), Patras, Greece, July 2019.

11. A. Anagnostopoulos, C. Castillo, A. Fazzone, S. Leonardi, and E. Terzi, "*Algorithms for Hiring and Outsourcing in the Online Labor Market,*" In Proceedings of the 24th International Conference on Knowledge Discovery and Data Minining (KDD 2018), London, UK, August 2018.

12. O. Akrivopoulos, N. Zhu, D. Amaxilatis, C. Tselios, A. Anagnostopoulos, and I. Chatzigiannakis, "*A Fog Computing-Oriented, Highly Scalable IoT Framework for Monitoring Public Educational Buildings,*" In Proceedings of the 2018 IEEE International Conference on Communications (ICC 2018), Kansas City, MO, USA, May 2018.

13. A. Anagnostopoulos, R. Cavallo, S. Leonardi, and M. Sviridenko, "*Bidding Strategies for Fantasy-Sports Auctions,*" In Proceedings of the 12th Conference on Web and Internet Economics (WINE 2016), Montreal, Canada, December 2016.

14. A. Anagnostopoulos, J. Łacki, S. Lattanzi, S. Leonardi, and M. Mahdian, "*Community Detection on Evolving Graphs,*" In Proceedings of the 30th Annual Conference on Neural Information Processing Systems (NIPS 2016), Barcelona, Spain, December 2016.

15. N. A. Alawad, A. Anagnostopoulos, S. Leonardi, I. Mele, and F. Silvestri, "*Network-Aware Recommendations of Novel Tweets,*" In Proceedings of the 39th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2016), Pisa, Italy, July 2016 (short paper).

16. A. Anagnostopoulos, F. Petroni, and M. Sorella, "*Targeted Interest-Driven Advertising in Cities Using Twitter,*" In Proceedings of the 10th International AAAI Conference on Web and Social Media (ICWSM 2016), Cologne, Germany, May 2016 (short paper).

17. A. Anagnostopoulos and M. Sorella, "*Learning a Macroscopic Model of Cultural Dynamics,*" In Proceedings of the 15th IEEE International Conference on Data Mining (ICDM 2015), Atlantic City, NJ, USA, November 2015 (short paper).

18. A. Anagnostopoulos, L. Becchetti, A. Fazzone, I. Mele, and M. Riondato, "*The Importance of Being Expert: Efficient Max-Finding in Crowdsourcing*," In Proceedings of the 2015 ACM SIGMOD International Conference on Management of Data (SIGMOD 2015), Melbourne, Australia, May–June 2015.

19. A. Bessi, F. Petroni, M. Del Vicario, F. Zollo, A. Anagnostopoulos, A. Scala, G. Caldarelli, and W. Quattrociocchi, "*Viral Misinformation: The Role of Homophily and Polarization*," In Proceedings of the 24th International World Wide Web Conference, Companion Volume (WWW 2015, Web Science track), Florence, Italy, May 2015 (poster paper).

20. A. Anagnostopoulos, D. Ferraioli, and S. Leonardi, "*Competitive Influence in Social Networks: Convergence, Submodularity, and Competition Effects*," In Proceedings of the 14th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2015), Instabul, Turkey, May 2015 (extended abstract).

21. P. Rozenshtein, A. Anagnostopoulos, A. Gionis, and N. Tatti, "*Event Detection in Activity Networks*," In Proceedings of the 20th International Conference on Knowledge Discovery and Data Minining (KDD 2014), New York City, New York, USA, August 2014.

22. A. Anagnostopoulos, F. Grandoni, S. Leonardi, and A. Wiese, "*A Mazing $2 + \varepsilon$ Approximation for Unsplittable Flow on a Path*," In Proceedings of the 25th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2014), Portland, Oregon, USA, January 2014.

23. A. Anagnostopoulos, L. Becchetti, B. de Keijzer, and G. Schäfer, "*Inefficiency of Games with Social Context*," In Proceedings of the 6th International Symposium on Algorithmic Game Theory (SAGT 2013), Aachen, Germany, October 2013.

24. A. Anagnostopoulos, F. Grandoni, S. Leonardi, and A. Wiese, "*Constant Integrality Gap LP Formulations of Unsplittable Flow on a Path*," In Proceedings of the 16th Conference on Integer Programming and Combinatorial Optimization (IPCO 2013), Valparaíso, Chile, March 2013.

25. A. Anagnostopoulos, L. Becchetti, C. Castillo, A. Gionis, and S. Leonardi, "*Online Team Formation in Social Networks*," In Proceedings of the 21st International World Wide Web Conference (WWW 2012), Lyon, France, April 2012.

26. A. Anagnostopoulos, R. Kumar, M. Mahdian, E. Upfal, and F. Vandin, "*Algorithms on Evolving Graphs*," In Proceedings of the 3rd ACM International Conference on Innovations in Theoretical Computer Science (ITCS 2012), Cambridge, Massachusetts, USA, January 2012.

27. A. Anagnostopoulos, G. Brova, and E. Terzi, "*Peer and Authority Pressure in Information-Propagation Models*," In Proceedings of the 22nd European Conference on Machine Learning and 15th European Conference on Principles and Practice of Knowledge Discovery in Databases (ECML/PKDD 2011), Athens, Greece, September 2011.

28. A. Anagnostopoulos, L. Becchetti, S. Leonardi, I. Mele, and P. Sankowski, "*Stochastic Query Covering*," In Proceedings of the 4th ACM International Conference on Web Search and Data Mining (WSDM 2011), Hong Kong, February 2011.

29. A. Anagnostopoulos, L. Becchetti, C. Castillo, A. Gionis, and S. Leonardi, "*Power in Unity: Forming Teams of Experts in Large-Scale Community Systems*," In Proceedings of the 19th ACM Conference on Information and Knowledge Management (CIKM 2010), Toronto, Canada, October 2010.

30. A. Anagnostopoulos, F. Grandoni, S. Leonardi, and P. Sankowski, "*Online Network Design with Outliers*," In Proceedings of the 37th International Colloquium on Automata, Languages and Programming (ICALP 2010), Bordeaux, France, July 2010.

31. A. Anagnostopoulos, C. Dombry, N. Guillotin-Plantard, I. Kontoyiannis, and E. Upfal, "*Stochastic Analysis of the k-Server Problem on the Circle*," In Proceedings of the 21st International Meeting on Probabilistic, Combinatorial and Asymptotic Methods for the Analysis of Algorithms (AofA 2010), Vienna, Austria, June-July 2010.

32. A. Anagnostopoulos, L. Becchetti, C. Castillo, and A. Gionis, "*An Optimization Framework for Query Recommendation*," In Proceedings of the 3rd ACM International Conference on Web Search and Data Mining (WSDM 2010), New York, USA, February 2010.

33. A. Anagnostopoulos, R. Kumar, M. Mahdian, and E. Upfal, "*Sort Me If You Can: How to Sort Dynamic Data*," In Proceedings of the 36th International Colloquium on Automata, Languages and Programming (ICALP 2009), Rhodes, Greece, July 2009.

34. A. Anagnostopoulos, R. Kumar, and M. Mahdian, "*Influence and Correlation in Social Networks*," In Proceedings of the 14th ACM International Conference on Knowledge Discovery and Data Mining (KDD 2008), Las Vegas, Nevada, August 2008.

35. A. Anagnostopoulos, A. Dasgupta, and R. Kumar, "*Approximation Algorithms for Co-Clustering,*" In Proceedings of the 27th ACM Symposium on Principles of Database Systems (PODS 2008), Vancouver, Canada, June 2008.

36. A. Anagnostopoulos, A. Z. Broder, E. Gabrilovich, V. Josifovski, and L. Riedel, "*Just-in-Time Contextual Advertising,*" In Proceedings of the 16th ACM Conference on Information and Knowledge Management (CIKM 2007), Lisbon, Portugal, November 2007.

37. O. Verscheure, M. Vlachos, A. Anagnostopoulos, P. Frossard, E. Bouillet, and P. S. Yu, "*Finding 'Who Is Talking to Whom' in VoIP Networks via Progressive Stream Clustering,*" In Proceedings of the 6th IEEE International Conference on Data Mining (ICDM 2006), Hong Kong, December 2006.

38. A. Anagnostopoulos, A. Z. Broder, and K. Punera, "*Effective and Efficient Classification on a Search-Engine Model,*" In Proceedings of the 15th ACM Conference on Information and Knowledge Management (CIKM 2006), Arlington, Virginia, November 2006.

39. A. Anagnostopoulos, M. Vlachos, M. Hadjieleftheriou, E. Keogh, and P. S. Yu, "*Global Distance-Based Segmentation of Trajectories,*" In Proceedings of the 12th ACM International Conference on Knowledge Discovery and Data Mining (KDD 2006), Philadelphia, Pennsylvania, August 2006.

40. A. Anagnostopoulos, A. Z. Broder, and D. Carmel, "*Sampling Search-Engine Results,*" In Proceedings of the 14th International World Wide Web Conference (WWW 2005), Chiba, Japan, May 2005 (runner up, best paper award).

41. A. Anagnostopoulos, A. Kirsch, and E. Upfal, "*Stability and Efficiency of a Random Local Load Balancing Protocol,*" In Proceedings of the 44th IEEE Symposium on Foundations of Computer Science (FOCS 2003), Cambridge, Massachusetts, October 2003.

42. A. Anagnostopoulos, L. Michel, P. Van Hentenryck, and Y. Vergados, "*A Simulated Annealing Approach to the Traveling Tournament Problem,*" In Proceedings of the 18th International Joint Conference on Artificial Intelligence (IJCAI 2003), Acapulco, Mexico, August 2003 (short paper).

43. A. Anagnostopoulos, I. Kontoyiannis, and E. Upfal, "*The Advantage of Balanced Allocation Routing for ATM Networks,*" In Proceedings of the 2003 IEEE International Symposium on Information Theory (ISIT 2003), Yokohama, Japan, June 2003.

44. A. Anagnostopoulos, L. Michel, P. Van Hentenryck, and Y. Vergados, "*A Simulated Annealing Approach to the Traveling Tournament Problem,*" In Proceedings of the 5th International Workshop on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CP-AI-OR 2003), Montreal, Canada, May 2003.

45. A. Anagnostopoulos, M. T. Goodrich, and R. Tamassia, "*Persistent Authenticated Dictionaries and Their Applications,*" In Proceedings of the 4th Information Security Conference (ISC 2001), Malaga, Spain, October 2001.

Rome, 16/10/2021   Aristidis Anagnostopoulos