Alessandro Epasto

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CURRENT POSITION

Present – Mar 2016	**Senior Research Scientist** at Google, New York. Manager: Vahab Mirrokni (mirrokni@google.com) working in the Graph Mining team part of Google NYC Algorithms And Optimization team of Google AI New York. Formerly, research scientist from March 2016 to April 2018.

ACADEMIC EXPERIENCE

Feb 2016 – Jan 2015	**Postdoctoral Researcher** at Brown University. Advised by Prof. Eli Upfal (eli@cs.brown.edu). Research area: Algorithmic problems in the analysis of very large datasets.
Feb 2015 – Nov 2011	**Ph.D. in Computer Science** at the Sapienza University of Rome. Supported by the "Google European Doctoral Fellowship 2011 in Algorithms" for three years**.** Supervisor: Prof. Alessandro Panconesi (ale@di.uniroma1.it). Thesis title: "*Mining Large-Scale Graphs.*" Research area: Algorithmic problems in large-scale graph mining and social networks analysis.
Sep 2011 – Oct 2009	**Master of Science in Computer Science** at the Sapienza University of Rome, Thesis title: "*Community Detection and Sybil Defense.*" Grade average: *29.89/30.* Final grade: 110/110 *cum laude*. Thesis advisor: Prof. Alessandro Panconesi.
Jul 2011 – Jan 2011	**Erasmus exchange program.** Participation for a semester in the European student exchange program *Erasmus* at the University of Leicester (UK).
Oct 2009 – Oct 2006	**Bachelor of Science in Computer Science** at the University of Rome "Tor Vergata." Thesis title: "*Integrated Information in Probabilistic Boolean Network.*" Grade average: *29.87/30.* Final grade: *110/110 cum laude*. Thesis advisor: Prof. Enrico Nardelli (nardelli@mat.uniroma2.it).

RESEARCH

Publications	
2019	A. Epasto, H. Esfandiari, V. Mirrokni, *"On-Device Algorithms for Public-Private Data with Absolute Privacy"*. To appear in Proceedings of The Web Conference 2019, WWW, San Francisco, 2019
2019	A. Epasto, B. Perozzi, *"Is a Single Embedding Enough? Learning Node Representations that Capture Multiple Social Contexts"*. To appear in Proceedings of The Web Conference 2019, WWW, San Francisco 2019
2018	A. Epasto, E. Upfal, *"Efficient Approximation for Restricted Biclique Cover Problems"*. Algorithms, issue 11, p. 84, 2018
2018	A. Epasto, M. Mahdian, V. Mirrokni, S. Zuo, *"Incentive-aware learning for large markets"*. In Proceedings of the 27th International Conference on World Wide Web, WWW, Lyon, France, 2018
2017	A. Epasto, S. Lattanzi, and R. P. Leme, *"Ego-splitting Framework: from Non-Overlapping to Overlapping Clusters."* In Proceedings of 23rd ACM SIGKDD Conference on Knowledge Discovery and Data Mining, KDD, Halifax, Canada
2017	A. Epasto, A. Mahmoody and E. Upfal *"Real-Time Targeted-Influence Queries over Large Graphs."*. In Proceedings of the IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, ASONAM, Sydney, Australia, 2017

2017   A. Epasto, V. Mirrokni and M. Zadimoghaddam, *"Bicriteria Distributed Submodular Maximization in a Few Rounds.".* In Proceedings of 29th ACM Symposium on Parallelism in Algorithms and Architectures, SPAA, Washington DC, USA.

2017   L. De Stefani, A. Epasto, M. Riondato, E. Upfal *"TRIÈST: Counting Local and Global Triangles in Fully-dynamic Streams with Fixed Memory Size."* In ACM Transactions on Knowledge Discovery from Data, TKDD.

2017   Alessandro Epasto, Silvio Lattanzi, Sergei Vassilvitskii, Morteza Zadimoghaddam, *"Submodular Optimization over Sliding Windows"* in Proceedings of the 26th International World Wide Web Conference (WWW), Perth, Australia, 2017.

2017   David Stück, Haraldur Tómas Hallgrímsson, Greg Ver Steeg, Alessandro Epasto, Luca Foschini, *"The Spread of Physical Activity in Social Networks,"* in Proceedings of the 26th International World Wide Web Conference (WWW), Perth, Australia, 2017.

2016   Lorenzo De Stefani, Alessandro Epasto, Matteo Riondato, Eli Upfal *"TRIÉST: Counting Local and Global Triangles in Fully-dynamic Streams with Fixed Memory Size,"* In Proceedings of the 22nd ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), San Francisco, 2016. **Best student paper award.**

2016   Lorenzo De Stefani, Alessandro Epasto, Eli Upfal, Fabio Vandin *"Reconstructing Hidden Permutations Using the Average-Precision (AP) Correlation Statistic,"* In Proceedings of the 30th AAAI Conference on Artificial Intelligence (AAAI), Phoenix, Arizona, USA, 2016.

2016   Alessandro Epasto, Silvio Lattanzi, Vahab Mirrokni, Ismail Sebe, Ahmed Taei and Sunita Verma, *"Ego-net Community Mining Applied to Friend Suggestion,"* iIn Proceedings of the 42nd International Conference on Very Large Data Bases (VLDB), New Delhi, India, 2016.

2015   Flavio Chierichetti, Alessandro Epasto, Ravi Kumar, Silvio Lattanzi and Vahab Mirrokni, *"Efficient Algorithms for Private-Public Graphs,"* In Proceedings of the 21st ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), Sydney, Australia, 2015. **Best paper award.**

2015   Alessandro Epasto, Silvio Lattanzi, Mauro Sozio, *"Efficient Densest Subgraph Computation in Evolving Graphs,"* in Proceedings of the 24th International World Wide Web Conference (WWW), Florence, Italy, 2015.

2014   Pawel Brach, Alessandro Epasto, Alessandro Panconesi, Piotr Sankowski, *"Spreading Rumors without the Network,"* in Proceedings of the 2nd ACM Conference on Social Networks (COSN), 2014.

2014   Lorenzo Alvisi, Allen Clement, Alessandro Epasto, Silvio Lattanzi, Alessandro Panconesi, *"Communities, Random Walks and Sybil Defense."* Journal of Internet Mathematics, 2014.

2014   Alessandro Epasto, Jon Feldman, Silvio Lattanzi, Stefano Leonardi, Vahab Mirrokni, *"Reduce and Aggregate: Similarity Rankings in Multi-Categorical Bipartite Graphs."* In Proceedings of the 23rd International World Wide Web Conference (WWW), Seoul, Korea, 2014.

2013   Marco V. Barbera, Alessandro Epasto, Alessandro Mei, Vasile C. Perta, and Julinda Stefa, *"Signals from the Crowd: Uncovering Social Relationships through Smartphone Probes."* In Proceedings of the 13th ACM/SIGCOMM Conference on Internet Measurement (IMC), Barcelona, Spain, 2013.

2013   Lorenzo Alvisi, Allen Clement, Alessandro Epasto, Silvio Lattanzi, Alessandro Panconesi, *"SoK: The Evolution of Sybil Defense via Social Networks."* In Proceedings of the 34th IEEE Symposium on Security and Privacy (S&P), pp. 382-396, San Francisco, USA, 2013.

Manuscripts

Alessandro Epasto, Marco Isopi, Alessandro Panconesi. "Spreading Rumors via Coupling."

Patents

2018	Vahab Mirrokni, Silvio Lattanzi, Jon Feldman, Alessandro Epasto, Stefano Leonardi, Hugh Lynch, Varun Sharma, *"Efficient Similarity Ranking For Bipartite Graphs,"* US Patent 10,152,557 B2, granted on Dec 11, 2018, Application 20150220530, filed in 2014.
2015	Alessandro Epasto, Alon Altman, *"Systems and Methods for Detecting Online Attacks,"* US Patent 9,183,387, granted on Nov 10, 2015

Selected Talks

2018	*"A Simple Framework for Optimization over Sliding Windows"*, Workshop on Foundations of Learning from Data, Bertinoro, Italy, 2018.
2017	*"Mining Graphs at Scale: Ego-Networks, Clusters and Privacy",* UMass Amherst Data Science Talk, Amherst, MA, 2017
2017	*"Ego-splitting Framework: from Non-Overlapping to Overlapping Clusters".* KDD, Halifax, Canada, 2017.
2017	*"Submodular Optimization over Sliding Windows".* WWW, Perth, Australia, 2017.
2017	*"Submodular Optimization over Sliding Windows"* in Brown University, Computer Science Department, Providence, RI, 2017.
2016	*"Submodular Optimization over Sliding Windows"* in Boston University in Data Management Group.
2016	*"Ego-net Community Mining Applied to Friend Suggestion"* in VLDB2016, New Delhi, India, 2016.
2016	*"TRIÉST: Counting Local and Global Triangles in Fully-dynamic Streams with Fixed Memory Size,"* in SINS2016 Workshop Venice, 2016.
2015	*"Efficient Algorithms for Private-Public Graphs*," in ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2015, Sydney, Australia, 2015.
2015	*"Efficient Densest Subgraph Computation in Evolving Graphs,"* in World Wide Web Conference, Florence, Italy, 2015.
2015	*"Efficient Densest Subgraph Computation in Evolving Graphs,"* Brown U. C.S. Theory meetings, 2015.
2014	*"Spreading Rumors without the Network,"* ACM Conference on Social Networks COSN, Dublin, Ireland, 2014.
2014	*"Reduce and Aggregate: Similarity Rankings in Multi-Categorical Bipartite Graphs."* In International World Wide Web Conference, Seoul, 2014.
2014	*"Random Walks on Bipartite Graphs."* ICERM Workshop on Stochastic Graph Models, Brown University, Providence, RI USA, 2014.
2013	*"Ranking Advertisers and Queries,"* Google Algorithm Seminars, Google New York, 2013.
2013	*"SoK: the Evolution of Sybil Defense via Social Network,"* IEEE Symposium on Security and Privacy, San Francisco, 2013.
2013	*"Spreading Rumors without the Network,"* Workshop SINS 2013, Synergic Investigations in Network Science, Bertinoro International Center for Informatics, Bertinoro, Italy, 2013.

Selected Poster Presentations

2019	*"Efficient On-Device Public-Private Learning"*, 13th Annual Machine Learning Symposium, New York Academy of Sciences, 2019.
2017	*"Submodular Optimization over Sliding Windows"*, 11th Annual Machine Learning Symposium, New York Academy of Sciences, 2017.

Awards, Grants and Fellowships

2016	**Best Student Paper Award** (as coauthor) at ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2016 for the paper *"TRIÉST: Counting Local and Global Triangles in Fully-dynamic Streams with Fixed Memory Size,"* San Francisco, USA, 2016.
2015	**Best Paper Award** at ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2015 for the paper *"Efficient Algorithms for Private-Public Graphs,"* Sydney, Australia, 2015.
2013	**Research Grant** *"Starting Grant"* (Italian: *"Avvio alla Ricerca"*) from Sapienza U. for the research project: *"Uncovering the hidden differences among real network classes: sybil defense and graph compression"* offered by Sapienza U. of Rome.
2013	**Student Award** *"Excellent Graduate"* (Italian: "Laureato Eccellente Sapienza") *from Sapienza U. of Rome* academic year 2011/2012.
2012	**Research Grant** *"Caspur HPC standard grant"* for the research project: *"Diffusion processes on real graphs,"* recipient of 80,000 hours of high performance computing at Caspur facility.
2011	**Ph.D. Fellowship** *"Google European Doctoral Fellowship 2011 in Algorithms."* Recipient of a competitive international scholarship for the attendance of a Ph.D. course, sponsored by Google, which entails: 3 years full tuition fees, salary, research and travel funding.
2011	**Student Award** *"Percorso di Eccellenza,"* Sapienza University for the Master degree course.
2009	**Research Grant** *"Caspur HPC standard grant 2009"* for the research projects: *"Graphs with high casual integration,"* recipient of 80,000 hours of high performance computing at Caspur facility.
2009 – 2007	**Student Awards:** *"Wanted the Best"* from Sapienza University of Rome in association with Wind s.p.a., for 2009/10 academic year; Previous awards from University of Rome *"Tor Vergata"* for both 2007/08 and 2008/09 academic years.
2006	**Gold medal** at Italian Computer Olympiads, national qualification contest to the IOI (International Olympiads in Informatics), Milan Mar 9–11.

Teaching

2014	Lecturer at a postgraduate course in Big Data part of the "Information Security Master" at the Sapienza University of Rome. My activities included 16 hours of formal lectures and laboratory experiences. Topics: MapReduce; frequent itemsets algorithms; random walks method (PageRank, Personalized PageRank); graph clustering techniques, laboratory experiences in Python.
2012–2014	Tutor at Python programming course offered by the Sapienza University of Rome to high school students in preparation for the Computer Science Olympics.

Service to the Scientific Community

I served (or I will serve) as Program Committee member of the following conferences: KDD2019, AAAI2019, WWW2019, WSDM2019, CIKM2018, ASONAM2018, ICWSM2018, WebSci2018, KDD2018, WWW2018, AAAI2018, WSDM2018, CIKM2017, WebSci2017, KDD2017, ASONAM2017, ICWSM2017, AAAI2017, WWW2017, WSDM2017, IEEE SITIS 2016, DSAA2016, ASONAM2016, WebSci2016, KDD2016, AAAI2016, WSDM2016, ASONAM2015; and for the workshop MLG2018, MLG2017, and as reviewer for the following conferences: SODA2018, SPAA2017, ICDM2017, SODA2017, WWW2016, ESA2015, ICWSM2015, WWW2015, IPDPS 2015, WSDM2015, WWW2014, WSDM2014, ESORICS2013;

Session Chair at WWW2018 "Social Network Analysis and Graph Algorithms for the Web."

I served as a reviewer of the following journals: "Journal of Parallel and Distributed Computing," "IEEE Internet Computing," "Transactions on Knowledge Discovery from Data," "Journal of Machine Learning Research," "Computer Journal," "ACM Transactions on the Web." "Transactions on Knowledge and Data Engineering.", "Journal of Graph Algorithms and Applications", "IEEE Transactions On Mobile Computing".

I served on the review panel for grants proposals at the United States National Science Foundation (NSF) for the Information & Intelligent Systems Division (IIS) in 2016 and 2018.

I served as a reviewer for the Google Faculty Research Awards in 2016, 2017 and 2018.

I served in a Ph.D. dissertation committee at the Computer Science Department of Brown University in 2017.

The code produced during many of the research projects is available open source online at github.org/aepasto

PREVIOUS WORK EXPERIENCE

Google, Inc.

Aug 2014 – May 2014	**Software Engineering Intern** at Google, Mountain View (CA), USA. Under the supervision of Sunita Verma (Google+) in collaboration with the Google Research team.
	Objective: design, implementation and evaluation of novel link prediction methods based on large-scale ego-net graph mining. Technology involved: C++, MapReduce, Flume, Bigtable, etc. Reference: Sunita Verma. (sunitav@google.com).
Aug 2013 – May 2013	**Software Engineering Intern** at Google, New York (NY), USA. Under the supervision of Jon Feldman (Google Research) in collaboration with the AdWords team.
	Main achievements: design, implementation and evaluation of large-scale bipartite graph mining algorithms for the identification of top competitors and suggestion of related queries for Google AdWords advertisers. Academic paper accepted for publication in the WWW 2014 conference and patent application filed in U.S. patent office. Reference: Jon Feldman, Ph.D. Researcher (jonfeld@google.com).
Sep 2012 – Jun 2012	**Software Engineering Intern** at Google, Mountain View (CA), USA. Worked under the supervision of Alon Altman in the Google+ spam and abuse fighting team.
	Main achievements: design, implementation and evaluation of a MapReduce-based framework for the analysis of abusive content propagation in the Google+ social network. Design of scalable algorithms for the analysis of very large-scale graphs. A patent application has been filed for the framework. Reference: Alon Altman. Software engineer (epsalon@google.com).

GRIN, Gruppo Informatica

Dec 2010 – Apr 2010,	**Web Developer** at GRIN: re-engineering the architecture of the web-based application, for the certification process of the degree courses, in computer science, in Italy.
Jul 2009 – Sep 2008	Main achievements: Simplification of the periodical process of maintenance, handling of the system reliability, internationalization, and changes management. Switching from a single-layered PHP-based application to a multi-tier (MVC) Java one.
	Realized website (in Italian): http://grin.informatica.uniroma2.it/certificazione/2010
	Technology involved: Java, JSP, JavaScript, HTML, Spring framework, Hibernate, MySQL, Apache/Tomcat. Reference: Prof. Enrico Nardelli, past president of GRIN, nardelli@mat.uniroma2.it.
Jul 2008 – Feb 2008	**Web Developer** at GRIN: maintenance and revision of the code of the web-based platform for adequacy with 2008 GRIN standards.
	Technology involved: PHP, HTML, MySQL, Apache. Other info: (See above).

COMPUTER SKILLS

Programming	C/C++ (professional), Java (intermediate), Python (intermediate).
Database	Experience in the design and development of database-based applications. Good level of command of MySQL database management system and SQL language.
Operating Systems	Good command of Windows, Linux, Mac Operating Systems. Some system administration and configuration experience in Linux environment.

Office Automation	Good knowledge of the main productivity tools such as "Microsoft Office" (Word, Excel, Access, etc).
Other	Some experience with the use of scientific environments such as MATLAB. Good use of Latex.

LANGUAGES

Italian	Mother tongue.
English	Fluent English.
Spanish	Lower–Intermediate level of Spanish.

PROFESSIONAL MEMBERSHIP

Association for Computing Machinery (ACM)—Since 2008
Institute of Electrical and Electronic Engineers (IEEE)—Since 2009

OTHER INFORMATION

I hold a current CPR/AED/First Aid certification from the American Red Cross. I'm fond of scuba diving and I hold a recreational diving certification. I used to practice fencing at a competitive level for several years, and now I enjoy running and backpacking.