

# Gabriele Russo Russo

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## Education

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- 2017– **PhD student** in Computer Science, University of Rome Tor Vergata.  
*Advisors:* Prof. Valeria Cardellini, and Prof. Francesco Lo Presti.
- 2019 **Visiting PhD student**, Imperial College London (UK).  
Hosted by Dr. Giuliano Casale, August-September 2019.
- 2014–17 **Laurea Magistrale** (MSc equivalent) in Computer Engineering.  
University of Rome Tor Vergata, 110/110 *cum laude*.  
*Thesis:* “Optimal Deployment and Run-Time Reconfiguration for Data Stream Processing”.  
*Advisors:* Prof. Valeria Cardellini and Prof. Francesco Lo Presti.
- 2011–14 **Laurea** (BSc equivalent) in Computer Engineering.  
University of Rome Tor Vergata, 110/110 *cum laude*.  
*Thesis:* “Analysis and Implementation of Energy-Aware Routing Algorithms for Ad-Hoc Wireless Networks”. *Advisor:* Prof. Francesco Lo Presti.

## Attended Schools and Symposiums.....

- 2019 7<sup>th</sup> **Heidelberg Laureate Forum**, Heidelberg (Germany), September.
- 2019 ACM Europe Summer School on *HPC Architectures for AI and Dedicated Applications*, Barcelona (Spain), July.
- 2018 Symposium *Being human with algorithms*, Heidelberg (Germany), September.
- 2018 Summer School *Advanced Course on Data Science & Machine Learning*, Siena (Italy), July.
- 2017 Summer School on *Optimization, Big Data and Applications*, Veroli (Italy), July.
- 2017 Summer School on *Latency Control for Internet of Services*, Karlstad (Sweden) June.

## Honors and Awards

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- 2011 **Alfiere del Lavoro**.  
Awarded by Italian President Giorgio Napolitano and *Federazione Nazionale Cavalieri del Lavoro*. I was included in the list of the 25 Italian students completing high school with the highest grades.

## Student Travel Grants.....

- 2019 Travel grant sponsored by SAP for attending the *13th ACM Conference on Distributed and Event-Based Systems (DEBS 2019)* in Darmstadt (Germany).
- 2018 Travel grant sponsored by ACM Council of European Chapter Leaders for attending the Symposium *Being human with algorithms* in Heidelberg (Germany).
- 2017 Travel grant for attending the Summer School on *Latency Control for Internet of Services* organized by COST Action 1304 *Autonomous Control for a Reliable Internet of Services* (ACROSS), in Karlstad (Sweden).

## Professional service

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I reviewed manuscripts submitted to the following international journals:

- Science of Computer Programming, Elsevier (2020)
- Future Generation Computing Systems, Elsevier (2019)
- Cluster Computing, Springer (2019)
- Expert Systems with Applications, Elsevier (2018)

I reviewed manuscripts submitted to the following international conferences:

- ACM Distributed and Event-based Systems (2019)
- IEEE Vehicular Technology Conference (2018)

## Teaching

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2019 *Hands-on Cloud Computing Services*, Laurea Magistrale (MSc equivalent) in *Computer Science*, University of Rome Tor Vergata.

2019 *Hands-on Big Data & Hadoop*, 2nd Level Master degree in *Customer Experience & Social Media Analytics* (CESMA), University of Rome Tor Vergata.

As a teaching assistant:

2018–20 *Computer Architecture* course, University of Rome Tor Vergata.  
Course taught by Prof. Valeria Cardellini and Prof. Francesco Lo Presti.

2016–18 *Computer Architecture* course, University of Rome Tor Vergata.  
Course taught by Prof. Salvatore Tucci.

## Thesis supervision

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I have co-supervised the following *Laurea Magistrale* (MSc) theses:

- T7 A. Schiazza, *Mechanisms and Policies for Elastic Functions in Apache Pulsar* (Italian), April 2020. Supervisor: Valeria Cardellini.
- T6 S. Mancini, *Elastic Data Stream Processing on Heterogeneous Resources using Deep Reinforcement Learning* (Italian), February 2020. Supervisor: Valeria Cardellini.
- T5 E. Serrao, *Elasticity Control Policies for Data Stream Processing in the Fog: A Reinforcement Learning Approach* (Italian), April 2019. Supervisor: Francesco Lo Presti.
- T4 A. Ponte, *A Scalable Architecture for Real-Time Data Analytics based on Akka* (Italian), April 2019. Supervisor: Valeria Cardellini.
- T3 M. Calzetta, *Mechanisms and Reinforcement Learning-based Policies for Elastic Data Stream Processing in Apache Flink* (Italian), February 2019. Supervisor: Valeria Cardellini.
- T2 F. Di Giacomo, *Operator Migration Policies for Data Stream Processing in a Fog Environment* (Italian), February 2019. Supervisor: Francesco Lo Presti.
- T1 G. Vertulli, *A Deep Reinforcement Learning-based Approach for Data Stream Processing Application Placement* (Italian), October 2018. Supervisor: Valeria Cardellini.

## Publications

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### International Journals.....

- J3 G. Russo Russo, M. Nardelli, V. Cardellini, F. Lo Presti, "Multi-Level Elasticity for Wide-Area Data Streaming Systems: A Reinforcement Learning Approach", *Algorithms*, vol. 11(9), 2018.
- J2 V. Cardellini, F. Lo Presti, M. Nardelli, G. Russo Russo, "Decentralized self-adaptation policies for elastic data stream processing", *Future Generation Computer Systems*, vol. 87, pp. 171–185, 2018.
- J1 V. Cardellini, F. Lo Presti, M. Nardelli, G. Russo Russo, "Optimal operator deployment and replication for elastic distributed data stream processing", *Concurrency Computat: Pract Exper.*, Vol. 30, No. 9, 2018.

### International Conferences and Workshops.....

- C5 G. Russo Russo, V. Cardellini, F. Lo Presti, "Reinforcement learning based policies for elastic stream processing on heterogeneous resources", *Proceedings of the 13th ACM International Conference on Distributed and Event-based Systems (DEBS 2019)*, Darmstadt, Germany, 24-28 June 2019.
- C4 M. Nardelli, G. Russo Russo, V. Cardellini, F. Lo Presti, "A multi-level elasticity framework for distributed data stream processing", *International Workshop on Autonomic Solutions for Parallel and Distributed Data Stream Processing (Auto-DaSP 2018)* (in conjunction with Euro-Par 2018), Turin, Italy, August 28, 2018. Published in *Euro-Par 2018: Parallel Processing Workshops*, Lecture Notes in Computer Science Vol. 11339, Springer, pp. 53-64, 2019.
- C3 G. Russo Russo, "Towards Decentralized Auto-Scaling Policies for Data Stream Processing Applications", *Proceedings of 10th ZEUS Workshop (ZEUS 2018)*, Dresden, Germany, February 2018. CEUR-WS.org/Vol-2072.
- C2 V. Cardellini, F. Lo Presti, M. Nardelli, G. Russo Russo, "Auto-scaling in data stream processing applications: A model based reinforcement learning approach", *InfQ 2017 – New Frontiers in Quantitative Methods in Informatics* (in conjunction with VALUETOOLS 2017), Venice, Italy, December 4, 2017. Communications in Computer and Information Science Vol. 825, pp. 97–110, Springer, 2018.
- C1 V. Cardellini, F. Lo Presti, M. Nardelli, G. Russo Russo, "Towards hierarchical autonomous control for elastic data stream processing in the fog", *International Workshop on Autonomic Solutions for Parallel and Distributed Data Stream Processing (Auto-DaSP 2017)* (in conjunction with Euro-Par 2017), Santiago de Compostela, Spain, August 29, 2017. *Euro-Par 2017: Parallel Processing Workshops*, Lecture Notes in Computer Science Vol. 10659, Springer, pp. 106–117, 2018. [https://doi.org/10.1007/978-3-319-75178-8\\_9](https://doi.org/10.1007/978-3-319-75178-8_9)