# Gabriele Russo Russo

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## Education

**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 Engineerinig.
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   7th **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

**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

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

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

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

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

## 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`