

PERSONAL INFORMATION Giacomo Lanciano

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EXPERIENCE

Nov 2019 - present Ph.D. Student, Data Science

Scuola Normale Superiore - Pisa, Italy

- Applied research on the intersection between Cloud Computing and Data Science, focusing on data-driven data center operations.
- Published articles at international conferences (CCGrid, CLOSER, SAC, SBAC-PAD, UCC).
- Lead Sysadmin of the <u>ReTiS Lab</u>'s OpenStack cluster, supporting researchers and students with DevOps activities and tutorials. Technologies: Nova, Neutron, Heat, Senlin, Monasca, Octavia, Python, Bash, Docker, Ansible, Libvirt, Grafana.
- Authored open-source contributions to OpenStack (Kolla-Ansible, Monasca).

Jun 2022 – Sep 2022 Ph.D. Intern

Nokia Bell Labs - Stuttgart, Germany

 Applied research on quality-aware DevOps and Large Language Models, focusing on Kubernetes architectural patterns analysis.

Sep 2018 - Oct 2019 Research Engineer

Scuola Superiore Sant'Anna - Pisa, Italy

- Recipient of a research scholarship (Sep 2018 Feb 2019) and an "assegno di ricerca" (Mar 2019 Oct 2019).
- Applied research on AI-driven NFV operations, a collaboration with Vodafone that resulted in multiple patents and articles.
- Developed tools to support Vodafone Network Virtual Infrastructure team's activities in production environments.

Mar 2018 – Aug 2018 DevOps Engineer

Reply - Rome, Italy

- Worked in an innovative startup on a serverless IoT platform developed with AWS technology.
- In charge of development, testing and deployment of the Edge Computing software stack. Technologies: Python, Bash, EC2, S3, Lambda, Kinesis, AWS IoT, Greengrass, Atlassian Bamboo, Dell Edge 5100/3001.
- Boosted team productivity by introducing several key automations and overviewing the training of new interns and employees.
- Effectively deployed and maintained several production environments, managing data from hundreds of industrial sensors.

Jun 2017 – Dec 2017 Process Mining Researcher

Eindhoven University of Technology

- Developed an award-winning M.Sc. thesis on Planning-based methods for alignment-based conformance checking.
- Published articles at international conferences (BPM, ICAPS).



EDUCATION _

2015 – 2017	M.Sc. in Engineering in Computer Science - Excellence Track, 110/110 cum laude
	 Sapienza University of Rome GPA: 29.8/30 Awarded the title of "Sapienza Excellent Graduated". Admitted in the Excellence Track for the top 10 Master students. Awarded two merit-based scholarships to develop my Master Thesis abroad. M.Sc. Thesis in Process Mining developed at Eindhoven University of Technology on the application of AI to Alignment-Based Conformance Checking. Articles published at international conferences.
2012 – 2015	B.Sc. in Computer Science and Control Engineering, 103/110
	Sapienza University of Rome
	As B.Sc. Thesis, I developed an Android app named <i>FreeMind</i> . It is designed for people who are affected by chronic headache. It allows them to store a set of information needed by a doctor to make diagnosis more accurate, in the most automatic possible way. If a user owns a wearable heart rate monitor (connected via Bluetooth), he can also visualize the measured data. This project also includes a website for doctors to manage their patients data.
PERSONAL SKILLS	
Languages	Italian (Native), English (C1).
Job-related skills	 Coding: Python, Java, Bash, SQL, C/C++ DevOps: Git, Docker, Ansible, GitHub, GitLab, CircleCI Cloud: AWS, OpenStack, GCP, Kubernetes Data: Pandas, Scikit-learn, Dask, TensorFlow, PyTorch, Hugging Face, Spark
ADDITIONAL INFORMATION	
Projects	 PaperOps. Where academic LTEX paper writing meets DevOps (source code: https://github.com/giacomolanciano/paperops). monasca-predictor. A time-series forecasting component that aims at enhancing the capabilities of OpenStack Monasca, to enable predictive resource auto-scaling and management (source code: https://github.com/giacomolanciano/monasca-predictor). Planning-Based Alignment of Event Logs and Petri Nets. A tool, available as a ProM plug-in, for Alignment-Based Conformance Checking of event logs and prescriptive process models (Petri nets) through Automated Planning (source code: https://github.com/giacomolanciano/PlanningBasedAlignment). Multi-User Segmentation for Process-Based Habit Mining. I worked on this project in the context of the Excellence Track of the M.Sc. in Engineering in Computer Science at Sapienza University of Rome. I collaborated to a research in Process-Based Habit Mining, tackling the problem of tracking the actions of multiple users in a smart environment by analyzing a raw sensor log (source code: https://github.com/giacomolanciano/multi-user-segmentation). Sequence classification. Analysis and implementation of two approaches for sequence classification: SVM equipped with an ad-hoc implementation of Spectrum Kernel LSTM-based Recurrent Neural Network (developed with TensorFlow) (source code: https://github.com/giacomolanciano/sequence-classification). Sentweements. This project consists in two data visualizations: an images streaming emotion analysis (implemented with Microsoft Emotion API) and a sentimental map of Italy based on tweets streaming. Data are retrieved through Twitter API for Python (source code: https://github.com/giacomolanciano/sequence-classification



- DIAG Visitors Reimbursement Process. This project is focused on the reimbursement process that takes place at DIAG (my academic department) when a foreign professor is invited to spend some time there, to be involved in some kind of activity. It consists in a formal definition of data (UML) and activities (BPMN 2.0) involved and an implementation developed with Bizagi Suite (report: https://goo.gl/YafH6q).
- Azure Machine Learning tutorial. Lecture held within Data Mining course of my M.Sc. The lecture consists in a quick overview on Machine Learning theory and tools, with a focus on Microsoft's Azure Machine Learning Studio, and in an hands-on tutorial. A video that resumes the contents of the lecture is available on YouTube (project page: https://github. com/giacomolanciano/Azure-Machine-Learning-tutorial).
- ChefChefGo. Recipes search engine built on top a cosine-similarity-based inverted index. The underlying dataset has been built by scraping the BBC website with an adhoc crawler and preprocessed using NLP techniques. The engine supports both conjunctive and disjunctive queries, with the possibility to indicate negated terms. A fancy web interface developed with *Flask* microframework is also available (source code: https://github.com/giacomolanciano/Data-Mining-homeworks/tree/master/hw01).
- TakeATrip. Android app designed for travellers who love to collect memories from their journeys and wish to organize them in a simple and intuitive way (source code: https: //github.com/giacomolanciano/TakeATrip).
- Google Technologies for Cloud and Web Development, Rome 2015/2016 edition. An exclusive workshop sponsored by Google and hosted by Sapienza University of Rome (see https://sites.google.com/a/dis.uniroma1.it/ google-technologies-for-cloud-and-web-development-2015/ for further details).
- Honors and awards Bertelsmann Tech Scholarship 2020 Cloud DevOps Track (Udacity, Mar 2020). Bertelsmann partnered with Udacity to launch the Bertelsmann Tech Scholarship Program. Around 15k seats have been offered for the Phase 1 challenge course. I have been included in the 1.6k students that got accepted into Phase 2 and received a full Nanodegree scholarship.
 - Process Mining Thesis Award (Celonis, Mar 2019). Award granted to reward outstanding student work contributing to the research area of Process Mining or creating innovative use cases of Process Mining techniques to address industry-related problems (https://www. celonis-academic.com/thesis-award).
 - Sapienza Excellent Graduated [Apr 2018]. Award granted to the best graduated students of the academic year among all the faculties.
 - Excellence Track [Jan 2018]. A research program accessible by the top 10 Master students of the M.Sc. in Engineering in Computer Science at Sapienza University of Rome. The program includes a scholarship that cover the tuition fees of the last academic year.
 - Scholarship for Master Thesis abroad [May 2017]. Scholarship granted to the top 9 Master students, of the whole Faculty of Information Engineering, Informatics and Statistics, for developing a Thesis at a foreign institution.
 - Erasmus+ Scholarship [Mar 2017].

Publications and patents

- Lanciano G., Galli F., Cucinotta T., Bacciu D., Passarella A. *Predictive Auto-scaling with OpenStack Monasca*. 14th IEEE/ACM International Conference on Utility and Cloud Computing (UCC), 2021 (DOI: 10.1145/3468737.3494104).
 - Cucinotta T., Lanciano G., Ritacco A., Brau F., Galli F., Iannino V., Vannucci M., Artale A., Barata J., Sposato E. *Forecasting Operation Metrics for Virtualized Network Functions*. 21st IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CCGrid), 2021 (DOI: 10.1109/CCGrid51090.2021.00069).
 - Lanciano G., Ritacco A., Brau F., Cucinotta T., Vannucci M., Artale A., Barata J., Sposato E. Using Self-Organizing Maps for the Behavioral Analysis of Virtualized Network Functions. Cloud Computing and Services Science, 2021.
- Mancini R., Ritacco A., Lanciano G. and Cucinotta T., *XPySom: High-Performance Self-Organizing Maps*, 32nd International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD) 2020, (DOI: 10.1109/sbac-pad49847.2020.00037).
- Cucinotta T., Lanciano G., Ritacco A., Vannucci M., Artale A., Barata J., Sposato E. Behavioral Analysis for Virtualized Network Functions: A SOM-based Approach. 10th International Conference on Cloud Computing and Services Science (CLOSER), 2020 (DOI: 10.5220/0009420901500160).
- Lanciano G., Ritacco A., Cucinotta T., Vannucci M., Artale A., Basili L., Sposato E., Barata J. SOM-based behavioral analysis for virtualized network functions. 35th Annual ACM Symposium on Applied Computing (SAC), 2020 (DOI: 10.1145/3341105.3374110).



- Cucinotta T., Vannucci M., Lanciano G., Galli F., Brau F., Artale A., Sposato E., Jorge L.
 N. P. *Method of managing resources of an infrastructure for network function virtualization*, Published (EU), <u>EP4016963A1</u>, 2022.
- Cucinotta T., Vannucci M., Ritacco A., Lanciano G., Artale A., Barata J., Sposato E. A method of identifying and classifying the behavior modes of a plurality of data relative to a telephony infrastructure for network function virtualization, Published (EU), <u>EP3772833A1</u>, 2021.
- Cucinotta T., Vannucci M., Ritacco A., Lanciano G., Artale A., Barata J., Sposato E. A method
 of predicting the time course of a plurality of data relative to a telephony infrastructure for
 network function virtualization, Published (EU), <u>EP3772834A1</u>, 2021.
- de Leoni M., Lanciano G., Marrella A. Aligning Partially-Ordered Process-Execution Traces and Models Using Automated Planning. 28th International Conference on Automated Planning and Scheduling (ICAPS), Delft, The Netherlands, 2018 (see https://www.aaai.org/ ocs/index.php/ICAPS/ICAPS/18/paper/view/17739/16951).
- de Leoni M., Lanciano G., Marrella A. A Tool for Aligning Event Logs and Prescriptive Process Models through Automated Planning. In Proceedings of the BPM Demo Track and BPM Dissertation Award co-located with 15th International Conference on Business Process Modeling (BPM), Barcelona, Spain, 2017 (see http://ceur-ws.org/Vol-1920/BPM_2017_paper_187.pdf).
- Certifications Cloud DevOps Engineer Nanodegree by Udacity (Sep 2020, https://graduation. udacity.com/confirm/ANFNHKTK)
 - Process Mining: Data science in Action (with Honors) by Eindhoven University of Technology on Coursera (Apr 2017, https://www.coursera.org/account/accomplishments/ certificate/6DLVJZ36DPW2)