Tianzhu Zhang, Ph.D.

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Experience

Aug, 2020 – till now	**Research Engineer** Nokia Bell Labs, Paris-Saclay, France. Permanent contract.
Sep, 2020 – till now	**Associate Member** Laboratory of Information, Networking and Communication Sciences (LINCS), Paris, France.
Oct, 2017 – Nov, 2019	**PostDoc Researcher** Telecom ParisTech & Cisco Systems, Paris, France. Supervisor: Prof. Dario Rossi, Prof. Luigi Iannone
Jun, 2017 – Aug, 2017	**Intern** Nokia Bell Labs, Paris-Saclay, France. Supervisor: Dr. Massimo Gallo
Nov, 2014 - Nov, 2017	**Ph.D. Researcher** Joint Open Lab, Telecom Italia, Turin, Italy. Supervisor: Dr. Pino Castrogiovanni

Education

2014 – 2017	**Ph.D., Politecnico di Torino** Department of Electronics and Telecommunications. Supervisor: Prof. Paolo Giaccone, Prof. Marcello Chiaberge. Thesis title: *Control plane optimization in Software Defined Networking and task allocation for Fog Computing*.
2012 – 2014	**M.Eng., Politecnico di Torino** in Computer and Communication Networks Engineering. Thesis title: *Distributed Controllers in Software Defined Networks*.
2008 – 2012	**B.Sc., Huazhong University of Science and Technology** in Computer Science and Technology.

Research interest

Network Softwarization, High-speed packet processing, Artificial Intelligence, Internet of Things, Robotics

Industrial Projects

2020 – 2021	**Augmenting Robotics with distributed AI** A Nokia project to integrate AI-augmented services into the ground robots and the robotic operating system. (Co-PI)
2020 – 2022	**Edge Intelligence for Industrial IoT** A Nokia project for the adaptive execution of heavyweight AI models in Industrial IoT environments. (Co-PI)
2021 – 2024	**Inference Of Network characteristics via nOn-invaSive Data eXploration** A joint project for network management via non-intrusive data collection. (Contributor)
2021 – 2022	**Log analysis using cluster computing** A Nokia project to explore Big Data techniques for high-performance log parsing and analytics. (Contributor)

Industrial Projects (continued)

2017 – 2018 **High-speed traffic generation and monitoring**
An industrial project sponsored by Cisco Systems to enable high-performance packet processing using commodity hardware. (Contributor)

2015 – 2016 **SDN@Edge**
A joint European Project to push SDN frontier to the network edge. (Contributor)

Publications

Journal Articles

1. **Zhang**, **T.**, Linguaglossa, L., Giaccone, P., Iannone, L., & Roberts, J. (2021). Performance benchmarking of state-of-the-art software switches for nfv. *Computer Networks*, 107861. https://doi.org/https://doi.org/10.1016/j.comnet.2021.107861
2. **Zhang**, **T.**, Qiu, H., Linguaglossa, L., Cerroni, W., & Giaccone, P. (2021). Nfv platforms: Taxonomy, design choices and future challenges. *IEEE Transactions on Network and Service Management*, *18*(1), 30–48. https://doi.org/10.1109/TNSM.2020.3045381
3. **Zhang**, **T.**, Linguaglossa, L., Gallo, M., Giaccone, P., & Rossi, D. (2019). FloWatcher-DPDK: Lightweight line-rate flow-level monitoring in software. *IEEE Transactions on Network and Service Management*, *16*(3), 1143–1156. https://doi.org/10.1109/TNSM.2019.2913710
4. **Zhang**, **T.**, Chiasserini, C. F., & Giaccone, P. (2018). Tame: An efficient task allocation algorithm for integrated mobile gaming. *IEEE Systems Journal*, *13*(2), 1546–1557. https://doi.org/10.1109/JSYST.2018.2829496
5. **Zhang**, **T.**, Giaccone, P., Bianco, A., & De Domenico, S. (2017). The role of the inter-controller consensus in the placement of distributed sdn controllers. *Computer Communications*, *113*, 1–13. https://doi.org/https://doi.org/10.1016/j.comcom.2017.09.007

Conference Proceedings

1. Shelbourne, C., Linguaglossa, L., **Zhang**, **T.**, & Lipani, A. (2021). Inference of virtual network functions' state via analysis of the cpu behavior, In *International teletraffic congress*.
2. Shelbourne, C., Linguaglossa, L., Lipani, A., **Zhang**, **T.**, & Geyer, F. (2019). On the learnability of software router performance via cpu measurements, In *Proceedings of the 15th international conference on emerging networking experiments and technologies student workshops*, Orlando, FL, USA, Association for Computing Machinery. https://doi.org/10.1145/3360468.3366776
3. **Zhang**, **T.**, Linguaglossa, L., Roberts, J., Iannone, L., Gallo, M., & Giaccone, P. (2019). A benchmarking methodology for evaluating software switch performance for nfv, In *2019 ieee conference on network softwarization (netsoft posters and demos)*. https://doi.org/10.1109/NETSOFT.2019.8806695
4. **Zhang**, **T.**, Linguaglossa, L., Gallo, M., Giaccone, P., Iannone, L., & Roberts, J. (2019). Comparing the performance of state-of-the-art software switches for NFV, In *Proceedings of the 15th international conference on emerging networking experiments and technologies*, Orlando, Florida, Association for Computing Machinery. https://doi.org/10.1145/3359989.3365415
5. **Zhang**, **T.**, Linguaglossa, L., Gallo, M., Giaccone, P., & Rossi, D. (2018a). FlowMon-DPDK: Parsimonious per-flow software monitoring at line rate, In *2018 network traffic measurement and analysis conference (tma)*. https://doi.org/10.23919/TMA.2018.8506565
6. **Zhang**, **T.**, Linguaglossa, L., Gallo, M., Giaccone, P., & Rossi, D. (2018b). High-speed per-flow software monitoring with limited resources, In *Proceedings of the acm sigcomm 2018 conference on posters and demos*. https://doi.org/10.1145/3234200.3234203

7 Bianco, A., Giaccone, P., Kelki, S., Campos, N. M., Traverso, S., & **Zhang**, **T.** (2017). On-the-fly traffic classification and control with a stateful SDN approach, In *2017 ieee international conference on communications (icc)*. https://doi.org/10.1109/ICC.2017.7997297

8 **Zhang**, **T.**, Bianco, A., Giaccone, P., & Nezhad, A. P. (2017). Dealing with misbehaving controllers in SDN networks, In *Globecom 2017-2017 ieee global communications conference*. IEEE. https://doi.org/10.1109/GLOCOM.2017.8254752

9 **Zhang**, **T.**, Bianco, A., & Giaccone, P. (2016). The role of inter-controller traffic in SDN controllers placement, In *2016 ieee conference on network function virtualization and software defined networks (nfv-sdn)*. https://doi.org/10.1109/NFV-SDN.2016.7919481