

Jonatan Langlet, PhD

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🇸🇪 Swedish

Research & Engineering - Networking Monitoring

Work Experience

- Sep 2024– **Postdoctoral Researcher**, KTH ROYAL INSTITUTE OF TECHNOLOGY
- Researching large-scale data analysis systems and algorithm design
 - Master's project supervisor for system-on-a-chip development
- June-July 2023 **R&D Engineering Internship**, INTERNET INITIATIVE JAPAN
- On-site prototype development of an intelligent network fabric for a Japanese ISP
- Mar-Oct 2022 **Research Fellow**, HARVARD UNIVERSITY
- Led research into hyperscale network monitoring techniques for fine-grained telemetry
 - We still regularly collaborate
- 2020–2022 **Lab- and Teaching Assistant**, QUEEN MARY UNIVERSITY OF LONDON
- Teaching Distributed Systems for Master's students
- 2019–2020 **Research Assistant**, KARLSTAD UNIVERSITY
- Researching in-network acceleration for machine learning and 5G core networks
- 2019 **Teaching Assistant**, KARLSTAD UNIVERSITY
- Teaching Data Structures & Algorithms
- 2011–2016 **Owner/Developer**, TANAPPS
- Sole proprietorship focusing on web application development and software development
 - Installation and maintenance of a virtualization cluster for hosting clients' applications
- 2011–2013 **IT Technician**, FOUEDGE
- Server installation/maintenance with a main focus on Linux and virtualization
 - Sysadmin consultant for clients, designing and maintaining IT environments
 - Second line helpdesk support, troubleshooting server issues

Education

- 2020–2024 **PhD, Networking Systems**, QUEEN MARY UNIVERSITY OF LONDON
- Researched technologies for high-speed streaming data collection and processing
 - Focus on algorithms, data structures, and systems at the intersection of software and hardware
- 2019–2020 **MSc, Computer Science**, KARLSTAD UNIVERSITY
- Graduated one year early due to receiving PhD offers
 - Grade: Highest average of my cohort
 - Thesis: Offloading Virtual Network Functions–Hierarchical Approach
- 2016–2019 **BSc, Computer Engineering**, KARLSTAD UNIVERSITY
- Grade: Highest average of my cohort
 - Thesis: Towards Machine Learning Inference in the Data Plane

Publications

- 2024 **ACM SIGMETRICS**, *Lightweight Acquisition and Ranging of Flows in the Data Plane*
Andrea Monterubbiano, **Jonatan Langlet**, Stefan Walzer, Gianni Antichi, Pedro Reviriego Vasallo, and Salvatore Pontarelli

- 2023 **ACM SIGCOMM**, *Direct Telemetry Access*
Jonatan Langlet, Ran Ben Basat, Gabriele Oliaro, Michael Mitzenmacher, Minlan Yu, and Gianni Antichi
- 2022 **IEEE TMC**, *Hybrid P4 Programmable Pipelines for 5g gNodeB and User Plane Functions*
Suneet Kumar Singh, Christian Esteve Rothenberg, **Jonatan Langlet**, Andreas Kassler, Péter Vörös, Sándor Laki, and Gergely Pongrácz
- 2021 **ACM HotNets**, *Zero-CPU Collection with Direct Telemetry Access*
Jonatan Langlet, Ran Ben Basat, Sivaramakrishnan Ramanathan, Gabriele Oliaro, Michael Mitzenmacher, Minlan Yu, and Gianni Antichi
- 2019 **IEEE EuroP4**, *Towards Neural Network Inference on Programmable Switches*
Jonatan Langlet, Andreas Kassler, and Deval Bhamare

Academic Community Work

- 2025 **TPC Member**, *TMA Conference*
- 2024 **External Reviewer**, *ACM CoNEXT*
- 2023– **Invited Paper Reviewer**, *IEEE/ACM Transactions on Networking*
- 2023– **Invited Paper Reviewer**, *IEEE Transactions on Network and Service Management*

Awards, Certificates, and Extra Courses

- 2025 **NAISS Compute Grant**, I was granted one year of supercomputing access
- 2025 **Best Poster Award**, Awarded at the Digital Futures Open Research Day
- 2023 **Digital Futures Postdoctoral Fellowship**, Two years of independent research funding
- 2022 **Brendan Murphy Prize winner**, Awarded by the UK networking community
- 2022 **SIGCOMM Travel Grant**, Including accommodation, conference registration, and travel
- 2021 **NVIDIA Hardware Grant**, I was contacted regarding a BlueField-2 DPU donation
- 2021 **NVIDIA DPU Course & Hackathon**, A crash course on a new programmable NIC
- 2020 **Xilinx Adaptive Compute PhD school**, A week-long course on FPGA development
- 2019 **Barefoot Academy BA-102**, A week-long course on P4-programmable Tofino switches
- 2012 **ITIL Foundation Certification**
- 2011 **Cisco CCNA Discovery**

Skills

- Areas Algorithm Development, System on a Chip, Network Monitoring, Data Planes, Machine Learning, Time-Series Analysis, Switching Architectures, Embedded Systems
- Programming Python, P4, C, C++, Micro-C, Java, PHP, C#, Bash, among others
- Software Linux, Git, DPDK, VMware ESXi, MySQL, AWS, among many others
- Soft Skills Collaborative, Fast Learner, Organized, Goal Oriented, Methodical

Languages

- Swedish Mothertongue
- English Fluent

Main working language

External Links

- 2025 **NAISS Compute Grant**, *From News to Network: Can AI Predict the Internet?*
<https://supr.naiss.se/public/project/34838/>
- 2024 **Postdoctoral Fellowship**, *Comprehensive Network Insight for Resilient Infrastructures*
<https://www.digitalfutures.kth.se/project/jonatan-langlet-comprehensive-network-insight-for-resilient-infrastructures/>
- 2024 **Invited KAUST Talk**, *Network Monitoring at Scale through Hardware Algorithms*
<https://sands.kaust.edu.sa/seminars/2024-11-19-jonatan-langlet/>
- 2022 **Brendan Murphy Award**, *Public announcement*
<https://coseners.qmul.ac.uk/brendan-murphy-prize/brendan-murphy-prize-2022/>
- 2021 **Harvard Professor's Blog**, *Discussing our joint research*
<https://mybiasedcoin.blogspot.com/2021/11/hotnets-presentation-zero-cpu.html>
- 2019 **Press Article**, *Discussing the impact of my Bachelor's work*
<https://www.kau.se/en/news/bachelors-essay-presented-cambridge>

Papers

- 2025 **Arxiv**, *Sketch Disaggregation Across Time and Space*
<https://arxiv.org/abs/2503.13515>
- 2024 **ACM SIGMETRICS**, *Lightweight Acquisition and Ranging of Flows in the Data Plane*
<https://dl.acm.org/doi/abs/10.1145/3626775>
- 2023 **ACM SIGCOMM**, *Direct Telemetry Access*
<https://dl.acm.org/doi/abs/10.1145/3603269.3604827>
- 2022 **IEEE TMC**, *Hybrid p4 programmable pipelines for 5g gnodeb and user plane functions*
<https://ieeexplore.ieee.org/abstract/document/9866881>
- 2021 **ACM HotNets**, *Zero-CPU Collection with Direct Telemetry Access*
<https://dl.acm.org/doi/abs/10.1145/3484266.3487366>
- 2019 **EuroP4**, *Towards Neural Network Inference on Programmable Switches*
<https://www.diva-portal.org/smash/record.jsf?pid=diva2%3A1420746>

Theses

- 2024 **PhD**, *Telemetry for Next-Generation Networks*
<https://qmro.qmul.ac.uk/xmlui/handle/123456789/98137>
- 2020 **MSc**, *Offloading Virtual Network Functions – Hierarchical Approach*
<https://www.diva-portal.org/smash/record.jsf?pid=diva2%3A1328601>
- 2024 **BSc**, *Towards Machine Learning Inference in the Data Plane*
<https://www.diva-portal.org/smash/record.jsf?pid=diva2%3A1453437>