Antoine Fressancourt

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France
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e-mail: antoine.fressancourt@gmail.com   44 years old

Professional experience

Since December 2019

Principal research engineer, Huawei (Information & Communication Technologies provider)

Task: Research and development on communication challenges of distributed AI (LLM) workloads and on network protocols (Internet addressing evolution, privacy-preserving communication protocols, network path validation). Standardization work in the IETF (Internet Engineering Task Force).

Working environment: IP addressing, Segment Routing, onion routing, deterministic networking, security, privacy, QUIC / MASQUE, networking for distributed AI / LLM.

Member of the Internet Area directorate in the IETF.

July 2013 – November 2019

Senior R&D engineer, Worldline (Payment and secure transactions operator)

Task: Technical expertise and research on the evolution of data networks (datacenter networking, network resilience, inter-domain networking) and on systems and network performance optimization (container networking, network programmability, applications of machine learning in systems and networking).

Working environment: datacenter networking, SDN, M2M networking, BGP, Segment Routing, Internet topology, DDoS, log analysis.

September 2010 – September 2019

Teaching assistant – IMS and SDN, IMT Nord Europe (Engineering school)

Task: Responsible for a course presenting the IP Multimedia Subsystem architecture and for an introduction to Software Defined Networking.

June 2015 – September 2015

Visiting researcher, Internet Initiative Japan Innovation Institute (Research institute)

Task: Construction of a PoP-level graph representation of the Internet to measure Internet path diversity between remote datacenters

Working environment: Python, RIPE Atlas, BGP.

September 2008 – June 2013

R&D domain manager, Atos Worldline (Payment and secure transactions operator)

Task: Project management and technical expertise in the field of next generation networks and their uses.

Working environment: SIP, Rich Communication Suite, IP Multimedia Subsystem, Peer-to-peer networks, Social networks.

September 2005 – September 2008

R&D engineer, Atos Worldline (Payment and secure transactions operator)

Task: Theoretical and technical studies on IP telephony networks' architecture and associated services.

Working environment: SIP, H.323, voice over IP networks, IP Multimedia Subsystem, Presence.

January 2005 – June 2005

R&D Intern, Terraplay Systems AB (Network solution provider for mobile multiplayer gaming, startup, Ericsson spin-off)

Task: Theoretical study of peer-to-peer platforms for mobile networks and of their impact on the company's activities.

Working environment: Java, GPRS and UMTS networks, JXME project.

Publications

Journal article:

- **A. Fressancourt**, L. Iannone and M. Kerichard, *A deeper look at Ariadne: a privacy-preserving network layer protocol*, Annals of Telecommunications, 2024

Conference articles:

- L. Iannone and **A. Fressancourt**, *Demo: SPOT – SRv6-Based Proof of Transit for Network Path Verification*, International Conference on 6G Networking (6GNet) 2025, December 2023.
- **A. Fressancourt**, and L. Iannone, *Ariadne: a privacy-preserving network layer protocol*, Cyber security in networking conference (CSNet) 2023, October 2023.
- J. Zhang, Y. Magnouche, S. Martin, **A. Fressancourt**, and J-C. Beck, *The Multi-Commodity Flow Problem with Disjoint Signaling Paths: A Branch-and-Benders-Cut Algorithm*, International Conference on Control, Decision and Information Technologies (CoDIT) 2023, July 2023.
- **A. Fressancourt**, C. Pelsser and M. Gagnaire, *Kumori: Steering Cloud traffic at IXPs to improve resiliency*, International Conference on the Design of Reliable Communication Networks (DRCN) 2016, March 2016 **(Best paper award)**
- **A. Fressancourt** and M. Gagnaire, *A SDN-based network architecture for cloud resiliency*, IEEE Consumer Communications and Networking Conference (CCNC) 2015, January 2015 **(Best student paper award finalist)**
- **A. Fressancourt** and M. Gagnaire, *A Dynamic Offer/Answer Mechanism Encompassing TCP Variants in Heterogeneous Environments*, International Conference on Advanced Networking Distributed Systems and Applications (INDS) 2014, June 2014

- **A. Fressancourt**, C. Hérault, M. Blin and S. Cauchie, *Enabling fine-tuned relationship and privacy in social networks*, International Conference on Computational Aspects of Social Networks (CASoN) 2011, October 2011
- **A. Fressancourt**, C. Hérault and E. Ptak, *NFCSocial: social networking in mobility through IMS and NFC*, NFC'09, February 2009

Internet drafts:
- **A. Fressancourt,** L. Iannone, D. Lou and D. Trossen, *Handling inter-DC/Edge AI-related network traffic: Problem statement* (draft-aft-ai-traffic-01 (editor), April 2025.
- **A. Fressancourt** (editor), *Enforcing end-to-end delay bounds via queue resizing* (draft-aft-detnet-bound-delay-queue-04), April 2025.
- L. Iannone and **A. Fressancourt**, *Segment Routing over IPv6 (SRv6) Proof of Transit* (draft-iannone-spring-srv6-pot-00), February 2024.

Technical talks:
- Inet4AI workshop, 2025: *Challenges in Networking for AI*
- IETF 120, 2022, PEARG meeting: *Ariadne: a Privacy-Preserving Communication Protocol*
- IETF 120, 2022, PANRG meeting: *Academic work on path verification protocols - Design options, associated overhead and performance properties*
- GIsec, 2022: *Over-the-top or built-in approaches to improve privacy at the network layer - A tale of 2 complementary approaches to anonymize network traffic*
- IETF 122, 2021, PEARG meeting: *State of the art on privacy-preserving techniques used at the network layer*
- Journées non thématiques ResCom, 2016: *Evaluation de la diversité de chemins sur Internet: d'une granularité au niveau des AS à une vision au niveau des points de présence (in French)*
- DNAC, 2014: *Towards a use of SDN to enhance inter-datacenter connectivity*
- Cartes, 2012: *Cloud computing: an overview of security threats*
- Cartes, 2011: *Privacy of social network attributes for online services*
- 4th Inclusiva-net Meeting - P2P Networks and Processes, 2009: *Implementation Challenges for P2P Systems in Mobile Network Environments*
- IP Convergence, 2008: *Round table on Presence in communication systems*
- VON Europe, 2007: *IMS from a service provider perspective*
- Solutions Linux, 2008: *Use of OpenSER for large scale telecom systems*
- Salon CoIP, 2007: *Our vision of presence in communication systems*

PhD thesis:
　A. Fressancourt, *Improved resiliency for inter-datacenter network connections,* Télécom Paristech, November 2016

Master thesis:
　A. Fressancourt, *Mobile peer-to-peer framework: theoretical study and implementation test*, KTH - Royal Institute of Technology, Stockholm, Sweden, Master thesis, IMIT/LECS-2005-12, 2005

Educational background

2013 - 2016	***PhD, Télécom Paristech*** This PhD thesis has been supervised by Professor Maurice Gagnaire and Luigi Iannone.
2003 - 2005	***MsC, Royal Institute of Technology in Stockholm (KTH)*** Master of Science in Computer Science, Specialization in **Internet Techniques**
2001 - 2003	***École Centrale, Paris*** General engineering studies with specialization in **Information Technologies**
1999	***Lycée Faidherbe, Lille*** Baccalauréat S specializing in **Mathematics** with honors.

Communication skills

Language skills:
- **French:** Mother tongue
- **English:** Written and spoken fluently (score of 617 on the paper-based TOEFL obtained in 2003)
- **Swedish:** Written and spoken (2 years in Sweden)
- **Spanish:** Intermediate level, both written and spoken

Computer and networking skills:
- **Programming languages:** Python, Cython, Rust, HTML, CSS
- **Programming frameworks:** iGraph, NumPy, Pandas
- Strong theoretical and practical knowledge of fixed and mobile communication networks
- Good knowledge of virtualization and automation technologies (Kubernetes, VirtualBox, Proxmox, Docker, Vagrant, Ansible, GNS3, Mininet)
- Good knowledge of AI inference engines (vLLM, SGLang, LLM-d, KServe) and distributed KV cache solutions
- System administration basis for Linux and Mac OS X