

Benoit Pit-Claudel

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MIT PhD student, building fast, principled Datacenter and Edge Networking Systems for ML and Large-Scale Applications. Secret weapons: queuing theory and network coding.

Education

- 2020 - present **MIT** (EECS PhD), Cambridge, MA. Expected graduation date: January 2025.
Advisors: **Manya Ghobadi, Muriel Médard**.
Classes: Information theory, Principles of digital communication, Computer Networks, Randomized algorithms. Minor in music technology.
- 2018 - 2020 **Stanford University** (EE M.Sc.), Stanford, CA.
Communication and Networking track. Classes include Digital Communications (Intro and Advanced), Wireless Communications, Information Theory, Building an Internet Router (P4/NetFPGA), Performance Engineering of Computer Systems & Networks, Linear Dynamic Algebra, Convex Optimization, Fourier Series, Cryptocurrency and Blockchain, Computer Systems Architecture, Machine Learning, Device Fabrication (IC and MEMS), and Semi-Conductor Devices.
- 2015 - 2018 **École Polytechnique** (EE M.Eng., Cycle Ingénieur), Palaiseau. France's most selective science and engineering school.
First year & second year electives: Computer Science, Fundamental Physics, Fluid Dynamics, Big Data Processing. Third year: Master of Engineering in Electrical Engineering. Classes includes Networking, Information Theory, Signal Processing, IC and VLSI design.
- 2013 - 2015 **Lycée Louis le Grand preparatory classes** (PC), Paris. Majoring in mathematics and physics with a minor in chemistry.

Research Projects

- 2024 - present **Network Coding Congestion Control** *RA, HiPerSys & NCRC Groups, MIT*
PhD project, supervised by Profs. Manya Ghobadi and Muriel Médard. Study on the impact of network coding on congestion.
- 2020 - present **Stochastic Job Scheduling for Latency-Sensitive Online Queries** *RA, HiPerSys & NCRC Groups, MIT*
PhD project, supervised by Profs. Manya Ghobadi and Muriel Médard. Analysis, design, and implementation of optimal a stochastic job scheduling approach based on queueing theoretic techniques for ML inference tasks (under submission).
- 2018 - 2019 **Bio-haptic Feedback System Design** *RA, PWT lab, Stanford University*
Semester project, supervised by Prof. Pablo Paredes. Design and conduct studies for a haptic bio-feedback device embedded in car seats to help relieve commuters' stress. Side project co-designing an entrainment display system to subliminally generate relaxing brainwaves in users lead to a **Poster** at the 4th Symposium on Computing and Mental Health at CHI 2019.
- 2018 **Stateless and Load-Aware Load-Balancing for Datacenters** *Research Intern, Cisco Systems, France*
Summer Internship, supervised by Prof. Thomas Clausen and Mark Townsley. Design and implementation of a Power of Two Choices approach to stateless load balancing. **Publication** (1st author) at the P4EU workshop at ICNP 2018 and **Patent** (US10680955B2).
- 2017-2018 **ML-based analysis of care pathways** *Group Research Project, École Polytechnique*
Semester project, supervised by Prof. Emmanuel Bacry. ML-based anomaly detection and visualization for care pathways on nationwide medical databases.

Professional experience

- 2019 **Hardware Engineering Intern**, Data Center Business Unit *Cisco Systems, USA*
Signal integrity for Cisco's Data Center Switch (Nexus product line), hardware testing, and simulations (Keysight ADS).
- 2017 **Web Development Intern** *AXA Life Japan, Japan*
Development of in-house web applications and JavaScript plugins for MyAXA (customer relation website) in a pilot agile team.

Community Service and Extra-Curricular activities

- 2021 - present College radio **host and DJ**, WMBR, Cambridge
- 2020 **Teaching assistant**, Introduction to Internet of Things, Stanford University
- 2018 Selected to represent *École Polytechnique* at the 2018 **French Debating Association tournament (English language)**.
- 2015 - 2016 **Volunteer Assistant Teacher**, *Lycée du Parc*, Lyon, France (6 months): Set up and taught tutoring sessions (circa 15 hours/week) for high school and preparatory classes students in math, physics and chemistry.

Awards and fellowships

- 2020 Irwin Mark Jacobs and Joan Klein Jacobs **Presidential Fellowship**.
- 2018 *École Polytechnique's* research internship award.

Skills & Interests

- Languages** **French** (mother tongue), **English** (bilingual) **Spanish** (intermediate), **Japanese** (elementary)
- Programming** Python, Java, P4, HTML, CSS, PHP, Bash, JavaScript and Sails.js framework. Some exposure to Scala and C. Familiar with Agile Development and Linux kernel module development.
- Interests** Music technology and DJing, soccer, skiing and badminton.