



Jean-François Arguin, May 2024

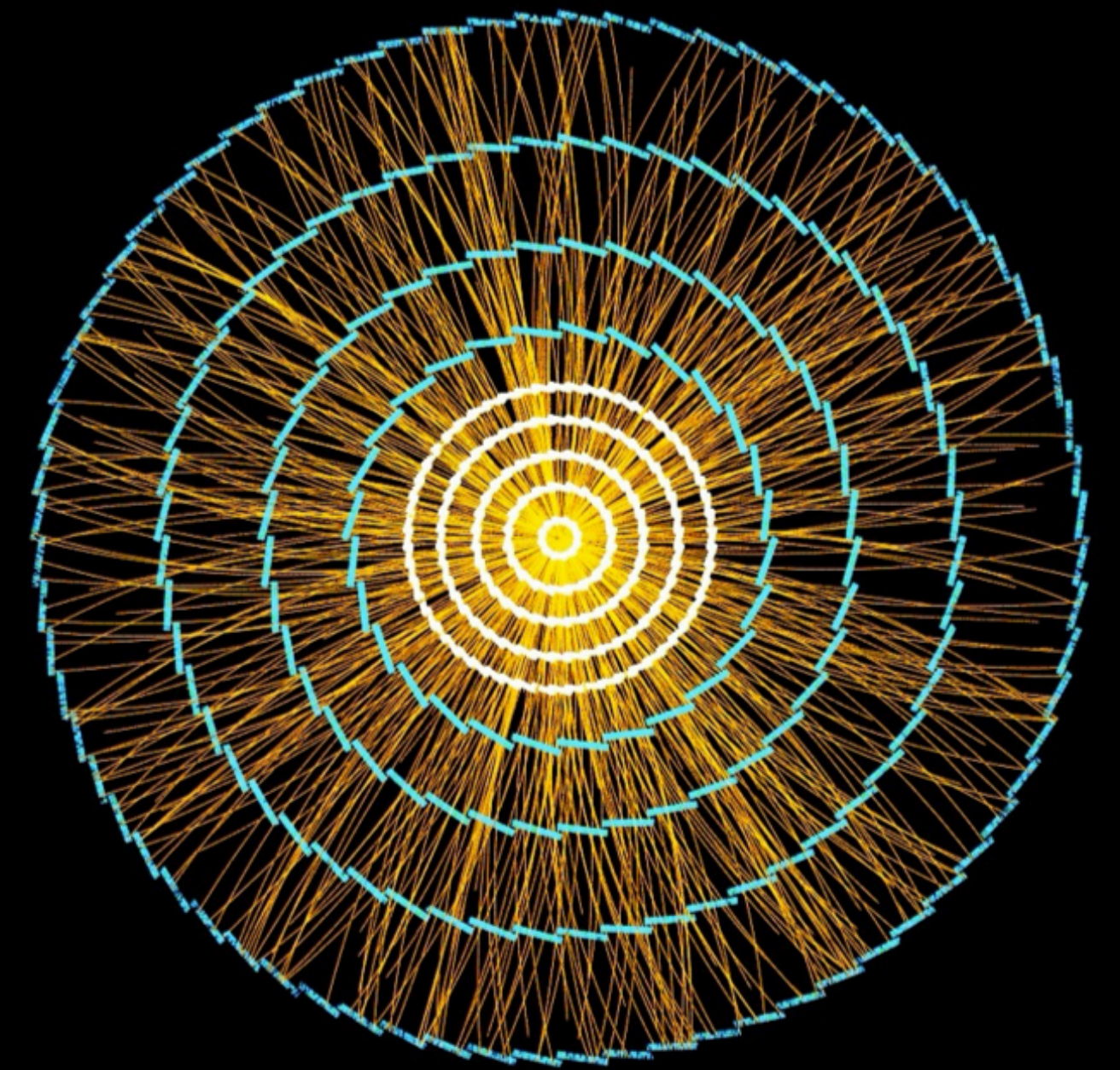
Postdoctoral researcher with U. Montréal based at CERN

Research topics: tracker upgrade, ML for data analysis

ATLAS HL-LHC tracker upgrade: ITk

- For **HL-LHC**, ATLAS will replace its tracker with a new, all-silicon detector: **the ITk**
- **Montreal is responsible for the interlock safety system of the ITk**
 - A set of electronic modules with FPGA controlled by firmware and software [described further here](#)
- The successful candidate will be involved in the **assembly, installation and commissioning of the ITk interlock system**
 - The candidate will be supported by a Montreal team of 2 physicists and 2 engineers developing the interlock system
- This will be a **very exciting and formative period to work on a detector project at CERN!**

A simulated $t\bar{t}$ event
with 200 pile-up in
the ITk (1600 tracks!)



Machine learning applied to ATLAS data analysis

- The successful candidate will have **freedom to choose the physics topic** to work on
- But she/he will be **welcome** to contribute to **existing efforts in Montreal**, which have recently been focused on **machine learning applications to LHC data analysis**.
 - Our efforts leverage the fact that **Montreal** is an **international hub** for **AI** development
 - **Recent examples** of our work includes:
 - Accelerating the search for mass bumps at LHC
 - Anomaly detection inside jets
 - Search for SUSY with neural networks
 - Electron identification with CNN

More information

- Location of the position: **CERN**
- **The Montreal group**
 - One faculty (J-F arguin), 2 permanent physicists, 2 engineers, 2 postdocs, 3 PhD students, 3 MSc students, 1 technician
 - If that interests you, there will be several opportunities for student supervision
- The contract is initially for 3 years, extendable for 2-3 additional years (depending on funding)
- Don't hesitate to contact me for more information!