

Jonathan Passerat-Palmbach

Research Scientist at ConsenSys Health and Imperial College London

Education

- 2010-2013 **PhD in Computer Science**, *Blaise Pascal University*, France.
Contributions to Parallel Stochastic Simulation: Application of Good Software Engineering Practices to the Distribution of Pseudorandom Streams in Hybrid Monte-Carlo Simulations

Experience

- 2018- **Secure Computing and Blockchain**, *ConsenSys Health*.
 - Blockchain-orchestrated **Federated Learning** prototype based on PySyft
 - Secure Aggregator and Privacy-preserving audit trail
 - Private and Verifiable Computing (using **Intel SGX** and **Zero-Knowledge Proofs**)
- 2017-2018 **Off-chain computing**, *Imperial College London*, BioMedIA lab, <https://bit.ly/2tuvza2>.
 - Study off-chain computing platforms iEx.ec and Golem
 - \$20,000 iEx.ec DApp challenge winner** <https://bit.ly/2MLiv90>
 - Software: Creation of new module in GridScale library (<https://github.com/openmole/gridscale/pull/17>) and Scala SDK (<https://github.com/jopasserat/iexec-scala-sdk>)
- 2016-2017 **Distributed brain parcellation algorithm**, *Imperial College London*, BioMedIA lab, (in progress).
 - ETL pipeline from Matlab HDF5 to **Apache Parquet**
 - Core implementation using **Apache Spark** in Scala (*MLLib* and *SparkSQL*)
 - €6,000 Amazon AWS in education** grant funding the experiment
- 2012- **Model exploration platform**, *OpenMOLE*, <https://next.openmole.org/>.
 - Study **AutoML** algorithms (HyperBand, TPE, ...) for machine learning models
 - Implement support of **distributed batch environments, job management** (*Slurm*, *HTCondor*, ...)
 - Design reproducible executions through **CARE / PRoot** (a **rootless Docker** solution in pure userland)

Skills

- Programming **Scala**, *C++*, *Java*, *Python*, *Bash*, **Git**, **SBT**, **Docker**
- Web3.0 **IPFS**, *Solidity* (intermediate), *geth*, **Web3J**, *iEx.ec*, **Hyperledger Avalon**
- Cryptography **Intel SGX**, *ZKSnarks*, *Multi-Party Computation*
- Teaching Designed and **taught various CS courses** to undergrad/postgrad students in French and English
- Supervision **20+** student projects/internships and **4 engineers supervised** over the last 5 years
- Community service
 - Co-**organisation of international scientific workshops**, satellite events to ISBI, MICCAI, ...
 - Peer-review for conference and journals (PPMLP, AICChain, ...)

Selected Talks

- 2020 Secure Computing solutions for Healthcare (*CitAI seminar series*, *City University London*, *UK*)
- 2019 Convergence of Blockchain and Secure Computing for Healthcare solutions (*EU Blockchain forum*, *Frankfurt*, *Germany*)

Interests and hobbies

- Karate (27 years)
 - Distinguished athlete (national and international medallist), English **national kata A squad**
 - Black Belt (4th dan), Professional instructor degree
- Languages
 - English (Fluent), French (Mother tongue)