

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*.
 - o Blockchain-orchestrated **Federated Learning** prototype based on PySyft
 - o Secure Aggregator and Privacy-preserving audit trail
 - o 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>.
 - o Study off-chain computing platforms iEx.ec and Golem
 - o **\$20,000 iEx.ec DApp challenge winner** <https://bit.ly/2MLiv90>
 - o 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).
 - o ETL pipeline from Matlab HDF5 to **Apache Parquet**
 - o Core implementation using **Apache Spark** in Scala (*MLLib* and *SparkSQL*)
 - o **€6,000 Amazon AWS in education** grant funding the experiment

2012- **Model exploration platform**, *OpenMOLE*, <https://next.openmole.org/>.
 - o Study **AutoML** algorithms (HyperBand, TPE, ...) for machine learning models
 - o Implement support of **distributed batch environments, job management** (*Slurm*, *HTCondor*, ...)
 - o 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
Conference **Co-organisation of international scientific workshops**: Invite guest speakers, obtain funding through sponsorships, coordinate peer review and publication.

Selected Talks

- 2019 Convergence of Blockchain and Secure Computing for Healthcare solutions (*EU Blockchain forum, Frankfurt, Germany*)

Interests and hobbies

- Karate (26 years)
 - o Distinguished athlete (national and international medallist), English **national kata A squad**
 - o Black Belt (4th dan)
 - o Professional instructor degree

Languages
 - o English (Fluent), French (Mother tongue)