Courses for the School of Advanced Studies

- Distributed Systems 28h (2023).
  Reference: *Distributed Algorithms: An Intuitive Approach*, Wan Fokkink.
- Computer Vision 28h (2023).
  Keywords: deep neural network, gradient descend, backward and forward propagation, adversarial network.
- Applied Ethics 14h (2023).

- Advanced Mathematical Methods for Engineering 28h (2022).
  Keywords: differential manifolds, Lie groups, synchronization problem on graph.
- Fundamentals for data visualization 28h (2022).
  Keywords: Mackinlay principles, Weber law, Gestalt law, Tufte graphical design, complex data visualizations.
- Memory, past and delay: mathematics and more 14h (2022).
  Keywords: retarded differential equations, dynamical systems, medicine application.
- Quantum Information 28h (2021).
  Reference: *Quantum Computation and Quantum Information*, A. Nielsen, L. Chuang.
- Category Theory 28h (2021).
  Keywords: functors, natural transformations, Yoneda Lemma, commutative diagrams.
- Blockchain and applications 14h (2021).

- Topology and Order 28h (2020).
  Reference: *Topology and order*, L. Nachbin.
- Numbers and Geometry 28h (2020).

Thesis for the School of Advanced Studies

- Distributed Interval Synchronization On Directed Graphs (2022).
  Keywords: interval arithmetic, synchronization problem with intervals, implementation and analysis.
- Entanglement Measure (2021).
  Keywords: quantum mechanics axioms, quantum information theory, Bell's Theorem, quantum teleportation.
- Quaternion Numbers (2020).
  Keywords: Hamiltonian product, space geometry, rotations, visualizing 4^{th} dimension.

Last updated January 14, 2024