



ÉCOLE NATIONALE
SUPÉRIEURE
D'INFORMATIQUE
POUR L'INDUSTRIE
ET L'ENTREPRISE

INITIAL ENGINEER TRAINING IN COMPUTER SCIENCE

THEMATIC COURSE

HIGH PERFORMANCE COMPUTING / BIG DATA

HIGH PERFORMANCE ARCHITECTURE
PARALLEL PROGRAMMING
STATISTICS LEARNING
MANAGEMENT OF DATA FLOW
SIMULATION



CONTACT

PIERRE DOSSANTOS-UZARRALDE
pierre.dossantos-uzarralde@ensiie.fr

PARTNERS

EDF
CEA DAM



NESTOR DEMEURE
PROMOTION 2017

Doing a thesis at the CEA and at the ENS Paris-Saclay

« I have followed the Intensive Calculation course at ENSIIE. Today, I prepare a PHD thesis on the study of floating-point accuracy in High-Performance Calculations at the "École Normale Supérieure" (ENS) Paris-Saclay and the Alternative Energies and Atomic Energy Commission (CEA). »



JOBS OPPORTUNITIES

HPC System Administrator
Business Intelligence Manager
Data Scientist
Chief Data Analyst
Engineer in Scientific Software Development
Master Data Manager
Research and Development
Lead Data Miner
Engineer in HPC System
Engineer in HPC Applicative Support

EXAMPLES OF INTERNSHIPS

A performance study of parallel codes to GPU architectures
Atos France
Compilation optimisation for MPI calls
CEA
Specifications for Cloud Services
Ministère du numérique
Logo detection in images using Deep-Learning methods
Atos Senegal
Implementing sparse matrices on GPU in CUDA
Barcelone Supercomputing Center



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This course is set up for 2nd Year students at the ENSIIE.

The 3rd semester provides the necessary skills to enter the world of Data, Data Science related to HPC Science and to the development of methods and technics of massive parallel programming (multi-core processor, graphic processor, supercomputer, Cloud Computing). The goal of the 4th semester is to expose students to the technics of high performance and massive parallel programming by using a range of multi-core programming, multi-thread or GPU libraries. The 5th semester is articulated around advanced topics, specialised in the management of Massive Data, particularly regarding Computer Science Intelligence for analysis, regarding the exploration and visualisation of Data, regarding the development of cloud systems but also regarding machine learning methods..

S3

Initiation to scientific programming

Exploitation System Architecture

Parallel Programming

Computer Science Projects and Agile Methods

Exploitation System

Data Analysis (optional)

S4

Parallel Files Systems

Thread-based Parallelism

Data Centre/HPC Networks

Cluster Software

Advanced Scientific Programming

IP Networks and Administration (optional)

S5

Simulation - Uncertainties

Calculation application

Advanced Compilation

Virtualisation and Cloud

Machine Learning

Python for Data Science

or Model of regulated regression