INITIAL ENGINEER TRAINING IN COMPUTER SCIENCE
THEMATIC COURSE

HIGH PERFORMANCE COMPUTING / BIG DATA

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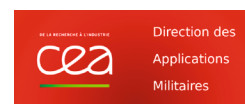**STATISTICS LEARNING**
MANAGEMENT OF DATA FLOW
SIMULATION

CONTACT

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PARTNERS
EDF
CEA DAM

OPENED
IN 2017

EDF

CEA — Direction des Applications Militaires

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

ENSIIE
Paris | Évry-Courcouronnes

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

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HIGH PERFORMANCE COMPUTING / BIG DATA

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**