Louis Viot

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Education

PhD in Computer Science and Applied Mathematics, 2015 - Current, CEA Cadarache, France.

PhD Title : "Modeling and simulation of complex systems for nuclear severe accidents".

Supervisor : Florian De Vuyst, LMAC, UTC, Sorbonne Universités, 60200 Compiègne, France.

Expecting to graduate in september 2018.

Brief Synopsis of Research: the simulation of severe accidents in nuclear reactors leads to coupled problems of multiphysics and multiscale models. These models can be of different types going from refined models, e.g. mesh based models, to coarse-grained models, e.g. stationary or lumped parameter models. Furthermore, they often have internal states with transitions potentially associated with discontinuities. Altogether, the simulation of severe accidents recquires to solve complex systems composed of a wide variety of interacting models. During the thesis, coupling schemes and synchronization techniques have been studied and designed to accuratly solve these systems. A new software architecture has been integrated in the already existing CEA's platform named *PROCOR* and numerical analysis and calculations have been performed on representative and real industrial test cases.

MSc in Distributed Systems and Critical Software, 2014 - graduated in 2015, Toulouse, France.

Courses included distributed system, grid computing, distributed computing, cloud computing.

INP ENSEEIHT, a top ranking French engineering school, 2012 - graduated in 2015, Toulouse, France.

Institute of Engineering in Electrical Engineering, Automation, Electronics, Computer Science, Applied Mathematics, Hydraulics, Telecommunications.

Engineering Degree in Applied Mathematics and Computer Science.

Courses included Optimization, Topology, Linear Algebra, Differential equation, Measure and distribution, Numerical analysis, Imperative, Functional and Object-oriented Programming, Computer architecture, Parallel algorithms.

Classes préparatoires (MPSI, MP*), 2010 - graduated in 2012, Lycée Clemenceau, Reims, France.

Two years of intense preparation for selective entrance to engineering schools.

Courses included : Mathematics and Physics.

Baccalaureat S, 2007 - graduated in 2010, Lycée François Bazin, Reims, France.

Passed with distinction, equivalent to A levels in science

Employment

Six months research internship, 2015, CEA Cadarache, France.

Implementation of a predictor/corrector numerical scheme in a code (*Java*) for nuclear reactor severe accidents.

Two months research internship, 2014, Polytechnic Institute, Bragança, Portugal.

Teeth extraction from dental x-ray using contour detection, image segmentation, texture pattern recognition and Chan-Vese active contour methods.

Summer jobs, 2010-2013

Conforama, Charleville-Mézières.

SCEA Les Cressonières d'Aquitaine, farming sector, Agen.

Conferences and Seminars

Oral presentation : "Solving coupled problems of lumped parameter models in a platform for severe accidents in nuclear reactors", 2018, European Conference on Computational Mechanics, Glasgow, UK.

Poster presentation : "Solving coupled problems of lumped parameter models in a platform for severe accidents in nuclear reactors", 2017, CIRM, Marseille.

Summer schools

Numerical simulation thematic school (*ETSN*) : "Validation of numerical simulation and quality of computation codes" organized by CEA/DIF with LRC MESO (CMLA - ENS Cachan), 2018, Cargèse, France.

***CEMRACS* : "Numerical methods for stochastic models: control, uncertainty quantification, mean-field"**, 2017, CIRM, Marseille.

Numerical simulation thematic school (*ETSN*) : "Methods for interface tracking" organized by CEA/DIF with LRC MESO (CMLA - ENS Cachan), 2017, Cadarache, France.

Numerical simulation thematic school (*ETSN*) : "Complex flows, advanced schemes, singularity treatments and high performance computations in hydrodynamic", organized by CEA/DIF with LRC MESO (CMLA - ENS Cachan), 2016, Cadarache, France.

Programming Skills

Operating systems : UNIX (Linux), Windows and Mac OS.

Programming : C, C++, Python, Java, Fortran, OcamL, Haskell, ADA, Prolog, MatLab, Maple, LaTeX.

Spoken Languages

French : mother tongue.

English : upper-intermediate level, fluent in written and spoken. Score TOEIC : 975.

Russian, German : beginner.

Interests and additional information

Sports : Cycling, Mountain Bike, Rugby.

Reading and Writing : winner of the "Etonnants-voyageur" prize for young writers in 2008.