

Tianyi LI

PhD, R&D engineer in multiphysics, numerical simulation and scientific computing

@ tianyikillua@gmail.com +33 6 46 77 76 90 Paris 12e, FRANCE
 in linkedin.com/in/tianyikillua github.com/tianyikillua ? check latest version of this CV



EXPERIENCES

Research and Development Engineer permanent (CDI)

Promold PME – consulting in industrial simulation

Apr 2013 – Aug 2013, Apr 2017 – Paris 9e, FRANCE

- Fiber orientation modeling for process (injection molding) simulation of fiber-reinforced polymers with **Moldflow** and **Moldex3D**
- Integrative structural analysis under **Optistruct** / **Radioss** / **code_aster** with process-induced microstructural properties using **Digmat**
- Improved multiscale rheological (fluid) and thermomechanical (solid) modeling of fiber-reinforced polymers: anisotropic viscosity, fiber orientation, structural buckling, porosity prediction and material failure behavior
- Material model implementation for process simulation using **C++**, and for structural analysis using **UMAT** / **Fortran**
- Uncertainty propagation for injection molding simulations using **OpenTURNS** and *data-driven* techniques (model reduction, sampling...)
- Development of various GUI-based simulation tools using **Python** / **C++**
 - Implementing an integrative simulation methodology between process and product structural analysis
 - Implementing a novel global adaptive optimization methodology of fiber orientation model parameters for a better correlation with experiment
 - For buckling analysis of anisotropic fiber-reinforced materials (with finite element library **FEniCS** and eigenvalue solver **SLEPc**)
- Development of scientific computing tools: procedure automation under **HyperWorks** using **TCL**; **Docker** deployment for launching simulations across systems; post-processing of simulation results under **ParaView** with **Python**; statistical data analysis and visualization under **Python/Jupyterlab**

Junior Research Engineer (PhD Candidate) fixed term (CDD)

IMSIA (CNRS-EDF-CEA) PME – applied research lab

Oct 2013 – Sep 2016 Palaiseau (91), FRANCE

- Dynamic fracture modeling of brittle materials for concrete structures, with a novel non-local constitutive behavior for a better prediction and understanding of crack propagation behavior
- Structural analysis, and model implementation in an industrial explicit dynamics finite element program **Europlexus** using **Fortran**
- Design and implementation of parallel computing architecture using **MPI** and **PETSc** under **Europlexus**, quasi-perfect scaling efficiency achieved
- Contributions to the open-source scientific computing libraries **FEniCS** and **PETSc** using **C++**

Structural Analysis Engineer intern

Faurecia Interior Systems GE – automotive equipment supplier

Sep 2012 – Feb 2013 Méru (60), FRANCE

- Elastoplastic constitutive modeling of long-fiber reinforced thermoplastics for the automobile industry, better agreement with experiment achieved
- Numerical analysis and model implementation using **Python**
- Static, modal and dynamic structural analysis under **Abaqus**

Mechanical Design Engineer intern

AML-Systems PME – automotive equipment supplier

Sep 2011 – Feb 2012 Le Bourget (93), FRANCE

- Design and static analysis of headlamp cleaning systems using **Catia**
- Analysis of experimental data using **Matlab**

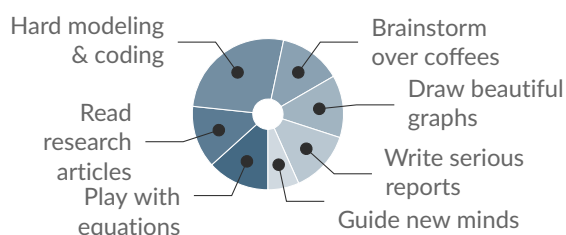
MOST PROUD OF

- 7 reviewed research articles and more than 130 citations since
- 2 submitted patents at the INPI with the kind support of our team
- 5 involved open-source projects with software engineering practices

STRENGTHS

Thermomechanics Material modeling
 Applied maths Numerical analysis
 Statistical data analysis Programming
 CAE tools Scientific communication
 Development of advanced simulation tools

TYPICAL DAY AT WORK



LANGUAGES

Chinese ●●●●●

French / English ●●●●●

EDUCATION

PhD in Solid Mechanics

Univ. Paris-Saclay (Ecole Polytechnique)

2013 – 2016 Palaiseau (91), FRANCE

- Supervisors: Jean-Jacques Marigo (l'X), Daniel Guilbaud (CEA) and Serguei Potapov (EDF)

Engineer in Mechanics

Univ. de Technologie de Compiègne

2010 – 2013 Compiègne (60), FRANCE

Bachelor in Mechanics

Univ. de Technologie Sino-Européenne

2007 – 2010 Shanghai, CHINA