



Luca Di Stasio

Researcher & Engineer

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-  Driver License Cat. B (IT)
-  Italian & EU citizen
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Purpose-driven professional with expertise in computational engineering and applied mathematics seeking Senior Modeling & Simulation Engineer position at P&G

Reference R000020919.

I am writing regarding the opening for the position of Senior Modeling & Simulation Engineer, which I came across in my LinkedIn feed. As a postdoctoral researcher in Computational Solid Mechanics with several years of experience working in international settings, I think I am well qualified for the position you offer

I have a multidisciplinary background rooted in the engineering sciences, as I started my professional journey with a B.Sc. in Aerospace Engineering, obtained then an M.Sc. in Mechanical Engineering and an M.Sc. in Space Engineering, and finally completed my formation with a Ph.D. in Materials Science and a Ph.D. in Polymeric Composite Materials. Growing as a researcher, I have had the chance of working on several projects in various subjects, from ankle biomechanics to micromechanics of composite materials, from nano-electromechanical systems to the mechanics of soft materials. I have thus developed a wide perspective on the current developments in the field of applied mechanics and materials science. Computational modeling has been the common theme of my research experience, which has provided me with solid foundations in software design, programming, multi-physics simulation, and data analysis. I have a deep theoretical understanding and practical experience with several numerical methods in Computational Solid and Fluid Mechanics, such as the Finite Element Method (FEM), Boundary Element Method (BEM), Finite Difference Method (FDM), Lattice Boltzmann Method (LBM), Lattice Spring Method (LSM), Cellular Automata (CA). I have experience in several programming languages, mainly Python, C++, R, Julia, Matlab, Mathematica, Bash scripting, Windows command line scripting. I am an active peer reviewer for scientific journals (the Journal of Composite Materials, Frattura ed Integrità Strutturale, and the Journal of Open Research Software). I have experience in research funding and grant application writing, in particular with Vinnova (the Swedish Innovation Agency) for a project on neutron-based imaging of damage in composite materials and Code for Science & Society to fund a series of workshops on good coding and data management practices for researchers in Italy.

The opportunity of living and working in several countries has allowed me not only to become fluent in different languages but most importantly to master cross-cultural communication skills. Flexibility, adaptability, and rapid response to change are qualities that I have nurtured by navigating multiple work environments. From the experience of my Ph.D. project, which was a collaboration between Université de Lorraine in France and Luleå tekniska universitet in Sweden, and of my postdoctoral fellowship, which started remotely due to the Covid-induced travel restrictions, I have learned how to successfully manage complex projects with uncertain boundaries, multiple requirements, and several stakeholders. Honesty, transparency, and a positive attitude towards challenges have helped me earn the respect and trust of superiors and colleagues, which has led to numerous teaching and supervision tasks entrusted to me by supervisors and senior members of the Institutes I worked at. The ability to communicate candidly in the workplace has allowed me to build over the years a broad network across different countries and specialties.

I believe my skills and experience would prove valuable in the service of P&G and its customers' needs. I am looking forward to a personal interview, and the chance to further discuss the value I could bring to P&G as a Senior Modeling & Simulation Engineer. In the meantime, I wish to thank you for taking the time to consider my application and review my qualifications.

Best regards,

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Key Qualifications

- Ph.D., Materials Science
- Ph.D., Composite Materials
- M.Sc., Space Engineering
- M.Sc., Mechanical Engineering
- B.Sc., Aerospace Engineering
- PE License, Industrial Engineering
- French HE Teaching Qualification
- Swedish HE Teaching Qualification
- CNC Qualified Technician

Key Experience

- Research & Development (9+ yrs)
- Data Analysis (9+ yrs)
- Software Development (8+ yrs)
- Project Supervision (3+ yrs)
- Project Funding & Budgeting (3+ yrs)
- Scholarly peer-review (3+ yrs)
- Technical Writing (9+ yrs)
- Teaching (11+ yrs)

Work Experience



Research & Development

- 2020- **Postdoctoral Researcher** KAUST (Thuwal, Saudi Arabia)
Continuum & Computational Mechanics of Materials, PSE
Project(s): Characterization of crack tip fields in 3D hyperelastic bodies, Cohesive crack in thin Neo-Hookean sheets, Iterative contour integral-based algorithms for identification of crack tip parameters.
Working language(s): English
- 2018- **Early stage Researcher** Luleå tekniska universitet (Luleå, Sweden)
2019 Polymeric Composite Materials Group, TVM
Project(s): Mechanics of extreme thin composite layers for aerospace applications, Effect of aging on transverse cracking in GFRPC, Temperature and loading rate effect on transverse cracking in GFRPC
Working language(s): Swedish, English
- 2015 - **Early-stage Researcher** Université de Lorraine (Nancy, France)
2017 Mechanics of Materials Group, SI2M, IJL
Project(s): Mechanics of extreme thin composite layers for aerospace applications
Working language(s): French, English
- 2013 - **Early-stage Researcher** ETH Zürich (Zürich, Switzerland)
2015 Computational Physics for Engineering Materials Group, D-BAUG
Projects: Fluid-structure interaction on deformable surfaces, Multiscale modeling of wood
Working language(s): German, English
- 2012 - **Research Assistant** IMDEA Materials Institute (Madrid, Spain)
2013 Structural Composites Group
Project(s): Loading rate effects on interlaminar fracture toughness in advanced CFRP.
Working language(s): Spanish, English
- 2012 **Research Assistant** Drexel University (Philadelphia, USA)
Mesoscale Materials Laboratory & BioMechanics Laboratory
Project(s): Design of nano-resonators for environmental electromagnetic field detection, Talus morphology and its relationship to the kinematics of the ankle joint.
Working language(s): English


Teaching & Supervision

- 2020- **Guest Lecturer** Université de Lorraine (Nancy, France)
2021 *Format:* Distance learning
Subject(s): Solid Mechanics
Working language(s): French
- 2018- **University Teaching Assistant** Luleå tekniska universitet (Luleå, Sweden)
2019 *Format:* Face-to-face learning
Subject(s): Elasticity, Rheological models, Fracture mechanics, Experimental methods, Mechanics of Composite Materials, Laminate Analysis, Finite Element Method.
Working language(s): English
- 2016 - **University Teaching Assistant** Université de Lorraine (Nancy, France)
2017 *Format:* Face-to-face learning
Subject(s): Mechanics of materials, Elasticity, Rheological models, Fracture mechanics, Experimental methods, Mechanics of Composite Materials, Finite Element Method
Working language(s): French
- 2014 - **Tutor** The Learning Center Zürich (Zürich, Switzerland)
2015 *Format:* Face-to-face learning
Subject(s): Mathematics, Physics, Statistics, Econometrics, Java programming
Working language(s): German, English
- 2011 **Tutor** Politecnico di Milano (Milano, Italy)
Format: Face-to-face learning
Subject(s): Calculus
Working language(s): Italian
- 2009 - **Tutor** Scientific High School Istituto Sacro Cuore (Milano, Italy)
2011 *Format:* Face-to-face learning
Subject(s): Mathematics, Physics, Biology, Italian Language and Literature, Latin Language and Literature, History
Working language(s): Italian

Languages

 Italian (mother tongue)	
Speaking	● ● ● ● ●
Writing	● ● ● ● ●
Reading	● ● ● ● ●
 English (fluent)	
Speaking	● ● ● ● ●
Writing	● ● ● ● ●
Reading	● ● ● ● ●
 French (fluent)	
Speaking	● ● ● ● ●
Writing	● ● ● ● ●
Reading	● ● ● ● ●
 Spanish (fluent)	
Speaking	● ● ● ● ●
Writing	● ● ● ● ●
Reading	● ● ● ● ●
 German (satisfactory)	
Speaking	● ● ● ● ●
Writing	● ● ● ● ●
Reading	● ● ● ● ●
 Swedish (rudimentary)	
Speaking	● ● ● ● ●
Writing	● ● ● ● ●
Reading	● ● ● ● ●
 Russian (rudimentary)	
Speaking	● ● ● ● ●
Writing	● ● ● ● ●
Reading	● ● ● ● ●

Technical Skills

 Mechanical & Electrical Engineering	
Creation of Drawings & Specifications	
Circuit Design & Assembly	
Milling, Turning, Drilling, Welding	
Operating CNC & Precision Machines	
 Composites Science & Technology	
Hand layup, Resin Molding & Casting	
Specimen Cutting & Polishing	
UTM Testing, Strain Measurements	
Optical & Digital Microscopy, SEM	
 Project Management	
Goals & Specifications Formulation	
Planning, Scheduling & Supervision	
Funding & Budgeting	
 Technical Writing & Communication	
Technical Reports, Scientific Articles	
Seminar & Conference Presentations	
Meeting, Video-Conferencing	

Institutional and Administrative Activities

2019	CompTest 2019 organising committee (Luleå, Sweden)
	9th International Conference on Composite testing and model identification
	Design and creation of interactive book of abstracts, creation and design of conference proceedings website
	<i>Working language(s)</i> : English
2008 - 2011	Student Representative Politecnico di Milano (Milano, Italy)
	Student representative in the board of the Department of Aerospace Engineering and in the board of the School of Industrial Engineering at Politecnico di Milano
	<i>Working language(s)</i> : Italian

Volunteer Work

currently	Trainer The Carpentries (CA, USA)
	Conducting workshops to teach pedagogical principles and innovative teaching practices to researchers delivering technical workshops on coding and data science
	<i>Working language(s)</i> : English
currently	Instructor The Carpentries (CA, USA)
	Conducting workshops to teach foundational coding and data science skills (Unix Shell, Git, Python, R) to researchers
	<i>Working language(s)</i> : English

Memberships

2014-	Ordine degli Ingegneri della Provincia di Milano (Society of Licensed Engineers of Milan)
2017-	The Carpentries

Publications

2021	Large deformation near a crack tip in a fiber-reinforced neo-Hookean sheet with discrete and continuous distributions of fiber orientations <i>Theoretical and Applied Fracture Mechanics</i> , doi: 10.1016/j.tafmec.2021.103020
2020	Effect of the proximity to the 0°/90° interface on Energy Release Rate of fiber/matrix interface crack growth in the 90°-ply of a cross-ply laminate under tensile loading <i>Journal of Composite Materials</i> , doi: 10.1177/0021998320912810
2019	Influence of microstructure on debonding at the fiber/matrix interface in fiber-reinforced polymers under tensile loading Doctoral Thesis. Luleå University of Technology (Luleå, Sweden) and Université de Lorraine (Nancy, France)
2019	Finite Element solution of the fiber/matrix interface crack problem: convergence properties and mode mixity of the Virtual Crack Closure Technique <i>Finite Elements in Analysis and Design</i> , doi: 10.1016/j.finela.2019.103332
2019	Growth of interface cracks on consecutive fibers: on the same or on the opposite sides? Proceedings of the 12 th International Conference on Composite Science and Technology - Sorrento, Italy - May 8-10 th , 2019 <i>Materials Today: Proceedings</i> , doi: 10.1016/j.matpr.2020.06.410
2019	Energy release rate of the fiber/matrix interface crack in UD composites under transverse loading: debond-debond and debond-free boundary interactions <i>Theoretical and Applied Fracture Mechanics</i> , doi: 10.1016/j.tafmec.2019.102251
2018	Effect of boundary conditions on microdamage initiation in thin ply composite laminates Proceedings of the ECCM18 - 18 th European Conference on Composite Materials - Athens, Greece - June 24-28 th , 2018
2013	Experimental, Analytical and Numerical Investigation of Loading Rate Effects on Mode I, Mode II and Mixed Mode I-II Delamination in Advanced CFRP Master Thesis, Master of Science in Space Engineering. Politecnico di Milano (Milano, Italy)

Computer Skills

- </> Operating Systems
 - Linux (Ubuntu, OpenSUSE, CentOS)
 - Windows (>95), Mac OS X (>10.6)
- </> Languages
 - C/C++, Python, Julia, Java, Fortran
 - VBA, Javascript, HTML(5), CSS
 - Bash, Windows Batch Scripting
- </> High Performance Computing
 - OpenMP, MPI, CUDA, OpenACC
- </> Scientific Computing & Statistics
 - Numpy, Scipy, R, Stata
 - Matlab, Mathematica, Octave, Maple
 - Excel, G-Sheets, LibreOffice Calc
- </> CAD, CAM, CAE
 - Autocad, Solid Edge, G-code
 - Abaqus, Ansys, Comsol Multiphysics
 - CalculiX, FEniCS, Code_Aster
 - OpenFOAM, Thermal Desktop
- </> Web Development
 - AJAX, JQuery, Bootstrap, Angular
 - React, D3, Node.js, Npm
- </> Databases
 - SQL, MongoDB
- </> Versioning
 - Git, Github
- </> Writing & Reporting
 - Latex, Tikz, Beamer, Word, Powerpoint

Education

Higher Education

- 2015 - **Joint European Doctoral Programme in Advanced Materials Science and Engineering (DocMASE)**
Luleå tekniska universitet (Luleå, Sweden) and Université de Lorraine (Nancy, France)
PhD in Polymeric Composite Materials (2019), Luleå tekniska universitet
PhD in Materials Science (2019), Université de Lorraine
Working language(s): English, French, Swedish
- 2013 **Professional License, Industrial Engineering**
Politecnico di Milano (Milano, Italy)
Working language(s): Italian
- 2010 - **Double EU-US Master Programme EAGLES (Engineers as Global Leaders for Energy Sustainability)**
Politecnico di Milano (Milano, Italy), Drexel University (Philadelphia, USA) and Universidad Politécnica de Madrid (Madrid, Spain)
MSc in Space Engineering, 110/110 (2013), Politecnico di Milano
MSc in Mechanical Engineering, 4/4 (2012), Drexel University
Working language(s): Italian, English, Spanish
- 2007 - **Bachelor of Science in Aerospace Engineering, 110/110**
2010 Politecnico di Milano (Milano, Italy)
Working languages(s): Italian
- 2002 - **Scientific High School Diploma, 100/100 cum Laude**
2007 Scientific High School Istituto Sacro Cuore (Milano, Italy)
Working languages(s): Italian
- 1997 - **Cello Studies**
2007 Municipal School of Music (Cernusco s/N, Italy)
Working language(s): Italian

Selected Courses & Seminars

- 2020 **Software Carpentry Trainer Training Program**
The Carpentries (California, USA)
Remote Interactive Course and Certificate of Completion
Working language(s): English
- 2018 - **Qualifying Course for University Teachers**
2019 Luleå tekniska universitet (Luleå, Sweden)
In-Class Course and Verified Certificate of Completion
Working language(s): English
- 2017 **Software Carpentry Instructor Training Program**
The Carpentries (California, USA)
Remote Interactive Course and Certificate of Completion
Working language(s): English
- 2016 **Project Management MOOC - Classic Course**
Centrale Lille and Unow (Lille, France)
Online MOOC and Certificate of Completion
Working language(s): French
- 2015 **Corporate Social Responsibility (CSR) and Value Creation**
Audencia Nantes Business School (Nantes, France)
Online MOOC and Verified Certificate of Completion
Working language(s): English
- 2015 **2015 Summer School on Effective High Performance Computing**
CSCS and Università della Svizzera Italiana (Lugano, Switzerland)
In-Class Course, Hands-on Training and Certificate of Completion
Working language(s): English

Vocational Training

- 2009 **CNC Technician**
Centro di Formazione Professionale Salesiano Don Bosco (Milano, Italy)
In-Class Course, Hands-on Training and Certificate of Competence
Working language(s): Italian

Honors & Awards

- 2019 **Wallenberg Jubileumsanslaget Travel Grant**
Knut and Alice Wallenberg Foundation
Travel expenses for the participation to the *12th International Conference on Composite Science and Technology*
- 2015 - **Erasmus Mundus Fellowship**
2018 European Commission
Salary and travel expenses for the participation to the *Joint European Doctoral Programme in Advanced Materials Science and Engineering (DocMASE)*
- 2015 **Academic Excellence Award**
BCC (Banca di Credito Cooperativo) di Cernusco s/N (now BCC di Milano) (Milano, Italy)
Award for excellence in graduate studies at Politecnico di Milano (Milano, Italy)
- 2013 **PEGASUS award**
PEGASUS - The European Network of Excellence in Aerospace Engineering Education
Statement of recognition of special achievements in European cooperation through working abroad for academic research or industrial development projects
- 2012 - **Erasmus Fellowship**
2013 European Commission
Salary and travel expenses to conduct a research project at IMDEA Materials Institute (Madrid, Spain), as part of the *Double Master Degree Program EAGLES (Engineers as Global Leaders for Energy Sustainability)*
- 2011 - **EU-US Atlantis Program Fellowship**
2012 European Commission and U.S. Department of Education
Full tuition, salary and travel expenses to conduct graduate studies at Drexel University (Philadelphia, USA), as part of the *Double Master Degree Program EAGLES (Engineers as Global Leaders for Energy Sustainability)*
- 2012 **Academic Excellence Award**
BCC (Banca di Credito Cooperativo) di Cernusco s/N (now BCC di Milano) (Milano, Italy)
Award for excellence in undergraduate studies at Politecnico di Milano (Milano, Italy)
- 2007 - **Merit-based tuition fees exemption**
2010 Politecnico di Milano (Milano, Italy)
Merit-based partial exemption from tuition fees to conduct undergraduate studies at Politecnico di Milano (Milano, Italy)
- 2007 **Academic Excellence Award**
BCC (Banca di Credito Cooperativo) di Cernusco s/N (now BCC di Milano) (Milano, Italy)
Award for excellence in high school studies at Scientific High School Istituto Sacro Cuore (Milano, Italy)
- 2007 **Academic Excellence Award**
Ministero dell'Istruzione, dell'Università e della Ricerca (Italian government)
Award for excellence in high school studies at Scientific High School Istituto Sacro Cuore (Milano, Italy)