CORENTIN RAVELEAU

24 years old

(+33) 6 95 58 82 25 – corentin.raveleau@umontpellier.fr

`https://corentinraveleau.github.io`

IMAG, UMR 5149, Place Eugène Bataillon, 34090 Montpellier, France

EXPERIENCE

Ph.D. Candidate, IMAG (preceded by a 6-month training period)   *2022-2025*

Advisors: Franck Nicoud and Simon Mendez.

Numerical simulation of blood platelet adhesion on structured artificial surfaces.

Developed a blood platelet dynamics and adhesion model within the YALES2BIO solver to study the effects of structured surfaces on platelet adhesion reduction. This research seeks to enhance understanding of experimental observations and improve the hemocompatibility of blood-contacting medical devices.

Institut Montpelliérain Alexander Grothendieck, Université de Montpellier, France.

Master's Thesis   *2021-2022*

Advisor: Yann Monerie.

Simulation of crack propagation in heterogeneous material using cohesive zone modeling.

Modeled an induction-hardened steel shaft using finite element methods and cohesive zone modeling to study crack initiation and propagation in elastic-plastic-damageable heterogeneous material. Results indicated crack initiation at both the shaft surface and beneath the hardened layer, depending on material properties.

Laboratoire de Mécanique et Génie Civil, Université de Montpellier, France.

Undergraduate Internship   *May-August 2021*

Advisor: Željko Božić.

Simulation of fatigue crack initiation and propagation in a MI-8 helicopter tail beam.

Conducted mechanical analysis of simplified and realistic multipart geometry.

Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb, Croatia.

EDUCATION

Master's Degree in Engineering: Mechanics and Interactions   *2019-2022*

Subjects: Solid and fluid dynamics, Finite element method, CFD, mathematics, programming.

Polytech Montpellier, Université de Montpellier, France.

Intensive Preparatory Course for French Engineering Schools   *2017-2019*

Subjects: Mathematics, Physics, Programming.

Polytech Nantes, Université de Nantes, France.

PUBLICATIONS

On the Platelet Dynamics Over Micro-Structured Plates, Raveleau C., Mendez S., and Nicoud F., ERCOFTAC Bulletin, Vol. 140, Pages 13-19, September 2024.

TALKS

Numerical Simulation of Platelet Adhesion on Structured Artificial Surfaces, GDR Mécabio Annual Meeting, Metz, France. *December 2024*

Numerical Simulation of Platelet Adhesion on Structured Artificial Surfaces, Flash Poster Presentation, 50th ESAO Congress, Aachen, Germany. *September 2024*

Platelet Adhesion on Structured Surfaces Model Using the Force Coupling Method, Biomechanics Team Seminar, IMAG, Montpellier, France. *June 2024*

Numerical Simulation of Platelet Adhesion on Structured Surfaces, KIM Blood Science PhD Day, University of Montpellier, Montpellier, France. *July 2023*

Platelet Transport and Adhesion Models, Ph.D. Student Seminar, IMAG, Montpellier, France. *February 2023*

Thrombogenicity Reduction by Means of Surface Structure - A Combined In Vitro and In Silico Study, Biomechanics Team Seminar, IMAG, Montpellier, France. *July 2022*

POSTER SESSION

Numerical Simulation of Platelet Adhesion on Structured Artificial Surfaces, 50th ESAO Congress, Aachen, Germany. *September 2024*

WORKSHOPS

CNRS Thematic School: Quantitative and Qualitative Approaches in Biomechanics and Mechanobiology for Healthcare, GDR Mécabio Santé, Grenoble, France. *June 2024*

7th Extreme CFD Workshop and Hackathon, Blood Platelet Adhesion Model (Principal Investigator), Caen, France. *January 2024*

6th Extreme CFD Workshop and Hackathon, Force Coupling Method for Particulate Flow (Principal Investigator), Caen, France. *January 2023*

TEACHING

General Mathematics Undergraduate Course covering Linear Algebra, Topology, Calculus, and
Probability (40 hours).   *2023*

TECHNICAL SKILLS

Languages	French: Native
	English: Fluent
	German: Conversational
Physics	*Fluid Mechanics:* Stokes Flow, Particulate Flow, FVM
	Solid Mechanics: Point and Continuum Mechanics, Rheology, FEM.
Computer	*Programming:* FORTRAN 90, C++, MPI, Python, Matlab.
	Numerical Simulation: YALES2BIO (IMAG), YALES2 (CORIA, UMR 6614), FEniCSx, Fluent, Comsol.
	Tools: Paraview, GMSH, Git, Vim, LaTeX.