CORENTIN RAVELEAU

24 years old
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EXPERIENCE

Ph.D. at IMAG (preceeded by a 6-month training period) *2022-2025*
Advisors: Franck Nicoud and Simon Mendez.
Numerical simulation of blood platelets adhesion on structured artificial surfaces.
The development of a blood platelet dynamics and adhesion model, implemented in the YALES2BIO solver, aims to study the effect of structured surfaces on the reduction of platelet adhesion. This research seeks to enhance the understanding of experimental observations and improve the hemocompatibility of blood-contacting medical devices.
Institut Montpelliérain Alexander Grothendiek, Université de Montpellier, France.

Master's thesis *2021-2022*
Advisor: Yann Monerie.
Simulation of crack propagation in heterogeneous material using cohesive zone modeling.
An induction-hardened steel shaft was modeled using the finite element method and cohesive zone modeling to study crack initiation and propagation in this elastic-plastic-damageable heterogeneous material. The results showed that crack initiation can occur both at the shaft surface and beneath the hardened layer, depending on the material properties.
Laboratoire de Mécanique et Génie Civil, Université de Montpellier, France.

Undergraduate internship training *May-August 2021*
Advisor: Željko Božić.
Simulation of fatigue crack initiation and propagation in a MI-8 helicopter tail beam
Mechanical analysis of a simplified geometry and creation of a complex realistic multipart geometry.
Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb, Croatia.

EDUCATION

Master Degree in Engineering : Mechanics and Interactions. *2019-2022*
Subjects studied: 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 studied: Mathematics, physics, programming.
Polytech Nantes, Université de Nantes, France.

TECHNICAL SKILLS

Languages	French: Native English: Fluent German: Conversationnal
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.

TEACHING

General Mathematical undergraduate course covering Linear algebra, Topology, Calculus and Probabilities (40h) *2023*

TALKS

Thrombogenicity reduction by means of surface structure - a combined in vitro and in silico study, Biomechanics team seminar, IMAG. *July 2022*

Platelets transport and adhesion models, Ph.D students seminar, IMAG. *February 2023*

Numerical simulation of platelets adhesion on structured surfaces, KIM Blood science PhD Day, University of Montpellier. *July 2023*

Platelet adhesion on structured surfaces model using the Force Coupling Method, Biomechanics team seminar, IMAG. *June 2024*