



louis.hebrard@ens-paris-saclay.fr



louheb.github.io/cv

## Skills

### Computer:

(years of experience)

Python —●●●●+

Matlab —●●●●●

Abaqus —●●●●●

Gmsh —●●●●●

Cast3M —●

SolidEdge —●●●

Catia V5 —●●

Solidworks —●

Latex —●●●●+

LAMMPS —●

Excel —●●●●+

Photoshop —●●●●+

### Experiments:

SEM

EBS

Polishing & Sample prep.

X-ray  $\mu$ -tomography

Synchrotron experiments

### Languages:

French - Native Speaker

English - C1 Advanced

Spanish - Basic Knowledge

### French driving licence

(since 2015)

## Interests

- Basketball
- Arts (drawing, painting)
- Social problematics

# Louis HÉBRARD

- Material Sciences & Mechanical Engineering -

## Research projects:

2020 - 2023: PhD thesis

**Study on the effect of environment on internal fatigue crack propagation**

Matéis Lab - INSA Lyon ■ ■

Jean-Yves Buffiere - Thierry Palin-Luc (I2M Bordeaux) - Nicolas Ranc (PIMM Paris)

- Synchrotron experiment on Ti-6Al-4V very high cycle fatigue crack propagation
- Study of the effect of environment: comparison of crack propagation in air and in vacuum

2020: Research internship (6 months)

**In-situ synchrotron tomography of laser powder bed fusion additive manufacturing**

Simap - Grenoble & PIMM - Arts et Métiers - Paris ■ ■

Pierre Lhuissier - Guilhem Martin - Patrice Peyre - Frédéric Coste

- Synchrotron tomography adapted exp. device to study LPBF impacting parameters

2018 - 2019: Engineering internship (6 months)

**Creation of a fatigue test bench for a humanoid-robot foot**

Wandercraft - Paris ■ ■

- Design and assembly of the test bench
- Mechanical and economic study on materials and processes for a production approach

2017 - 2018: Research internship (10 months)

**Numerical simulations at an atomic scale of the solute segregation toward grain boundaries in an Al-Mg alloy**

The University of British Columbia - Vancouver ■ ■

Chad W. Sinclair - Microstructure group

- Modelling of grain boundaries and segregation with hybrid Molecular Dynamic Method
- Exploitation of the numerical data to build free energy diagrams

2017: Engineering internship (14 weeks)

**Evaluation of the control loads on a H175 helicopter**

Airbus Helicopters - Marignane ■ ■

## Publications:

2024 - Ball et al. - Acta Materialia - Grain-level effects on in-situ deformation-induced phase transformations in a complex-phase steel using 3DXRD and EBSD  
doi.org/10.1016/j.actamat.2023.119608

2023 - Hebrard et al. - Materials Science and Engineering: A - Environment effect on internal fatigue crack propagation studied with in-situ X-ray microtomography  
doi.org/10.1016/j.msea.2023.145462

2022 - Lhuissier et al. - Review of Scientific Instruments - Miniature laser powder bed fusion system for in situ synchrotron x-ray micro-computed tomography experiments at the ESRF - doi.org/10.1063/5.0090623

2018 - Daghia et al. - Composites Part A: Applied Science and Manufacturing The Double Drum Peel (DDP) test: A new concept to evaluate the delamination fracture toughness of cylindrical laminates - doi.org/10.1016/j.compositesa.

## Teaching experience:

2020 - 2022: Mechanical system conception, Technical drawing and Computed-aided design (undergraduates from INSA Lyon)