

# ASPERT Théo

French 🇫🇷

PhD in biophysics

Expert in Microfluidics

Long-term single-c imaging

Deep-learning

## Contact



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<https://taspert.github.io>



Ph.D in biophysics and bioengineer, I have a strong expertise and passion in developing microfluidics, timelapse microscopy, and image processing technics to understand the fate of single cells in different contexts. I am seeking a post-doc position to continue building my project.

## MAIN R&D EXPERIENCES ▼

### Charvin lab

#### Ph.D

Institut de Génétique et de Biologie Moléculaire et Cellulaire (INSERM, CNRS, University of Strasbourg)

[2017 - Dec 2021]

#### Post-doc

[Jan-May 2022]

### R&D and scientific projects:

- Development of a high-throughput platform for asymmetric replicative aging assays, based on microfluidics and long-term single-cell imaging (published).
- Deep learning-based automated detection of cell divisions for replicative lifespan reconstruction (published).
- Measuring the statistics of extrachromosomal rDNA Circle excisions, a major event in the replicative lifespan of budding yeast cells (in prep.).
- Monitoring the dynamics of entry into quiescence during an unperturbed lifecycle at single-cell level (published).
- Development of a microfluidic device to couple single-cell timelapse analysis with biochemical assays (in prep.).
- 9 collaborative projects (from Switzerland, Japan, U.K, Germany, Italy & France. See [taspert.github.io/Research#collabs](https://taspert.github.io/Research#collabs)), requiring the development/use of microfluidic strategies (3 published).
- 2 first-author publications, 5 publications (+2 first-author in prep.). Co-reviewed 3 publications.

### Technical skills developed:

**Long-term single-cell imaging**, microscope and hardware interfacing (Micromanager & Matlab). Classical and **deep-learning image and sequence processing** (CNN, LSTM, U-Net). **Microfluidics** (experimental, theoretical and simulations). **Microfabrication** (design, photo- and soft-lithography, clean room setup and management). Electronics and automation. **Data science and software development** (Matlab, Python).

**Quantitative biology** (data acquisition, processing and visualization. Deterministic and stochastic modeling). Yeast biology (notably aging and quiescence).

Classical biology tools: FACS, PCR, DNA gels, yeast and bacteria strains generation.

### Saudou lab -

4 months internship  
Grenoble Institute of  
Neurosciences  
[2016]

**Description of a new mode of vesicles transport along axons** (co-author in review in Neuron)

### Technical skills developed:

Neuronal cell culture, timelapse of single-axons using spinning disk confocal microscopy, microfluidics, image & data processing, FRAP, arduino automation, immunofluorescence tagging.

## ALMA MATER ▼

### Grenoble Institute of Technology - PHELMA

\*Bachelor's degree in Engineering Physics

\***Master's degree of bioengineering** (physics and instrumentation for biomedical applications)

### Grenoble-Alps University

\***Master of Science in Nanobiology**

[2014-2017]

**Ex of courses/practicals:** Theoretical and experimental microfluidics, microfabrication, hydrodynamics, numerical modelisation, multi-physics simulations (COMSOL), image processing, molecular and cellular biology, physiology, systems biology.

**Ex of projects:** Studying the influence of shear stress on *Dictyostelium discoideum* actin polymerization using a microfluidic device.

### Lycée Pothier - Pre-engineering class

[2011-2014]

Intensive undergraduate preparation in mathematics, physics and engineering sciences for the national competitive entrance exams to French «Grandes Ecoles».

## OTHER SKILLS ▼

### Chatting with computers and machines

Matlab, Python, C++, Java, HTML/CSS

### 3D modeling and printing (FDM, SLA), Arduino, DIY

Printed 500+ facemasks for hospitals during the Covid19 pandemic

### Conveying a scientific/technical message

Giving talks, Powerpoint, Adobe suite, Webdesign

## PERSONAL INTERESTS ▼

### Cycling (road/mountain/gravel), hiking, trekking

100+km/week

### Photography (all scales)/Astrophotography, timelapse

### Environment and society

Co-founder of [twitter.com/sapiensecologie](https://twitter.com/sapiensecologie)