

ASPERT Théo

French 🇫🇷

PhD in biophysics

Expert in Microfluidics

Long-term single-cell 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-April 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), 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:

Microfluidics (experimental, theoretical and simulations (COMSOL)). **Microfabrication** (design (AutoCAD), photo- and soft-lithography, clean room management). **Long-term single-cell imaging**, confocal and epifluorescence **microscopy**, microscope and hardware interfacing (Micromanager). Classical and **deep-learning image and sequence processing** (CNN, LSTM, U-Net). 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:

Timelapse with spinning disk confocal microscopy, microfluidics, image and data processing, FRAP, arduino automation, neuronal cell culture, 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/Astrophotography

Environment and society

Co-founder of twitter.com/sapiensecologie