

# Hadrien Mary

7966 venue Henri-Julien, Montréal, H2B 2B8, Québec, Canada

📅 28/04/1987 (32 years) | 📞 +1-514-923-2804 | ✉ hadrien.mary@gmail.com | 📱 hadim | 📧 Hadrien Mary

## Experience

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### Postdoctoral Researcher in Biophysics and Computational Biology

Montréal, Canada

BROUHARD LAB - MCGILL UNIVERSITY

2016 - 2019

- Work on the dynamic of **microtubule nucleation from centrosome**.
- Protein purification of centrosomal proteins and tubulin.
- In vitro total internal reflection fluorescence microscopy (TIRF).
- Microscopy imaging analysis of **microtubule dynamics** using the Python library **anamic** I have created.
- Analysis of microtubule curvature using **Kappa**, a Fiji plugin to detect and measure the curvature of biological structures.
- **Microfluidic**: 3D CAD design of molds, fabrication using a micro-milling machine and assay using a flow control machine.
- **3D Printing**: In charge of the biology department's 3D printer: Eden 260VS from Stratasys.

### PhD Student in Biology

Toulouse, France

CBI, UNIVERSITY OF TOULOUSE

2012 - 2015

- Work on the **dynamic of chromosome during mitosis in fission yeast**.
- **Real time** fluorescent video microscopy and **mitosis mechanical modeling**.
- High-throughput **image analysis**: detection and tracking of **live chromosome movement** during cell division.

### Internship in Bioinformatics

Brisbane, Australia

NICK HAMILTON LABORATORY, IMB, UNIVERSITY OF AUSTRALIA

2011

- High-throughput image segmentation and statistic analysis.
- Mammalian kidney branching morphogenesis modeling.

## Education

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### Master degree in Bioinformatics

Bordeaux, France

UNIVERSITY OF BORDEAUX

2009 - 2011

### Bachelor's degree in Biology of Organisms

Bordeaux, France

UNIVERSITY OF BORDEAUX

2008 - 2009

### Erasmus – European Union Student Exchange Program - High school of biology

Madrid, Spain

UNIVERSITY OF COMPLUTENSE

2007 - 2008

### Higher National Diploma

Basque Country, France

SAINT JEAN DE LUZ

2005

## Skills

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### Open-source Developer

(NON-EXHAUSTIVE LIST)

- **anamic** (python): Simulate, fit and analyze microtubule images acquired using fluorescence microscopy.
- **pygraphml** (python): Parse GraphML file in Python.
- **read-roi** (python): Read ROI files .zip or .roi generated with ImageJ/Fiji.
- **tqdm** (python): A Fast, Extensible Progress Bar for Python (I am at the origin of the fork and re-birth of the project in 2015, I am not a maintainer of the project anymore).
- I am maintaining more than **20 conda-forge Python packages**.
- Active in the **ImageJ/Fiji** developer community (java). ImageJ is one of the the most used imaging processing software in research in biology.
- **Kappa** (java): A Fiji plugin for Curvature Analysis of biological structures in a wide variety of imaging modality. Kappa approximates curved features in images by fitting them to parametric curves (B-spline). The curvature measurement is then computed for each curves.
- **KymographBuilder** (java): Yet Another Kymograph Fiji plugin.
- **FilamentDetector** (java): A Fiji plugin that allows easy, fast and accurate detection and tracking of biological filaments.
- **FrameProcessor** (java): Live frame processing during acquisition (Micro-Manager plugin).

## Personal projects

(NON-EXHAUSTIVE LIST)

- **captchanet** (python): A simple but yet efficient neural networks to solve captcha images. The model uses a feature extractor (MobilenetV2 or Inception V3) and then classify each letter of the captcha image using 10 classification heads.
- **bain** (Arduino): A DIY IoT wireless sensor for temperature, humidity and pressure.

## Technical Skills

CODING

- Python (10 years experience), C/C++, Java, Bash.
- Docker and Linux server administration.
- Continuous Integration (CI): Travis, CircleCI, AppVeyor, Azure Pipeline.
- 3D Modeling: Solidworks, AutoFusion 360, FreeCAD.

## Languages

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**French** Native Language

**English** Fluent

**Spanish** Fluent

## References

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### Gary Brouhard

POSTDOC'S SUPERVISOR

- McGill University, 1205 avenue Docteur Penfield, Montréal, Québec, Canada H3A 1B1.
- gary.brouhard@mcgill.ca

### Sylvie Tournier / Yannick Gachet

PHD'S SUPERVISOR

- CBI - CNRS UMR5088, University of Toulouse – France.
- sylvie.tournier-gachet@univ-tlse3.fr

### Nick Hamilton

MASTER INTERNSHIP'S SUPERVISOR

- IMB - The Institute for Molecular Bioscience, Brisbane, Australia.
- n.hamilton@imb.uq.edu.au

## Publications

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### Kappa ( $\kappa$ ): Analysis of Curvature in Biological Image Data using B-splines

G. B. HADRIEN MARY

*To Be Submitted* (2019). 2019

### MAARS: a novel high-content acquisition software for the analysis of mitotic defects in fission yeast

T. LI, H. MARY, M. GROSJEAN, J. FOUCHARD, S. CABELLO, C. REYES, S. TOURNIER, Y. GACHET

*Molecular biology of the cell* 28.12 (2017) pp. 1601–1611. The American Society for Cell Biology, 2017

### Spindle micro-fluctuations of length reveal its dynamics over cell division

B. MERCAT, X. PINSON, J. FOUCHARD, H. MARY, S. PASTEZEUR, Z. ALAYAN, Y. GACHET, S. TOURNIER, H. BOUVRAIS, J. PÉCRÉAUX

*Biophysical Journal* 110.3 (2016) 622a. Elsevier, 2016

### Fission yeast kinesin-8 controls chromosome congression independently of oscillations

H. MARY, J. FOUCHARD, G. GAY, C. REYES, T. GAUTHIER, C. GRUGET, J. PÉCRÉAUX, S. TOURNIER, Y. GACHET

*J Cell Sci* 128.20 (2015) pp. 3720–3730. The Company of Biologists Ltd, 2015

### Fission yeast Kinesin-8 controls chromosome alignment by containing sister chromosome oscillations and providing a length dependent pulling force

M. HADRIEN, F. JONATHAN, G. GUILLAUME, R. CÉLINE, G. TIPHAINE, G. CLÉMENCE, Y. GACHET, T. SYLVIE

*MOLECULAR BIOLOGY OF THE CELL*, 2014

## Conferences

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- 2014 **ASCB Meeting**, "Fission yeast Kinesin-8 controls chromosome alignment by containing sister chromosome oscillations and providing a length dependent pulling force" *Philadelphie, USA*
- 2014 **FRBT Meeting**, "Fission yeast Kinesin-8 controls chromosome alignment by containing sister chromosome oscillations and providing a length dependent pulling force" *Toulouse, France*
- 2014 **Conférence Jacques Monod**, Le cycle cellulaire : vers une biologie intégrative de la division cellulaire *Roscoff, France*
- 2014 **Evènements rares en Biologie**, Analyse et modélisation de la dynamique des chromosomes en mitose chez la levure à fission *Porquerolles, France*
- 2013 **JOBIM - Journées Ouvertes en Biologie, Informatique et Mathématiques**, "Analysis and modeling of chromosome dynamics during mitosis in fission yeast" *Toulouse, France*