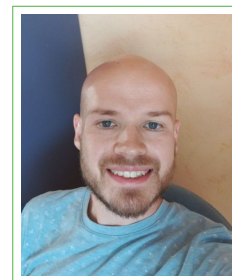


# Thomas Jacumin

Born on 5th July, 1995  
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## Experiences

March 2023–March 2025 **Postdoc in Applied Mathematics**, *University of Lund*, Sweden, under the supervision of Dr. A. Langer

## Education

- 2019–2022 **PhD in Applied Mathematics**, *University of Haute-Alsace*, France, under the supervision of Pr. Z. Belhachmi
- 2017–2018 **Master in Modeling and Applied Mathematics**, *University of Augsburg*, Germany, with high honours
- 2016–2018 **Master in Applied Mathematics**, *University of Rouen*, France, with honours
- 2015–2016 **1st Year of Engineering School**, *École nationale Supérieure en Informatique, Systèmes Avancés et Réseaux*, Valence, France, validated
- 2013–2015 **DEUG of Mathematics “Prépa Écoles Ingénieurs”**, *University of Avignon*, France, with honours
- 2010–2013 **Baccalauréat Scientifique**, *Lycée de l’Arc*, Orange, France, with high honours

## Publications

- Zakaria Belhachmi and Thomas Jacumin. “Adjoint method in PDE-based image compression”. In: *Asymptotic Analysis* (Oct. 2024), pp. 1–28. ISSN: 18758576, 09217134. DOI: 10.3233/ASY-241944.
- Zakaria Belhachmi and Thomas Jacumin. “Optimal interpolation data for PDE-based compression of images with noise”. en. In: *Communications in Nonlinear Science and Numerical Simulation* 109 (June 2022), p. 106278. ISSN: 1007-5704. DOI: 10.1016/j.cnsns.2022.106278.

## Preprints

- Zakaria Belhachmi and Thomas Jacumin. *Optimal Transport Model of Optical Flow Estimation: Constant and Varying Illumination Cases*. Dec. 2024.
- Thomas Jacumin and Andreas Langer. *An Adaptive Finite Difference Method for Total Variation Minimization*. Version Number: 1. 2024. DOI: 10.48550/arXiv.2410.13608.
- Zakaria Belhachmi and Thomas Jacumin. *Iterative Approach to Image Compression with Noise : Optimizing Spatial and Tonal Data*. Sept. 29, 2022. DOI: 10.48550/arXiv.2209.14706. arXiv: 2209.14706.

## Communications

- November 2024 **An Adaptive Finite Difference Method for Total Variation Minimization**, *Seminar*, University of Lund, Sweden
- January 2024 **Modèle Transport Optimal pour la Formulation du Flot Optique**, *ANR SOCOT*, University of Haute-Alsace, France

- July 2023 **Méthodes Adaptatives pour les Problèmes de Discontinuité**, *MAThEOR Days*, University of Strasbourg, France  
<https://days.matheor.com/2023/>
- October 2022 **Mini-symposium – Inverse problems and shape optimization**, *Optimal interpolation data for PDE-based compression of images with noise*, PICO22 – University of Caen, France  
<https://picof22.sciencesconf.org/>
- June 2022 **PhD Day – “Ma thèse en 180 secondes” format**, University of Haute-Alsace, France
- June 2022 **PhD Seminar**, IRIMAS, University of Haute-Alsace, France
- December 2021 **Poster**, *Calculus of Variations Colloquium*, University of Nancy, France  
<https://indico.math.cnrs.fr/event/7000/>

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## Teaching

- March–November 2024 **Bachelor Thesis Supervision**, *Adaptive Finite Differences Method*, University of Lund, Sweden
- April–May 2022 **Master 1 Project Supervision**, *Image Compression by Image Inpainting*, University of Haute-Alsace, France

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## Work Groups

- November 2022 **Benamou-Brenier Formula**, *Optimal Transport*, University of Haute-Alsace, France  
<https://juillet.perso.math.cnrs.fr/GTTO.html>
- March 2022 **C-transforms**, *Optimal Transport*, University of Haute-Alsace, France

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## Attended Summer Schools

- July 2023 **Numerical Analysis of nonlinear PDEs**, University of Leipzig, Germany

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## Other Experiences

- August 2022 **PhD Seminar Organization**, *Website Development*, IRIMAS, University of Haute-Alsace
- June–July 2022 **Colloquium Organization**, *Website Development*, IRIMAS, University of Haute-Alsace  
<http://www.lmia.uha.fr/colloque-lutz/>
- June 2022 **Event Organization**, *Music Festival*, University of Haute-Alsace
- September 2021 **AMIES Challenge**, *Trajectories Reconstruction*, Eurecam

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## Skills

- French Native
- English Good
- Japanese Notions
- IT Tools Python, SageMath, MATLAB, FreeFem++, Latex, C, C++, Java, VHDL, CUDA

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## Referees

- LANGER A., Assistant Professor, LTH, *University of Lund*, [andreas.langer@math.lth.se](mailto:andreas.langer@math.lth.se)
- BELHACHMI Z., Professor, IRIMAS, *University of Haute-Alsace*, [zakaria.belhachmi@uha.fr](mailto:zakaria.belhachmi@uha.fr)