## PERSONAL INFORMATION

# Konstantinos Bessas

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🌐 konstantinos-bessas.github.io

Date of birth 9 March 1994 | Nationality Italian

## ACADEMIC POSITIONS

**Mar 2023 – Present**

### Postdoctoral Researcher (Assegnista di Ricerca) in Mathematics
Università di Pavia, Pavia (Italy)
Mentor: Professor Maria Giovanna Mora

## EDUCATION AND TRAINING

**Nov 2019 – May 2023**

### PhD in Mathematics
ISCED 8

Università di Pisa, Pisa (Italy)
Supervisor: Professor Matteo Novaga
Thesis title: "Nonlocal Models in Calculus of Variations"
PhD thesis defended on 02/05/2023

**Dec 2016 – Apr 2019**

### Master of Science in Mathematics
ISCED 7

Università degli Studi di Parma, Parma (Italy)
Thesis supervisors: Professor Jan Kristensen, Professor Massimiliano Morini
Thesis title: "Oscillations and concentrations in sequences of gradients"
*Grade: 110/110 cum laude*

**Sep 2013 – Dec 2016**

### Bachelor of Science in Mathematics
ISCED 6

Università degli Studi di Parma, Parma (Italy)
Thesis supervisor: Professor Massimiliano Morini
Thesis title: "The Mumford-Shah functional in one space dimension"
*Grade: 110/110 cum laude*

**Sep 2008 – Jun 2013**

### School-leaving certificate
ISCED 3

Liceo Scientifico Giacomo Ulivi, Parma (Italy)
*Grade: 100/100 cum laude*

## RESEARCH INTERESTS

– Calculus of Variations
– Nonlocal Interaction Problems
– Isoperimetric Problems
– Geometric PDEs
– Image Processing

## SCHOLARSHIPS

**Nov 2019 – Jan 2023**  PhD scholarship at the Department of Mathematics of the University of Pisa

**2013 – 2016**  Winner of an INdAM scholarship covering the studies towards the Bachelor's degree (Borsa di studio INdAM per l'iscrizione a corsi di Laurea in matematica)

## GRANTS

**Mar 2024 – Feb 2027**  Young researchers grant 2023, 2023-0873, awarded by Fondazione Cariplo (200.000 €). Single PI.

## VISITS (FUNDED)

| | |
|---|---|
| May 2022 – Jun 2022 | Department for Applied Mathematics (University of Freiburg) |
| | (Scientific collaboration with Professor Patrick Dondl) |
| May 2018 – Jun 2018 | Mathematical Institute (University of Oxford) |
| | (Work under the supervision of Professor Jan Kristensen on my master thesis) |
| Aug 2014 | INdAM scholarship holders meeting  (Università di Perugia) |

## INVITED TALKS

20/10/2023
*On the Shape of Small Liquid Drops Minimizing Nonlocal Energies*
**SHSU Analysis Seminar**
Sam Houston State University, (online)

04/07/2023
*Long-range interactions in configurations of liquid droplets at equilibrium*
**Seminari MAP: Metodi per l'Analisi e la Probabilità**
University of Pisa

03/04/2023
*Nonlocal total variation denoising model with weighted $L^1$ fidelity*
**Seminari di Matematica Applicata**
University of Pavia

27/03/2023
*Nonlocal total variation denoising model with weighted $L^1$ fidelity*
**Seminario di Analisi**
University of Naples Federico II

25/11/2022
*Fractional total variation denoising model with $L^1$ fidelity*
**Weekend di lavoro su Calcolo delle Variazioni**
Grand Hotel Tettuccio, Montecatini Terme (Pistoia)

02/06/2022
*Fractional total variation denoising model with $L^1$ fidelity*
**Oberseminar**
University of Freiburg

## CONTRIBUTED TALKS

24/01/2024
*Dealing with a nonlocal world from a variational perspective*
**Incontro Annuale dei Ricercatori in Matematica UNIPV**
University of Pavia

19/09/2023
*Non-local BV functions and a denoising model with $L^1$ fidelity*
**Shape Optimization, Isoperimetric and Functional Inequalities**
Bellavista Relax Hotel, Levico Terme (Trento)

## POSTERS

11/07/2023
*Fractional total variation denoising model with $L^1$ fidelity*
**Hausdorff School: "Analysis of PDEs: Variational and Geometric Perspectives"**
Hausdorff Center for Mathematics, Bonn

04/10/2022
*Fractional total variation denoising model with $L^1$ fidelity*
**Nonlocality: Analysis, Numerics and Applications**
Lorentz Center, Leiden

## TEACHING

| | |
|---|---|
| Sep 2021 – May 2022 | Teaching assistant for the course "Analisi Matematica 1" (Calculus 1) (Università di Pisa, Bachelor's degree in Mathematics) |
| Sep 2020 – Jun 2021 | Teaching assistant for the course "Analisi matematica 2" (Calculus 2) (Università di Pisa, Bachelor's degree in Mathematics) |

## ORGANIZATION

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| (24 - 25) 01/2024 | Co-organizer of the workshop "Incontro Annuale dei Ricercatori in Matematica UNIPV" (in collaboration with Andrea Bondesan, Carlo Marcati, Silvia Paparini and Michele Schiavina) |
| Nov 2021 – Jan 2023 | Co-organizer of the seminar series "Seminari MAP: Metodi per l'Analisi e la Probabilità" (in collaboration with Daniele Barbera, Luca Briani and Luciano Sciaraffia) |
| Mar 2021 – Nov 2021 | Co-organizer of the seminar series "Seminari MAP: Metodi per l'Analisi e la Probabilità" (in collaboration with Luca Briani and Vincenzo Scattaglia) |

## SCIENTIFIC PROJECTS

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| Mar 2024 - Feb 2027 | Single PI of the Fondazione Cariplo Project *Nonlocality in image denoising and other variational problems* (Young researchers grant 2023, 2023-0873) |
| 2024 | Participation to the INdAM GNAMPA Project *Proprietà geometriche e regolarità in problemi variazionali locali e non locali* |
| Oct 2023 - Present | Participation to the PRIN 2022 Project *Variational methods for stationary and evolution problems with singularities and interfaces* |
| 2023 | Participation to the INdAM GNAMPA Project *Variational problems for non-local functionals and operators* |
| Mar 2023 - Sep 2023 | Participation to the PRIN 2017 Project *Variational methods for stationary and evolution problems with singularities and interfaces* |
| 2022 | Participation to the INdAM GNAMPA Project *Nonlocal phenomena in local problems* |
| 2020 | Participation to the INdAM GNAMPA Project *Minimal clusters and minimal partitions* |

## CONFERENCES, WORKSHOPS, SCHOOLS

| | |
|---|---|
| (12 - 16) 02/2024 | XXXIII Convegno Nazionale di Calcolo delle Variazioni Hotel Mediterraneo, Riccione |
| (24 - 25) 01/2024 | Incontro Annuale dei Ricercatori in Matematica UNIPV University of Pavia |
| 06/12/2023 | Incontri di Analisi Matematica tra Firenze, Pisa e Siena University of Florence |
| 21/11/2023 | Boundary value problems and applications - The legacy of Enrico Magenes University of Pavia |
| 26/10/2023 | XI Giornata MI-PV Department of Mathematics, Politecnico di Milano |
| (18 - 22) 09/2023 | Shape Optimization, Isoperimetric and Functional Inequalities Bellavista Relax Hotel, Levico Terme (Trento) |
| (17 - 21) 07/2023 | Nonlinear PDEs: Recent Trends in the Analysis of Continuum Mechanics Hausdorff Center for Mathematics, Bonn |
| (10 - 14) 07/2023 | Hausdorff School: "Analysis of PDEs: Variational and Geometric Perspectives" Hausdorff Center for Mathematics, Bonn |
| (12 - 16) 06/2023 | Calculus of Variations & Geometric Measure Theory Aula Magna - Polo Fibonacci (University of Pisa) |

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| (29/05 - 02/06) 2023 | Geometric Measure Theory |
| | La Casa della Gioventù universitaria, Bressanone (Bolzano) |
| (25 - 27) 11/2022 | Weekend di lavoro su Calcolo delle Variazioni |
| | Grand Hotel Tettuccio, Montecatini Terme (Pistoia) |
| (4 - 7) 10/2022 | Nonlocality: Analysis, Numerics and Applications |
| | Lorentz Center, Leiden |
| (5 - 9) 09/2022 | Anisotropic isoperimetric problems & related topics |
| | Best Western Globus Hotel, Rome |
| (20 - 24) 06/2022 | Isoperimetric Problems |
| | Department of Mathematics (University of Pisa) |
| (23 - 25) 05/2022 | Workshop on Nonlinear Bending |
| | Department for Applied Mathematics (University of Freiburg) |
| (9 - 13) 05/2022 | XXXI Convegno Nazionale di Calcolo delle Variazioni |
| | Bellavista Relax Hotel, Levico Terme (Trento) |
| (21 - 25) 02/2022 | Free Boundary Problems and related Evolution Equations |
| | ESI Vienna (Online) |
| (8 - 9) 11/2021 | Ricordando Luciano Modica |
| | Department of Mathematics (University of Pisa) |
| (13 - 14) 10/2021 | A Pisan workshop in Geometric Analysis |
| | Centro di Ricerca Matematica Ennio De Giorgi (Pisa) |
| (6 - 10) 09/2021 | Variational methods and applications |
| | Centro di Ricerca Matematica Ennio De Giorgi (Pisa) |
| (21 - 25) 06/2021 | Calculus of Variations and PDEs: recent developments and future directions |
| | FIM - Institute for Mathematical Research (Online) |
| (22 - 26) 02/2021 | Winterschool on Analysis and Applied Mathematics |
| | University of Münster (Online) |
| (15 - 17) 12/2021 | Online workshop in Geometric Analysis |
| | University of Pisa & Scuola Normale Superiore di Pisa (Online) |
| 30/10/2020 | Incontri di Analisi Matematica tra Firenze, Pisa e Siena |
| | University of Siena (Online) |
| (3 - 7) 02/2020 | XXX Convegno Nazionale di Calcolo delle Variazioni |
| | Bellavista Relax Hotel, Levico Terme (Trento) |
| (25 - 28) 11/2019 | Recent trends in Geometric analysis and applications |
| | Centro di Ricerca Matematica Ennio De Giorgi (Pisa) |
| 22/11/2019 | Incontri di Analisi Matematica tra Firenze, Pisa e Siena |
| | Department of Mathematics (University of Pisa) |
| (18 - 19) 06/2018 | Women in PDEs |
| | Mathematical Institute (University of Oxford) |

## PERSONAL SKILLS

Mother tongue   Italian

Other languages

| | UNDERSTANDING | | SPEAKING | | WRITING |
|---|---|---|---|---|---|
| | Listening | Reading | Spoken interaction | Spoken production | |
| English | B2 | B2 | B2 | B2 | B2 |

| First Certificate in English (FCE) B2 |
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Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
[Common European Framework of Reference for Languages](#)

## PUBLISHED PAPERS

**2023** [2]  **K. Bessas**, M. Novaga, and F. Onoue. **2023**. "On the shape of small liquid drops minimizing nonlocal energies". *ESAIM Control Optim. Calc. Var.* 29, Paper No. 86, 26. DOI: 10.1051/cocv/2023080.

**2022** [1]  **K. Bessas**. **2022**. "Fractional total variation denoising model with $L^1$ fidelity". *Nonlinear Anal.* 222, Paper No. 112926. DOI: 10.1016/j.na.2022.112926.

## ACCEPTED PAPERS

**2023** [A1]  **K. Bessas** and G. Stefani. **2023**. *Non-local $BV$ functions and a denoising model with $L^1$ fidelity*. To appear on *Advances in Calculus of Variations*. arXiv: 2210.11958 [math.FA].

## PHD THESIS

**2023** [T1]  **K. Bessas**. **2023**. "Nonlocal Models in Calculus of Variations". PhD thesis. Università di Pisa. URL: https://etd.adm.unipi.it/t/etd-04232023-211355/.

## REFERENCES

Jan Kristensen   jan.kristensen@maths.ox.ac.uk
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