

---

# Dr. Mohamed Aziz BOUKRAA – Curriculum Vitae

---

<b>Address</b>	Gaustadalléen 23B, Ole-Johan Dahls hus, 0373 Oslo, Norway	<b>Nationality</b>	French
<b>Date of Birth</b>	December 11 <sup>th</sup> , 1994	<b>Mobile Phone</b>	+33 (0)6 67 75 85 77
<b>Website</b>	med-aziz-boukraa.github.io	<b>Email (Personal)</b>	mohamedazizboukraa@gmail.com
		<b>Email (Professional)</b>	mohambo@ifi.uio.no

## Research Interests

Mathematical Modeling, Inverse Problems, Wave Propagation, Seismic Imaging, Full Waveform Inversion, Numerical Analysis, Partial Differential Equations, Finite Element Method, Scientific Computing, High Performance Computing, Applications to realistic environments.

## Education

**2018–2021** Doctorate in Applied Mathematics, Laboratory of Mathematics Nicolas Oresme (LMNO), University of Caen Normandy, France.

**Title:** *Méthodes inverses à régularisation évanescence pour l'identification de conditions aux limites en théorie des plaques minces.* **English title:** *Fading regularization inverse methods for the identification of boundary conditions in thin plate theory.*

**Thesis supervisor:** Pr. Franck Delvare. **Defense:** December 14, 2021.

**2016–2018** Master's degree in Mathematics, Spec. Optimization and Mathematical Physics, University of Toulon, France.

**2013–2016** Bachelor's degree in Mathematics, University Jean Monnet, Saint-Étienne, France.

## Experience

### Research Experience

**Sep 2024 – Present** Postdoctoral Research Fellow, Department of Informatics, University of Oslo, Norway. *Research in inverse problems and image reconstruction in acoustics and elastography.* This position is part of the MSCA CO-FUND DSTrain programme. The project is carried out in collaboration with the Digital Signal Processing group (DSB), IFI, University of Oslo.

**Sep 2022 – Août 2024** Postdoctoral position. INRIA (IDEFIX Team), Ensta Paris, Institut Polytechnique de Paris, and EDF R&D. *Development of inverse problem methodologies for interface imaging, application to the rock-concrete interface for a hydroelectric dam.*

**Sep 2021 – Août 2022** Contractual assistant professor ("ATER"). Laboratoire de mathématiques Blaise Pascal, Polytech Clermont INP.

**Sep 2018 – Dec 2021** Doctoral thesis. Laboratory of Mathematics Nicolas Oresme (LMNO), University of Caen Normandy, France. [PDF link](#).

**Mar 2018 – Aug 2018** Research internship (MSc). Alten SA, Alten Innovation Center, Chaville, France.

**Mar 2017 – Jun 2017** Research internship (MSc). LIS Laboratory, University of Toulon, France.

### Teaching Experience

**Sep 2021 – Août 2022** Polytech Clermont INP. Contractual assistant professor (192h).

- Tutorials in Mathematics, Probability, Statistics, and Numerical Analysis.
- Lectures and tutorials for Architect-Engineer double degree.

**Oct 2019 – Sep 2021** University of Caen Normandy. Part-time teacher (75h).

- Lectures and tutorials in Analysis, Complex Numbers, Geometry.

---

## Skills

**Languages:** French (Native), Arabic (Native), English (Fluent), Spanish (Intermediate).

**Software:** Matlab, FreeFEM, PETSc, MPI, Python, Maple, LaTeX, Gmsh.

## International Collaborations

Visiting Researcher at the National School of Engineers of Tunis – PHC Utique Project (2020, 2022).  
Collaboration with LAMSIN laboratory on finite element algorithms with fading regularization for inverse problems.

## International Schools

- Bath Symposium on Inverse Problems and AI in Medicine, University of Bath, UK, June 2025. <https://bathsymposium.ac.uk/symposium/inverse-problems-and-artificial-intelligence-in-medicine/>
- Geilo Winter School 2025 on Inverse Problems, SINTEF/NTNU, Geilo, Norway, Jan 2025. <https://www.sintef.no/projectweb/geilowinterschool/2025-inverse-problems/>
- FrenchRomanian Summer School on Applied Mathematics, University of Bucharest, Romania, July 2019. <https://sites.google.com/site/marinliviu/french-romanian-summer-school-on-applied-mathematics/6th-french-romanian-summer-school-on-applied-mathematics-3-11-july-2019>

## Publications and Communications

### Journal Papers

1. **Boukraa, M. A.**, Delvare, F., Caillé, L.. Fading regularization method for an inverse boundary value problem associated with the biharmonic equation. *Journal of Computational and Applied Mathematics*, 440, 115755, 2025.: 10.1016/j.cam.2024.116285
2. **Boukraa, M. A.**, Amdouni, S., Delvare, F.. Fading regularization FEM algorithms for the Cauchy problem associated with the two-dimensional biharmonic equation. *Mathematical Methods in the Applied Sciences*, 46(2), 2389–2412, 2023.: 10.1002/mma.8651

### Conference Proceedings

1. **Boukraa, M. A.**, Audibert, L., Bonazzoli, M., Haddar, H., Vautrin, D.. High-Resolution Seismic Imaging for Dam-Rock Interface using Full-Waveform Inversion. *Waves 2024, Berlin, Germany, 2024.*: 10.17617/3.MBE4AA
2. **Boukraa, M. A.**, Bonazzoli, M., Haddar, H., Audibert, L., Vautrin, D.. Imaging a dam-rock interface with inversion of a full elastic-acoustic model. *11th International Conference on Inverse Problems in Engineering (ICIPE 2024), Rio de Janeiro, Brazil, 2024.*: <https://uca.hal.science/hal-04661884>
3. **Boukraa, M. A.**, Audibert, L., Bonazzoli, M., Haddar, H., Vautrin, D.. Imagerie d'interface barrage-fondation par inversion de forme donnée complète. *E3S Web of Conferences*, 2024.: 10.1051/e3sconf/202450404002

### Talks in International Conferences

- 11th International Conference on Inverse Problems, Control and Shape Optimization (PICOF 2025), Hammamet, Tunisia, October 28–31 2025. <https://picof2025.sciencesconf.org/>
- IEEE International Ultrasonics Symposium (IUS 2025), Utrecht, Netherlands, April 2025. <https://2025.ieee-ius.org/>
- Ultrasonic Imaging and Tissue Characterization Conference (UITC 2025), Silver Spring, MD, USA, April 2025.

- 
- 48th Scandinavian Symposium on Physical Acoustics (SSPA 2025), Geilo, Norway, January 26–29 2025. <https://www.norskfysisk.no/faggrupper/faggruppe-akustikk/sspa/>
  - WAVES 2024 (16th International Conference on Mathematical and Numerical Aspects of Wave Propagation), Berlin, Germany, June 2024. <https://waves2024.mps.mpg.de/>
  - 11th International Conference on Inverse Problems in Engineering (ICIPE24), Rio de Janeiro, Brazil, June 2024. <https://icipe2024.org/>
  - 11th International Conference on Inverse Problems in Modeling and Simulations (IPMS 2024), Malta, May 2024. <https://www.ipms-conference.org/ipms2024/>
  - 11th Applied Inverse Problems Conference (AIP 2023), Göttingen, Germany, September 2023. <https://aip2023.de/>
  - 10th International Conference on Inverse Problems, Control and Shape Optimization (PICO22), Caen, France, October 25–27 2022. <https://picof22.sciencesconf.org/>
  - 10th International Conference on Inverse Problems in Engineering (ICIPE20), Francavilla al Mare (Chieti), Italy, May 15–19 2022. <https://iopscience.iop.org/article/10.1088/1742-6596/2444/1/011001>

### Other Talks

- Journées Scientifiques AGAP Qualité Géophysique Appliquée, Poitiers, France, March 26–28 2024. <https://www.agapqualite.org/2023/07/11/journees-scientifiques-agap-26-au-28-mars-2024/>
- Congrès des Jeunes Chercheurs en Mécanique (Méca-J 2023), Online, August 28–30 2023. <https://mecaj2023.sciencesconf.org/>
- 11ème Biennale de la Société de Mathématiques Appliquées et Industrielles (SMAI 2023), Le Gosier, Guadeloupe, France, May 22–26 2023. <https://smi2023.math.cnrs.fr/fr/>
- Congrès Français de Mécanique (CFM 2022), Nantes, France, August 29 – September 2 2022. <https://cfm2022.fr/>
- 45ème Congrès National d'Analyse Numérique (CANUM 2022), Évian-les-Bains, France, June 13–17 2022. <https://canum2020.math.cnrs.fr>
- Congrès des Jeunes Chercheurs en Mécanique (Méca-J 2021), Online, August 25–27 2021. <http://meca-j.sciencesconf.org>
- 10ème Biennale de la Société de Mathématiques Appliquées et Industrielles (SMAI 2021), La Grande-Motte, France, June 21–25 2021. <https://smi2021.math.univ-toulouse.fr>
- 9ème Biennale de la Société de Mathématiques Appliquées et Industrielles (SMAI 2019), Guidel-Plages (Morbihan), France, May 13–17 2019. <http://smi.emath.fr/smai2019/index.php>

### Activities of Collective Interest

- Participation at "*Semaines d'Etudes Mathématiques et Entreprises*" (SEME), Pointe-à-Pitre, Guadeloupe, May 15–19, 2023. [semeantilles.sciencesconf.org](http://semeantilles.sciencesconf.org) Joint Work: "Optimal distribution for steam production". Industry Collaboration: Refinery Industry SARA (Pôle 972, Martinique).
- Organizing committee member of the international conference **PICO22**, Caen, October 25–27, 2022. [picof22.sciencesconf.org](http://picof22.sciencesconf.org)
- Organization of the workshop *Chercheurs-Chercheuses*, Dôme de Caen, February 2, 2020.