Curriculum Vitæ

1.1 **First and last name** : Ibrahima Dione

1.2 **Citizenship** : Canadian

1.3 **Address** : Moncton NB, Canada

1.4 **Email** : ibrahima.dione.1@ulaval.ca

2. UNIVERSITY EDUCATION

Grade	Discipline	Establishment attended-location	Year of graduation
Master	Financial engineering	Laval University, Quebec, Canada	2020
Postdoctorate	Mathematics	Laval University, Quebec, Canada	2017
PhD	Mathematics	Laval University, Quebec, Canada	2013
Master	Mathematics	International Centre for Theoretical Physics, Trieste, Italy	2008
Master	Applied Mathematics and Computer Science	Gaston Berger University Saint-Louis, Senegal	2007
Baccalaureate	Applied Mathematics and Computer Science	Gaston Berger University Saint-Louis, Senegal	2005

3. PROFESSIONAL EXPERIENCE

Status/Functions	Place	Duration
Assistant Professor	University of Moncton - Moncton, Canada	July 1, 2022 - June 30, 2025
Senior Quantitative Analyst	Canadian Imperial Bank of Commerce (CIBC) - Toronto, Canada	May 2021 – June 2022
Teaching Assistant in Financial Mathematics	Laval University - Quebec, Canada	2020 – 2021
Mathematics Research Professional	Laval University - Quebec, Canada	2018 – 2021
Lecturer in Mathematics	Laval University - Quebec, Canada	2010 – 2017
Mathematics Teaching Assistant	Laval University - Quebec, Canada	2009 – 2013

4. TEACHING EXPERIENCE

University	Courses Taught	Period
University of Moncton	Differential Calculus (MATH 1073) Algebra and Relations (MATH 2413)	Fall 2022
	Linear Algebra (MATH 2673) Arithmetic (MATH 1413) Integral Calculus (MATH 1173)	Winter 2023
	Sequences, Series, and Calculus in $\mathbb{R}^n$ (MATH 2013) Algebra and Relations (MATH 2413)	Fall 2023
	Optimization (MATH 3163) Arithmetic (MATH 1413) Mathematics Reading Seminar (MATH 6033)	Winter 2024
	Integral Calculus (MATH 1173)	Summer 2024
	Sequences, Series, and Calculus in $\mathbb{R}^n$ (MATH 2013) Algebra and Relations (MATH 2413)	Fall 2024
	Integral Calculus (MATH 1173) Linear Algebra (MATH 2673)	Winter 2025
Laval University	Engineering Mathematics II (MAT 1910)	Winter 2011 Winter 2013
	Numerical Analysis for Engineers (MAT 2910)	Winter 2016 Winter 2017
	Stochastic Simulations and Applications in Finance (GSF 6024)	Winter 2021

5. FINANCING HELD

Grant Application Title	Grant Organization and Program	Amount	Years of Validity
Higher-order approximation of the slip and unilateral contact boundary conditions in curved and smooth domains	Discovery Grants (Individual) Program, Natural Sciences and Engineering Research Council of Canada (NSERC)	142 500 $ (Received)	2024 - 2029
Modeling and simulation of road traffic from real data	Mitacs Acceleration Funding Program	60 000 $ (Received)	2024 - 2026
Effect of climate change on snow crab dynamics in the southern Gulf of St. Lawrence	New Brunswick Innovation Foundation (NBIF), Research Assistantships Initiative (RAI)	60 000 $ (Received)	2023 - 2025
Weak imposition of slip boundary conditions by the Nitsche method	University of Moncton, Special Research Grant Program for New Professors	5 000 $ (Received)	2022 - 2023

6. CONTRIBUTIONS TO THE TRAINING OF RESEARCHERS/CREATORS

Name	Form	Year	Diploma Obtained or in Progress	Project Title	Current Position
Alioune Ndour	Thesis director	2023 - 2025	Master's degree in mathematics	Iterative regularization method for solving discrete ill-conditioned problems	Student
N'Tcho Jean-Miché Assoukpou	Internship supervisor	Summer 2023	Bachelor's degree in biology	Regularization of the ill-conditioned linear least squares problem	Student
Chrislaine Précieuse Agassounon	Internship supervisor	Summer 2024 and 2025	Bachelor of Mathematics	Calibration of the SIR model using a deep learning method	Student
El Hadj Ibrahima Dit Dieudonné Traoré	Internship supervisor	Summer 2024 and 2025	Bachelor of Applied Computer Science	Stabilization of a neural network in deep learning	Student

7. LIST OF CONTRIBUTIONS TO THE DRCI

7.1 Contributions with reading committee

1. **Farhloul M., Fall N., Dione I., Léger S.** (2025). *Finite Element Analysis of a Pseudostress-Pressure-Velocity Formulation of the Stationary Navier-Stokes Equations*. Journal of Computational and Applied Mathematics. Volume 469, 116665.
   URL : https://www.sciencedirect.com/science/article/pii/S0377042725001797.
2. **Dione I. and Lai V. S.** (2023). *Bond Duration and Convexity under Stochastic Interest Rates and Credit Spreads*. The Journal of Fixed Income, 33 (2).
   URL : https://www.pm-research.com/content/iijfixinc/early/2023/10/14/jfi20231173.
3. **Dione I.** (2020). *Optimal error estimates of the unilateral contact problem in a curved and smooth boundary domain by the penalty method*. IMA Journal of Numerical Analysis, 00, pp. 1-35.
   URL : https://doi.org/10.1093/imanum/dry050.
4. **Dione I.** (2019). *Optimal convergence analysis of the unilateral contact problem with and without Tresca friction conditions by the penalty method*. Journal of Mathematical Analysis and Applications, 472 (1), pp. 266-284.
   URL : https://doi.org/10.1016/j.jmaa.2018.11.023.
5. **Dione I., Doyon N. and Deteix, J.** (2019). *Sensitivity analysis of the Poisson Nernst–Planck equations : a finite element approximation for the sensitive analysis of an electrodiffusion model*. Journal of Mathematical Biology, 78 (1-2), pp. 21–56.
   URL : https://link.springer.com/article/10.1007/s00285-018-1266-2.
6. **Dione I., Deteix J., Briffard T., Chamberland E. and Doyon N.** (2016). *Improved Simulation of Electrodiffusion in the Node of Ranvier by Mesh Adaptation*. PLOS ONE, 11, pp. 1-22.
   URL : https://journals.plos.org/plosone/article ?id=10.1371/journal.pone.0161318.
7. **Dione I.** (2016). *Towards optimal finite element error estimates for the penalized Dirichlet problem in a domain with curved boundary*. Computers and Mathematics with Applications, 71 (1), pp. 76-84.
   URL : https://www.sciencedirect.com/science/article/pii/S0898122115005143.
8. **Dione I. and Urquiza J. M.** (2015). *Penalty : finite element approximation of Stokes equations with slip boundary conditions*. Numerische Mathematik, 129, pp. 587–610.
   URL : https://link.springer.com/article/10.1007/s00211-014-0646-9.
9. **Tora A. S., Rovira X., Dione I., Bertrand H-O, Brabet I., De Koninck Y., Doyon N., Pin J-P., Acher F. and Goudet C.** (2015). *Allosteric modulation of metabotropic glutamate receptors by chloride ions*. The Journal of the Federation of American Societies for Experimental Biology, 29 (10), pp. 4174-4188.
   URL : https://faseb.onlinelibrary.wiley.com/doi/full/10.1096/fj.14-269746.
10. **Dione I. and Urquiza J. M.** (2013). *Finite element approximations of the Lamé system with penalized ideal contact boundary conditions*. Applied Mathematics and Computation, 223, pp. 115-126.
    URL : https://www.sciencedirect.com/science/article/pii/S0096300313007765 ?via3Dihub.
11. **Dione I., Tibirna C. and Urquiza J. M.** (2013). *Stokes equations with penalised slip boundary conditions*. International Journal of Computational Fluid Dynamics, 27 (6-7), pp. 283-296.
    URL : https://www.tandfonline.com/doi/full/10.1080/10618562.2013.821114.

7.2 Submitted contributions

2 **Dione I.** (2025). *Optimal Error Estimates of Discrete Ill-Conditioned Problems by Spectral Filtering Method - Stabilization of the Tikhonov Regularization Method.* Submitted to « SIAM Journal on Matrix Analysis and Applications ».

1 **Dione I.** (2024). *Stabilization of the Gradient Method for Solving Linear Algebraic Systems - A Method Related to the Normal Equation.* Submitted to « Journal of Scientific Computing ».

3 **Dione I.** (2024). *Stabilization of the Gradient Method for Solving Linear Algebraic Systems.* Submitted to « Numerical Algorithms ».

7.3 Contributions without reading committee

7.3.1 Development of manuals, software, etc.

1 Booklet for teaching the course MATH 2413 (with a view to making it a book co-authored with Professor Mohamed Farhloul).

2 Booklet for teaching the course MATH 2673 (with a view to making it a book co-authored with Professor Mohamed Farhloul).

3 Booklet for teaching the course MATH 3163.

7.3.2 Communications presented at congresses, symposia or conferences

1 Presentation at the « 15^{th} International Congress on Spectral and High Order Methods », July 13-18, 2025, Montreal, Quebec, Canada.

2 Participation in the « 25^{th} International Symposium on Mathematical Programming », July 21-26, 2024 - Montreal, Quebec, Canada.

3 Presentation at the « Annual Meeting of the Canadian Applied and Industrial Mathematics Society (CAIMS) », June 12-15, 2023 - Fredericton, New Brunswick, Canada.

4 Presentation at the « 10^{th} International Congress of Industrial and Applied Mathematics », August 20-25, 2023 - Waseda University, Tokyo, Japan.

5 Hosting a webinar at the « Rendez-vous de la Recherche » on the theme « The world of mathematics and its applications », July 26, 2023 - Cheikh Hamidou Kane Digital University, Dakar, Senegal.

6 Presentation at the seminars of the « Interdisciplinary Research Group in Mathematical and Statistical Modeling (GRIMMS) », April 2023, Department of Mathematics and Statistics, University of Moncton, New Brunswick, Canada.

7 Participation in the « Atlantic Science in Mathematics, Statistics and Computer Science » conference, October 14-15, 2022 at Mount Alison University, New Brunswick, Canada.

8. OTHER EVIDENCE OF CONTRIBUTIONS AND IMPACTS OF RDCI WORK

8.1 Committee Member :

Period	Committee
2024 - 2025	NSERC Selection Committee for the Banting Canada Postdoctoral Fellowships
2024 - 2026	Secretary of the Faculty Assembly (Faculty of Science)
September 6, 2024	Judge at the 5^{th} Annual Undergraduate Research Day (Faculty of Science)
September 8, 2023	Judge at the 4^{th} Annual Undergraduate Research Day (Faculty of Science)
2022 - 2023	Secretary of the Assembly, Department of Mathematics and Statistics
September 9, 2022	Judge at the 3^{rd} Annual Undergraduate Research Day (Faculty of Science)

8.3 Administrative service activities within the Department :

Period	Activities
May 8, 2025	Supervisor at the 40^{th} New Brunswick Mathematics Competition
November 26, 2024	Participate at the special day at L'Odyssée school in Moncton for Math Outreach
May 10, 2024	Supervisor at the 39^{th} New Brunswick Mathematics Competition
May 5, 2023	Supervisor at the 38^{th} New Brunswick Mathematics Competition
Summer 2022	Participate in Science Camp at university of Moncton

8.2 Collaborative activities :

Duration	Collaboration
July 2023 - Present	Black Arcs technology company - specializing in the development of IT infrastructure, data processing and hosting
January 2023 - May 2025	Department of Fisheries and Oceans of the Government of Canada

9. SIGNATURE AND DATE

Signature

December 09, 2025

Date