



## Curriculum vitae

### PERSONAL INFORMATION

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Name Ionel Popescu

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### EMPLOYMENT

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Faculty of Mathematics,  
University of Bucharest 2017-present, professor,  
2014-2017, associate professor

Institute of Mathematics of the  
Romanian Academy 2017-present, CS I (equivalent to professor),  
2014-2017, CS II (equivalent to associate professor)  
2006-2014, CS III (scientific researcher),  
1997-2014, assistant researcher

School of Mathematics,  
Georgia Institute of Technology 2016-2020, associate professor  
2007-2016, assistant professor

Department of Mathematics,  
Northwestern University 2004-2007, Boas assistant professor

### EDUCATION AND TRAINING

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MIT 2000-2004, PhD in Pure Mathematics  
Thesis: Morse Inequalities, a Probabilistic Approach

University of Bucharest 1997-1998, Master of Science in Mathematics  
1991-1997, Bachelor of Science in Mathematics

### PROFESSIONAL

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Interests I am a probabilist with interest in analysis at large, differential geometry, random matrices, free probability and more recently machine learning.

Fellowships and Awards Romanian academy award 2011  
CURRY fellowship, The Pennsylvania State University, Fall 1999  
TEMPUS fellowship, Heidelberg, Germany, Spring 1998  
First place in Romanian National Olympiad, 1991

Grants Simons foundation collaboration grant 318929, *Geometry, Randomness and Free Probability*, 2014-2019  
European Union - Marie Curie grant (IRG) 249200 - *Stochastic Analysis, Mass Transportation and Free Probability*, 2010-2013,  
UEFISCDI - Romanian Young Researchers - *Randomness, Geometric Problems and Functional Inequalities*, 2011-2014. This is a team grant I managed.  
UEFISCDI - Exploratory Workshop - *Probability and Related Aspects*, May 2012, Alba Iulia, Romania. I was the co-PI and the co-organizer of the workshop.  
Collaborator in NSF TRIPODS Grant 1740776, On creating the "Transdisciplinary Institute for Advancing Data Science (TRIAD)", \$1.5 Million, for 36 months, starting 9/1/2017; co-PI.

## Selected Publications

- Lucas Babet and Ionel Popescu. Tridiagonal random matrices, an analytic approach. *arXiv preprint arXiv:2512.03628*, 2025
- Iulian Cîmpean, Ionel Popescu, and Arghir Zarnescu. Quantitative boundary Hölder estimates for the inhomogeneous Poisson problem through a probabilistic approach. *arXiv preprint arXiv:2510.06906*, 2025
- Iulian Cîmpean, Thang Do, Lukas Gonon, Arnulf Jentzen, and Ionel Popescu. Error analysis for the deep Kolmogorov method. *arXiv preprint arXiv:2508.17167*, 2025
- Marian Petrica and Ionel Popescu. Inverse problem for parameters identification in a modified SIRD epidemic model using ensemble neural networks. *BioData Mining*, 16(1):22, 2023
- Vlad-Raul Constantinescu and Ionel Popescu. Approximation and interpolation of deep neural networks. *arXiv preprint arXiv:2304.10552*, 2023
- Ionel Popescu and Tushar Vaidya. Averaging plus learning models and their asymptotics. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 479(2275), 2023
- Marian Petrica, Radu D Stochitoiu, Marius Leordeanu, and Ionel Popescu. A regime switch analysis on COVID-19 in Romania. *Scientific Reports*, 12(1):15378, 2022
- Lucian Beznea, Iulian Cîmpean, Oana Lupascu-Stamate, Ionel Popescu, and Arghir Zarnescu. From Monte Carlo to neural networks approximations of boundary value problems. *arXiv preprint arXiv:2209.01432*, 2022
- Radu D Stochitoiu, Marian Petrica, Traian Rebedea, Ionel Popescu, and Marius Leordeanu. A self-supervised neural-analytic method to predict the evolution of COVID-19 in Romania. *arXiv preprint arXiv:2006.12926*, 2020
- Jiangning Chen, Zhibo Dai, Juntao Duan, Qianli Hu, Ruilin Li, Heinrich Matzinger, Ionel Popescu, and Haoyan Zhai. A cost-reducing partial labeling estimator in text classification problem. In *Future of Information and Communication Conference*, pages 494–511. Springer International Publishing Cham, 2020
- Jiangning Chen, Zhibo Dai, Juntao Duan, Heinrich Matzinger, and Ionel Popescu. Naive Bayes with correlation factor for text classification problem. In *2019 18th IEEE International Conference on Machine Learning and Applications (ICMLA)*, pages 1051–1056. IEEE, 2019
- Jiangning Chen, Zhibo Dai, Juntao Duan, Heinrich Matzinger, and Ionel Popescu. Improved naive Bayes with optimal correlation factor for text classification. *SN Applied Sciences*, 1(9):1129, 2019
- Jun Tao Duan, Heinrich Matzinger, and Ionel Popescu. Non-normal limiting distribution for optimal alignment scores of strings in binary alphabets. *Journal of Statistical Physics*, 168(5):1056–1084, 2017
- Mihai N Pascu and Ionel Popescu. Shy and fixed-distance couplings of Brownian motions on manifolds. *Stochastic Processes and their Applications*, 126(2):628–650, 2016
- Robert W Neel, Ionel Popescu, et al. A stochastic target approach to Ricci flow on surfaces. *The Annals of Probability*, 44(2):1341–1425, 2016
- Mihai N Pascu and Ionel Popescu. Couplings of Brownian motions of deterministic distance in model spaces of constant curvature. *Journal of Theoretical Probability*, pages 1–27, 2017
- Ionel Popescu. Free functional inequalities on the circle. *Advances in Mathematics*, 330:1101–1159, 2018
- Christian Houdre and Ionel Popescu. Refinements of the one-dimensional free Poincaré inequality. *arXiv preprint arXiv:1311.4585*, 2013
- Ionel Popescu. Local functional inequalities in one-dimensional free probability. *Journal of Functional Analysis*, 264(6):1456–1479, 2013
- Stavros Garoufalidis and Ionel Popescu. Analyticity of the planar limit of a matrix model. *Annales Henri Poincaré*, 14(3):499–565, 2013
- Michel Ledoux and Ionel Popescu. Mass transportation proofs of free functional inequalities, and free Poincaré inequalities. *Journal of Functional Analysis*, 257(4):1175–1221, 2009
- Ionel Popescu. General tridiagonal random matrix models, limiting distributions and fluctuations. *Probability theory and related fields*, 144(1-2):179–220, 2009
- Ionel Popescu. Morse inequalities, a function space integral approach. *Journal of Functional Analysis*, 235(1):1–68, 2006

## Conferences organized

The 26th Conference of the Romanian Society of Probability and Statistics, 23-24 May, 2025  
The 16th French-Romanian Colloquium, 26-30 August 2024  
Mathematics and Machine Learning, Sept 26th, 2023  
Colloque Franco-Roumain en Théorie des Probabilités- Bucharest, 2015, 2018 and 2022, organized special sessions. From 2018, I am one of the coordinators of the event  
Romanian Congress of Mathematicians, 2015, 2019, 2023 - special session on Probability  
Joint International Meeting of the AMS and the Romanian Mathematical Society, June 2013 - special session on Random Matrices and Free Probability  
Probability and Related Aspects, May 22 - 26, 2012, Alba Iulia, Romania  
Mini Conference on Probability and related fields, May 23-24, 2011, Bucharest, Romania

## Invited Conferences

The 26th Conference of the Romanian Society of Probability and Statistics, 10th of May, 2024  
IMAR 75th anniversary, 2024 Statistical Modeling with Applications Belgrade, Serbia, 24-25  
September 2024 Congresul Matematicienilor Romani, July 2nd, Pitesti 2023, Conferinta Lu-  
nara, 17 noiembrie 2022, SSMR, 28 octombrie 2022, French-Romanian Colloquium, Toulouse  
2022, Atelier de travail en Stochastique et EDP, Oct 20-21 2020, Congress of the Romanian  
mathematicians, Galati, JUNE 29, 2019, Romanian-Turkish joint conference, Constanta, Sept  
19, 2019, Atelier du travail, IMAR Nov 2018, AMS regional conference, San Francisco, Oc-  
tober 27-28th, 2018, Atelier de travail en Stochastique et EDP, Sept 14-15, 2018, Academy  
of science Beijing 2018 July 10-14 2018, Joint DMV-RMS, GermanRomanian conference,  
Constanta, Sept. 16-19, 2017, French-Romanian atelier du travail, Bucharest, Sept. 13-  
14, 2017, Stochastic analysis on metric spaces, Sept. 48, 2017, ProbaGeo, Luxembourg,  
July 9-14, 2017, French-Romanian Colloquium, Iasi, 25-29 August 2016, Probabilistic and  
Analytic tools in Convexity, AMS, March 56, Athens Georgia, 2016, Miniworkshop in free  
probability, Tokyo, July 13-17, 2015, New Trends in Stochastic Analysis, Kyoto, July 6-10,  
2015, New developments in Optimal Transport, Geometry and Analysis, Bonn, Feb 24th,  
2015, Stochastic Analysis and Applications, Bucharest, Dec. 17th, 2014, ProbaGeo 2014 at  
Bordeaux, June 10-12, 2014, High Dimensional Probability VII, Cargese, May 26-31, 2014,  
Sectional AMS meeting, Albuquerque, April 56, 2014, ProbaGeo 2013 at Luxembourg, Oct  
28-31, 2013, University of Luxembourg, 150 years anniversary of University of Bucharest,  
Aug. 30 Sept. 1, 2013, Bucharest, Romania, AMS-RMS, Probability and Other Related Fi-  
elds, June 27-30 2013, Alba Iulia, Romania, Stochastic Differential Geometry, May 29-31  
2013, Rennes, France, Heat Kernels, Stochastic Processes and Functional Inequalities, 511  
May, 2013, Oberwolfach Germany, The 13th RomanianFinnish Seminar, June 26-30, 2012,  
Ploiesti, Romania, Probability and Related Aspects, Alba Iulia, Romania, May 22-26, 2012  
, New Trends in Modern Analysis, Probabilistic and Analytic Methods in PDEs and Spec-  
tral Theory November 2024, 2011, Hammamet, Tunisia, 5th International Conference on  
Stochastic Analysis and its Applications September 59, 2011, Bonn, Germany, Congress  
of Romanian Mathematicians, June 29 July 5, 2011, Brasov, Romania, Mini Conference  
on Probability and Related Fields, May 23-24, 2011, Bucharest, Romania, Workshop for  
Young Researchers in Mathematics May 12-13, 2011, Constanta, Romania, The Fourth  
Annual Meeting of the European Non Commutative Geometry Network April 25-30, 2011,  
Bucharest, Romania, Conference on Random Matrices, June 14, 2010, Paris, Probability &  
Geometry in High Dimensions, May 17-21, 2010, Paris, Workshop on Asymptotic Analysis  
and Stochastic Methods for Heterogeneous Media, June 9-13, 2010, Alba Iulia, Romania  
, CMS/AMS Winter Session Ottawa December 5-8, 2008, Infinite Dimensional Probability  
Luminy, May 22-27, 2008, Workshop on Random Matrices, Bonn, January 11-18, 2008, In-  
ternational Workshop on "Free Probabilities, Operator Spaces and von Neumann Algebras",  
Sibiu, Romania, June 9-16, 2007, 6th Operator Algebras International Conference, Bucha-  
rest, August 2005, Joint meeting AMS-DMS6, June 13-18, 2005, Mainz, Germany, AMS  
Meeting, October 23-24, 2004 at Northwestern University in Evanston, Illinois, Analytic and  
Geometric Aspects of Stochastic Processes, Banff Research Center, April 10-15, 2004,

## Selected Seminar Talks

LSEG Challenge 2021, Leipzig Sept 2020, Bilkent 2020, Alan Turing, London, Dec. 6th,  
2017; Imperial College, London, Dec. 5th, 2017; MIT, April 3rd, 2017; University of Lu-  
xembourg, Feb 12th, 2015; Georgia Tech, Sept. 25th, 2014, 2018, 2019, 2022; IMAR,  
May 20th, 27th and June 3rd, 2013; Bonn University, June 9th, 2013; Northwestern Univer-  
sity, Dec 9th, 2012; Lehigh Univ, September 20th, 2012; Purdue University, April 3rd 2012;  
Notre Dame University, March 1st, 2012; Northwestern University, February 20th, 2012;  
Constanta, November 11th 2011, Toulouse University, May, 2010; Probability Seminar, MIT,  
November 9th, 2009; Texas AM Oct. 6th, 2009; Probability Seminar, Colorado Boulder, Sept.  
10th 2009; Probability Seminar, MIT, May 5th, 2009; Stochastic Seminar, Georgia Tech, Oc-  
tober 9, 2008; Toulouse, June 26, 2008; Georgia Tech, September 27, 2007; Columbia  
University, February 9, 2007; Institute for Applied Math, University of Bonn, June 11, 2005;  
Northwestern University, October 18, 2004; Northwestern University, January 29, 2004; Nor-  
theastern University, Boston, January 12, 2004; MIT, November 26, 2003; Heidelberg, Spring  
1998; Operator Algebras Seminar, Institute of Mathematics of Romanian Academy, Series  
of Lectures on "Free Probability Theory", Fall 1998

## Editors for

Journal of Operator Theory, Revue Romaine de Mathematique Pure et Appliquees, Mathe-  
matical Reports, Bulletin Matematicque

## Computer Skills

Python, Mathematica, R, Matlab, Sage, latex

## Bibliografie

- [1] Lucas Babet and Ionel Popescu. Tridiagonal random matrices, an analytic approach. *arXiv preprint arXiv:2512.03628*, 2025.
- [2] Iulian Cîmpean, Ionel Popescu, and Arghir Zarnescu. Quantitative boundary Hölder estimates for the inhomogeneous poisson

- problem through a probabilistic approach. *arXiv preprint arXiv:2510.06906*, 2025.
- [3] Iulian Cîmpean, Thang Do, Lukas Gonon, Arnulf Jentzen, and Ionel Popescu. Error analysis for the deep kolmogorov method. *arXiv preprint arXiv:2508.17167*, 2025.
- [4] Marian Petrica and Ionel Popescu. Inverse problem for parameters identification in a modified sird epidemic model using ensemble neural networks. *BioData Mining*, 16(1):22, 2023.
- [5] Vlad-Raul Constantinescu and Ionel Popescu. Approximation and interpolation of deep neural networks. *arXiv preprint arXiv:2304.10552*, 2023.
- [6] Ionel Popescu and Tushar Vaidya. Averaging plus learning models and their asymptotics. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 479(2275), 2023.
- [7] Marian Petrica, Radu D Stochitoiu, Marius Leordeanu, and Ionel Popescu. A regime switch analysis on covid-19 in romania. *Scientific Reports*, 12(1):15378, 2022.
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- [9] Radu D Stochitoiu, Marian Petrica, Traian Rebedea, Ionel Popescu, and Marius Leordeanu. A self-supervised neural-analytic method to predict the evolution of covid-19 in romania. *arXiv preprint arXiv:2006.12926*, 2020.
- [10] Jiangning Chen, Zhibo Dai, Juntao Duan, Qianli Hu, Ruilin Li, Heinrich Matzinger, Ionel Popescu, and Haoyan Zhai. A cost-reducing partial labeling estimator in text classification problem. In *Future of Information and Communication Conference*, pages 494–511. Springer International Publishing Cham, 2020.
- [11] Jiangning Chen, Zhibo Dai, Juntao Duan, Heinrich Matzinger, and Ionel Popescu. Naive bayes with correlation factor for text classification problem. In *2019 18th IEEE International Conference On Machine Learning And Applications (ICMLA)*, pages 1051–1056. IEEE, 2019.
- [12] Jiangning Chen, Zhibo Dai, Juntao Duan, Heinrich Matzinger, and Ionel Popescu. Improved naive bayes with optimal correlation factor for text classification. *SN Applied Sciences*, 1(9):1129, 2019.
- [13] Jun Tao Duan, Heinrich Matzinger, and Ionel Popescu. Non-normal limiting distribution for optimal alignment scores of strings in binary alphabets. *Journal of Statistical Physics*, 168(5):1056–1084, 2017.
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- [20] Stavros Garoufalidis and Ionel Popescu. Analyticity of the planar limit of a matrix model. *Annales Henri Poincaré*, 14(3):499–565, 2013.
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