Nabil Kahouadji

Curriculum Vitae, November 9, 2022.

Northeastern Illinois University
Mathematics Department
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Academic Positions

2019 – Present	**Associate Professor**, *Mathematics Department, Northeastern Illinois University*, Chicago, IL.
2016 – 2019	**Assistant Professor**, *Mathematics Department, Northeastern Illinois University*, Chicago, IL.
2012 – 2016	**Lecturer**, *Mathematics Department, Northwestern University*, Evanston, IL.
2015 – 2016	**Instructor**, *The SESAME Program, The University of Chicago*, Chicago, IL.
2010 – 2012	**CRM-ISM Postdoctoral Fellow**, *Centre de Recherches Mathématiques – Institut des Sciences Mathématiques, hosted at McGill University, supervised by Niky Kamran*, Montréal, QC, Canada.
2009 – 2010	**Attaché Temporaire d'Enseignement et de Recherche (Research and Teaching Postdoctoral Fellow)**, *Université Paris Diderot - Paris VII*, Paris, France.

Education

2006 – 2009	***Doctorat de Mathématiques* (Ph.D.)**, *Université Paris Diderot - Paris VII (France)*, **directed** by Frédéric Hélein, **reviewed** by Robert L. Bryant (MSRI-University of California at Berkeley (USA)) and Jean-Marie Morvan (Université Claude Bernard - Lyon I (France)), **defended** on October 22, 2009 at Institut de Mathématiques de Jussieu. **Honors** : Très Honorable (Highest honors), **Ph.D. Thesis's Title:** Conservation Laws and Generalized Isometric Embeddings.
2004 – 2006	***Master de Sciences et Technologies* (M.S.)**, *Université Pierre et Marie Curie - Paris VI (France)*, **field:** Mathématiques et Applications, **specialty:** Mathématiques Fondamentales, **orientation:** Recherche (Research). ***Honors: Très Bien (Highest honors).***
2004 – 2001	***Licence de Mathématiques* (B.S.)**, *Université Pierre et Marie Curie - Paris VI (France)*.

Major Areas of Research and Professional Interests

- Time series forecasting, machine learning, mathematical and statistical modeling.
- Differential geometry, geometric analysis and partial differential equations.

Teaching Awards and Honors

Dec 2021	Finalist - 2020 Audrey Reynolds Distinguished Teaching Award, Northeastern Illinois University.
2016 – 2017	Faculty Excellence in Teaching Award, Northeastern Illinois University.
2015 – 2016	ASG Faculty Honor Roll for Excellence in Teaching, Northwestern University.
2014 – 2015	Mathematics Department Excellence in Teaching Award, Northwestern University.

Employment History and Teaching Experience

Northeastern Illinois University (Associate Professor of Mathematics, Chicago)

2016 – Present	- MATH 474 - *Mathematical Modeling*, Fall 2020. - MATH 472 - *Simulation Modeling and Analysis*, Fall 2020 & 2016. - MATH 441 - *Multivariate Statistical Analysis*, Spring 2022, 2020 & 2017. - MATH 421 - *Modern Geometry*, Fall 2019 & Spring 2018.

- MATH 406 - *Linear Programming: Theory and Practice*, Fall 2018.
- MATH 357 - *Financial Mathematics for Actuaries with Actuarial Exam Preparation*, Fall 2021, 2020, & 2019.
- MATH 347 - *Probability for Actuaries with Actuarial Exam Preparation*, Spring 2022, 2021 & 2019.
- MATH 336 - *Inferential Statistics*, Spring 2018.
- MATH 334 - *Mathematical Statistics I*, Fall 2017.
- MATH 305 - *Probability and Statistics*, Fall 2019.
- MATH 275 - *Applied and Computational Statistics*, Fall 2021, 2018, 2017 & 2016.
- MATH 149 - *Mathematics for Elementary Teachers I*, Spring 2017.
- MATH 112 - *Statistics in Daily Life*, Fall 2017, Spring 2017 & Fall 2016.

The University of Chicago (Instructor, Chicago)

Autumn 2015
- MATH 50400 - *Probability for Elementary School Teachers*.

Summer 2015
- MATH 51100 - *Calculus for Elementary School Teachers*.

Northwestern University (Lecturer, Evanston, IL)

2012 – 2016
- MATH 385 - *Probability and Statistics for MMSS*, Fall 2015.
- MATH 381 - *Fourier Analysis and Boundary Value Problems for ISP*, Fall 2015 & 2014.
- MATH 368 - *Introduction to Optimization*, Spring 2016 (2 sections), Winter 2016, Spring 2015, Winter 2015 & Winter 2014.
- MATH 351 - *Fourier Analysis and Boundary Value Problems*, Fall 2012.
- MATH 340 - *Geometry*, Spring 2015 & 2014.
- MATH 240 - *Linear Algebra*, Spring 2014.
- MATH 230 - *Differential Calculus of Multivariable Functions*, Winter 2015 (2 sections) & 2014.
- MATH 202 - *Finite Mathematics*, Winter 2016 (School of Professional Studies), Fall 2014, Spring 2013, Winter 2013 (2 sections) & Fall 2012.

McGill University (CRM-ISM Postdoctoral Fellow, Montréal, QC, Canada)

2010 – 2012
- MATH 133 - *Linear Algebra and Geometry*, Summer 2012.
- MATH 111 - *Mathematics for Education Students*, Winter 2012 and Winter 2011.

Université Paris Diderot - Paris 7, ("A.T.E.R" Teaching & Research Fellow, Paris, France)

2009 – 2010
- MI3 - *Algebra & Analysis III*, Fall 2009
- CS3 - *Parametrized Curves and Surfaces*, Fall 2009.

Université Paris Diderot - Paris 7, ("Monitorat" Graduate Lecturer, Paris, France)

2006 – 2009
- *Exterior Differential Calculus and Differential Geometry*, 2nd-year Master students in collaboration with Frédéric Hélein, Fall 2008.
- MP4 - *Algebra and Analysis III*, Fall 2007.
- MPQ1 - *Algebra and Analysis I*, Fall 2006.
- Mentored six 1st-year undergraduate math projects (**MK2**): The Sphere's Geodesics, and The Lotka-Volterra System (winter 2008), The Matrix Tool, The number π, Planet's Movement, and Cartography (winter 2007).

Université Pierre et Marie Curie - Paris 6 ("Tutor", Paris, France)

2003 – 2006   • Tutor in mathematics, physics, and compter sciences.

Mentored Students at Northeastern Illinois University

Spring 2020   Paul Rummelhoff, Master Project, *Lane Tech High School Class of 2020 Math SAT Growth Analysis*.

2017 – 2018   Stephanie Webb, Master Thesis, *Geometrization of Tumor Modeling for MRI*.

2017 – 2018   Husham Al Hashimi, Master Project, *Image Compression Techniques*.

Fall 2017   Meem Ahsan, Master Project, *Human Resource Analytics*.

Research Publications

Preprints

[8] N. Kahouadji, *Variations on two-parameter families of forecasting functions: seasonal/nonseasonal Models, comparison to the exponential smoothing and ARIMA models, and applications to stock market data*, arXiv:2207.04882 (July 2022)

Publications

[7] N. Kahouadji, N. Kamran, and K. Tenenblat, *Local Isometric Immersions of Pseudo-spherical Surfaces and k-th Order Evolution Equations*, Commun. Contemp. Math. **21** (2019), no. 4, 1850025, 21 pp.

[6] N. Kahouadji, N. Kamran, and K. Tenenblat, *Second-order equations and local isometric immersions of pseudo-spherical surfaces*, Comm. Anal. Geom., **24** (2016), no. 3, pp. 605-643.

[5] N. Kahouadji, N. Kamran, and Keti Tenenblat, *Local Isometric immersions of pseudo-spherical surfaces and evolution equations*, Fields Inst. Commun., **75** (2015), pp. 369-381.

[4] N. Kahouadji, *Construction of local conservation laws by generalized isometric embedding of vector bundles*, Asian J. Math., **15**, no. 4 (2011), pp.521-538.

Ph.D. Thesis   [3] N. Kahouadji, *Conservation laws and generalized isometric embeddings*, October 2009, Thèse en Ligne (T.E.L): `https://tel.archives-ouvertes.fr/tel-00427033`.

[2] N. Kahouadji, *Energy-Momentum's local conservation laws and generalized isometric embeddings of vector bundles*, Geometry, Topology, QFT and Cosmology, Travaux en cours en Physique-Mathématiques, Hermann (2009), no. 76, pp. 45-70.

[1] N. Kahouadji, *Cartan–Kähler theory and application to local isometric and conformal embeddings*, Systèmes Intégrables et Théorie Quantique des Champs, Travaux en cours en Physique-Mathématiques, Herman (2008), no. 75, pp. 295-316.

Fellowships and Grants

Sep 22, 2022   NEIU Research/Creative Activities Travel Fund, $1300, for a talk at 42th *International Symposium of Forecasting*, Oxford, England - July 13, 2022.

May 16, 2022   NAWA Polish Agency for Academic Exchange, The 19th Mathematical and Statistical Modeling of Complex Systems Workshop, Travel Grant, Warsaw School of Economics (SGH), Poland.

Nov 24, 2021   Erasmus+ Grant from University of Warsaw, Poland.

Dec 5, 2019   NEIU Research/Creative Activities Travel Fund $664, for a talk at the special session *Geometry of Differential Equations I* of the *Joint Mathematics Meetings 2020* Jan 13-18, 2020 in Denver, Co, USA.

Aug 7, 2019   Midwest Geometry Conference 2019 Travel Grant, $550, Iowa State University.

June 5, 2019	NEIU Mathematics Department and College of Arts and Sciences Travel Grant, $1200, for talks at Barcelona Analysis Conference and Seminari Geometria at the Centre de Recerca Mathemàtica, Barcelona, Spain.
July 6, 2018	Centre des Recherches Mathématiques, Travel Grant as an invited speaker at *A Celebration of Analysis, Geometry and Physics - June 10–14, 2019*, CAD 850, Montréal, Canada.
Aug 15, 2018	Universidade de Brasilia Travel Grant as an invited speaker at *Seminario de Geometria*, Brasilia, Brazil.
Feb 13, 2018	National Science Foundation and American Mathematical Society Travel Grant Program for ICM 2018 award, $3,300 to support my travel and participation in the International Congress of Mathematicians (ICM 2018), August 1-9, 2018, in Rio de Janeiro, Brazil.
Sept 13, 2017	NEIU Research/Creative Activities Travel Fund $1,300, for a talk at the special session *Geometry of Differential Equations, Real and Complex* of the *Mathematical Congress of the Americas* July 24-28, 2017 in Montreal, Canada.
June 2017	ChicagoCHEC Faculty Summer Stipend, $1,500, for mentoring NEIU graduate student Stephanie Webb on the research project *Geometrization of Tumor Modeling and MRI* .
April 4, 2017	Geometry and Algebra of PDEs Conference Grant - local expenses (full lodging) and conference fees (NOK 2200 approximately $265) - for my invited talk hosted in UiT Arctic University of Norway, Tromso, Norway, June 6–10, 2017.
2010 – 2012	CRM-ISM Postdoctoral Fellowship, 40,000 CAD per academic year, hosted at McGill University, Montréal, QC, Canada
2006 – 2009	Allocation de Recherche, 14,500 € per academic year, Ministère de l'Enseignement Supérieur et de la Recherche; Université Paris Diderot-Paris VII, France

Recent Invited Talks

Nov 4, 2022	Applied Mathematics Seminar, Northeastern Illinois University, Chicago, IL, USA.
Sep 30, 2022	Statistics and Data Science Seminar, Northwestern University, Evanston, IL, USA.
Sep 21, 2022	Statistics and Data Science Seminar, University of Illinois at Chicago, Chicago, IL, USA.
July 13, 2022	The 42th International Symposium on Forecasting, Oxford, England.
May 26, 2022	Machine Learning Seminar, University of Warsaw, Poland.
May 19, 2022	The 19th Mathematical and Statistical Modeling of Complex Systems Workshop, Warsaw School of Economics (SGH), Poland.
Jan 17, 2020	Joint Mathematical Meetings, AMS Special Session on Geometry of Differential Equations, Denver, Colorado.
Jun 27, 2019	Seminari Geometria, Centre de Recerca Mathemàtica, Universitat Autònoma de Barcelona, Spain.
Jun 26, 2019	Barcelona Analysis Conference 2019, Poster Presentation, Universitat de Barcelona, Spain.
Jun 14, 2019	A Celebration of Analysis, Geometry and Physics, Centre des Recherches Mathématiques, Montréal, Québec, Canada.
Aug 7, 2018	Short Communications, International Congress of Mathematicians 2018, Rio de Janeiro, Brazil.
Aug 14, 2018	Seminario de Geometria, Universidade de Brasilia, Brasilia, Brazil.
Jun 3-10, 2018	Symmetry and Perturbation Theory 2018 Conference, Pula, Italy.
Nov 17, 2017	NEIU 8th Faculty Research and Creative Activities Symposium, Chicago, USA.
July 25, 2017	Special session "Geometry of Differential Equations, Real and Complex" of the Mathematical Congress of the Americas 2017 conference, Montreal, QC, Canada.
June 12, 2017	Séminaire de Géométrie et Dynamiques, Institut de Mathématique de Jussieu-Paris Rive Gauche, Université Paris Diderot, Paris, France.

June 5, 2017	Geometry and Algebra of PDEs 2017, UiT the Arctic University of Norway - Tromso, Norway.
June 2, 2017	Séminaire de Géomtrie et Physique Mathématiques, Institut de Mathématique de Jussieu-Paris Rive Gauche, Université Paris Diderot, Paris, France.
Jan 27, 2017	Deerfield High School, District 113, Illinois, USA.
Nov 18, 2016	NEIU 7th Faculty Research and Creative Activities Symposium, Chicago, USA.

Service

Committee Membership at Northeastern Illinois University

2022	*The Bernard Brommel Distinguished Research Professor Award Committee*, Chair.
2019 – 2021	*The NEIU Enrollment Forecasting Group.*
2016 – Present	*Mathematics Department Graduate Committee.*
2016 – Present	*Mathematics Department Undergraduate Program Committee.*
2017 – Present	*Mathematics Department Service Course Committee.*
2018 – 2019	*Student Center for Science Engagement Executive Board*, elected member.
2018 – 2019	Vice Chair of the *Graduate College Advisory Committee*, elected member.
2017 – 2018	Secretary of the *Graduate College Advisory Committee*, elected member.
2016 – 2019	Mathematics *Instructor Department Personnel Committee.*

Academic

2018 – Present	Research and Education Co-Lead of the *Chicago Cancer and Health Equity Collaborative* grant.
2016 – Present	Organizer of the *Applied Math Seminar*, Northeastern Illinois University.
2016 – Present	Co-organizer of *9th to 18th bi-annual Mathematical and Statistical Modeling of Complex Systems Workshops*, Northeastern Illinois University.
April 13, 2018	Co-organizer of the *20th Chicago Symposium Series, Northeastern Illinois University.*
2016	Reviewer for *Stochastic Modeling and Applications Journal* (1 article).
2012	Reviewer for *Journal of Geometry and Physics* (2 articles).

Outreach

2017 – Present	• Co-Organizer of *Women in Sciences Conference I*, *II* and *III*, Northeastern Illinois University.
2016 – Present	• Organizer of the 1st, 2nd and 3rd *Family Math Night @ NEIU*, Northeastern Illinois University.

References

Primary

Professor, Dept. Chair	**Lidia Filus**, *Mathematics Department, Northeastern Illinois University*, USA.
	Email: l-filus@neiu.edu — Teaching, Research and Service
Professor	**Christina Ciecierski**, *Economics Department, Northeastern Illinois University*, USA .
	Email: c-ciecierski@neiu.edu — Teaching, Research and Service
Professor	**Niky Kamran**, *McGill University*, Canada.
	Email: nkamran@math.mcgill.ca — Research
Professor	**Keti Tenenblat**, *Universidade de Brasília*, Brazil.
	e-mail: e-mail:K.Tenenblat@mat.unb.br — Research

Additional

Professor **Jared Wunsch**, *(former) Department Chair (2012 – 2015), Northwestern University*, USA.
e-mail: `jwunsch@math.northwestern.edu` Teaching

Professor **Robert A. Fefferman**, *Director of Undergraduate Studies, University of Chicago, USA*.
E-mail: `rfefferm@uchicago.edu` Teaching

Ph.D. **Ursula Porod**, *Associate Professor of Instruction, Northwestern University*, USA.
e-mail: `uporod@math.northwestern.edu` Teaching

Ph.D. **Axel Hundemer**, *Director of Undergraduate Studies*, McGill University, Canada .
Email: `hundemer@math.mcgill.ca` Teaching

Professor **Frédéric Hélein**, *Université Paris Diderot - Paris VII*, France.
Email: `helein@math.jussieu.fr` Research