

Nabil Kahouadji

Curriculum Vitae, October 28, 2025.

Northeastern Illinois University
Mathematics Department
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Academic Positions

- 2025 – Present **Professor**, Mathematics Department, Northeastern Illinois University, Chicago, IL.
- 2024 – Present **Audrey Reynolds Distinguished Teaching Professor**, Northeastern Illinois University, Chicago, IL.
- 2019 – 2025 **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 **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).

Awards and Honors

- 2023 – 2024 Faculty Excellence in Research Award, Northeastern Illinois University.
- 2024 Audrey Reynolds Distinguished Teaching Award, Northeastern Illinois University.
- 2021 – 2022 Faculty Excellence in 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.

Major Areas of Research

Machine learning in cancer and health research, time series forecasting, and actuarial sciences.
Zoo-archaeology, turtle ecology, mathematical and statistical modeling.
Differential geometry, geometric analysis and partial differential equations.

Research Publications

Preprints

[13] 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.

Submitted

[12] N. Kahouadji, *A comprehensive comparison of the Wald, Wilson and adjusted Wilson confidence intervals for proportions*. <https://arxiv.org/abs/2508.10223>

[11] B. Reinke, C. Byrne, and **N. Kahouadji**, *Righting response does not predict survival in adult painted turtles (*Chrysemys picta*)*.

Publications

- 2025 [10] **N. Kahouadji**, S. Alairys, E. Chen, L. H. Diaz-Flores, J.E. Ngwe, and J. Brinkman, *Chicago Cancer Health Equity Collaborative: Outcomes from an intensive and mixed curricular summer program on cancer health disparities*, J. Cancer Education.
- 2024 [9] A. Hamm, E. Karayeva, M. Lima Oliveira, **N. Kahouadji**, P. Grippo, P. G. Wolf, E. Mutlu, L. Tussing-Humphreys, and S. J. Kim, *Neighborhood homicide rate and odds of colorectal adenoma among adult patients seeking colonoscopy*, JNCI Cancer Spectrum, Vol 8, Issue 6, December 2024, pkae110, doi: <https://doi.org/10.1093/jncics/pkae110>
- 2024 [8] **N. Kahouadji**, *On the Generalizability of Machine Learning Classification Algorithms and Their Application to the Framingham Heart Study*, Information 2024, 15, 252. <https://doi.org/10.3390/info15050252>
- 2019 [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.
- 2016 [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.
- 2015 [5] **N. Kahouadji**, N. Kamran, and Ketten Tenenblat, *Local Isometric immersions of pseudo-spherical surfaces and evolution equations*, Fields Inst. Commun., **75** (2015), pp. 369-381.
- 2011 [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>.
- 2009 [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.
- 2008 [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

- Apr 16, 2025 SPEED GRAD Research and Career Accelerator Program stipend, \$1500, for mentoring NEIU graduate student Esteban Ramirez.
- Mar 4, 2025 NEIU Student Center for Science Engagement Summer Research stipend, \$3000, for mentoring NEIU undergraduate students Lia Goldmeier and Damian Orozco.
- Feb 7, 2024 Indiana University's Institute for Advanced Study 2024 Repository Research Fellows, William R. Adams Zooarchaeology Laboratory, Bloomington, IN, USA.
- Oct 17, 2023 NAWA Polish Agency for Academic Exchange, The 22nd Mathematical and Statistical Modeling of Complex Systems Workshop, Travel Grant, Warsaw School of Economics (SGH), Poland.
- Aug 15, 2023 Principal Investigator of a National Science Foundation PRIMES Award (FAIN 2331502) Division of Mathematical Sciences, project title *PRIMES: A Biological and Socio-Environmental Approach to Machine Learning for Equitable and Proactive Cancer and Health Screening*. Award period of performance August 15, 2023 - July 31, 2025. Total award amount \$278,537.
- 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.
- Jan 13, 2021 National Science Foundation and American Mathematical Society Travel Grant Program for ICM 2022 award, \$3,500 to support my travel and participation in the International Congress of Mathematicians (ICM 2022), July 6-14, 20122, in Saint Petersburg, Russia. ICM Cancelled.
- 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 Matemàtica, 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, Tromsø, 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 Presentations and Invited Talks

- Jan 9, 2025 Society of Historical Archaeology 2025 Conference on Historical and Underwater Archaeology, Poster Presentation.
- Oct 17, 2023 The 22nd Mathematical and Statistical Modeling of Complex Systems Workshop, Warsaw School of Economics (SGH), Poland.
- Jun 22, 2023 Chicago CHEC Fellows Program, Northwestern University, Chicago, IL, USA.
- 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 Matemàtica, 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 - Tromsø, Norway.
- June 2, 2017 Séminaire de Géométrie et Physique Mathématiques, Institut de Mathématique de Jussieu-Paris Rive Gauche, Université Paris Diderot, Paris, France.

Employment History and Teaching Experience

Northeastern Illinois University (Professor of Mathematics, Chicago, IL)

- 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 2022, 2019 & Spring 2018.
 - MATH 406 - *Linear Programming: Theory and Practice*, Fall 2018.
 - MATH 357 - *Financial Mathematics for Actuaries with Actuarial Exam Preparation*, Fall 2025, 2021, 2020, & 2019.
 - MATH 347 - *Probability for Actuaries with Actuarial Exam Preparation*, Spring 2025, 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 2025, Spring 2023, Fall 2022, 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, IL)

- Fall 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 computer sciences.

Mentored Students at Northeastern Illinois University

Individualized Instructions

- Fall 2025 JaSai Kimsey and Esteban Ramirez, Independent Study, Financial Mathematics for Actuaries.
 Fall 2025 Luke Loprieno, Katherine Papagiannis and Neda Svrakic and Independent Study, Modern Geometry.
 Spring 2025 Anicet-Joel Lezao, Jordan Nigro, Esteban Ramirez, Independent Study, Probability for Actuaries.

Research Supervision

- Summer 2025 Lia Goldmeier, SCSE Summer Research Project.
 Summer 2025 Damian Orozco, SCSE Summer Research Project.
 Summer 2024 Alain Iniestra, SCSE Summer Research, co-mentored with Dr. Beth Reinke (NEIU, Biology).
 2023 – 2024 Caroline Byrne, Research Project, co-mentored with Dr. Beth Reinke (NEIU, Biology).
 Summer 2023 Courtney Pomije, MATH 493 - Individual Study, *Hyperbolic Trigonometry*.
 Spring 2023 Courtney Pomije, MATH 495 - Master Research Project, *Hilbert's Arithmetic of Ends*.
 Spring 2020 Paul Rummelhoff, MATH 495 - Master Research Project, *Lane Tech High School Class of 2020 Math SAT Growth Analysis*.
 2017 – 2018 Stephanie Webb, MATH 591, 592 and 593 - Master Thesis, *Geometrization of Tumor Modeling for MRI*.
 2017 – 2018 Husham Al Hashimi, MATH 495 - Master Research Project, *Image Compression Techniques*.
 Fall 2017 Meem Ahsan, MATH 495 - Master Research Project, *Human Resource Analytics*.

Service

Committee Memberships at Northeastern Illinois University

- 2025 – Present Advisory Council for Faculty Awards, elected member.
 2025 – Present Mathematics Department Personnel Committee, Chair.
 2024 – Present Audrey Reynolds Distinguished Teaching Award Committee.
 2016 – Present Mathematics Department Graduate Committee.
 2016 – Present Mathematics Department Undergraduate Program Committee.
 2024 – 2025 The Bernard Brommel Distinguished Research Professor Award Committee.
 2025 CAS Dean Search and Screen Committee.
 2024 NEIU Student Center for Science Engagement STEM Advisor Search Committee.
 2024 ARCOS Grant External Partnership Committee.
 2016 – 2023 Mathematics Instructor Department Personnel Committee.
 2021 – 2022 The Bernard Brommel Distinguished Research Professor Award Committee, Chair.
 2019 – 2021 The NEIU Enrollment Forecasting Group.
 2017 – 2020 Mathematics Department Service Course Committee.
 2018 – 2019 Student Center for Science Engagement Executive Board, elected member.
 2018 – 2019 NEIU Computer Science Department Search Committee.
 2018 – 2019 Graduate College Advisory Committee, Vice Chair, elected member.

2017 – 2018 Graduate College Advisory Committee, Secretary, elected member.

Academic

- 2016 – Present Organizer of the Applied Math Seminar, Northeastern Illinois University.
- 2016 – Present Co-organizer of 9th to 22nd bi-annual Mathematical and Statistical Modeling of Complex Systems Workshops, Northeastern Illinois University.
- 2016 – Present Summer research proposal reviewer for the NEIU Student Center for Science Engagement.
- 2024 – 2025 Administrative Core Co-Investigator of the *Chicago Cancer and Health Equity Collaborative* grant.
- 2020 – 2025 NEIU Center of Health, member.
- 2018-2025 Research and Education Co-Lead of the *Chicago Cancer and Health Equity Collaborative* grant.
- 2025 Panel moderator for the Polish-American Scientific and Academic Cooperation.
- 2024 NSF Grant Reviewer and Panelist.
- 2024 Reviewer for Scientific Reports (1 article).
- April 13, 2018 Co-organizer of the 20th Chicago Symposium Series, Northeastern Illinois University.
- 2017 Review panelist for the Chicago CHEC Incubator and Catalyst Grants Program, Cycle 3.
- 2016 Reviewer for Stochastic Modeling and Applications Journal (1 article).
- 2012 Reviewer for Journal of Geometry and Physics (2 articles).

Outreach

- 2024 – Present Climbing route-setter and high course ropes course staff, NEIU Campus Recreation.
- 2016 – Present Organizer of the 1st, 2nd and 3rd Family Math Night @ NEIU, Northeastern Illinois University.
- 2017 – 2020 Co-Organizer of *Women in Sciences Conference I, II and III*, Northeastern Illinois University.

References

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