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Department of Mathematics
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EDUCATION

- 2017 - 2023 Ph.D. in Mathematics, University of Virginia, Charlottesville, VA 22904, USA
Advisor: [Yen Q. Do](#)
Dissertation title: Estimates for correlation functions of real roots for random polynomials and applications, <https://doi.org/10.18130/7k2v-b102>
- 2016 - 2017 MS in Mathematics, University of West Georgia, Carrollton, GA 30118, USA
Advisor: [Tuan K. Vu](#)
- 2003 - 2007 BS in Mathematics, Quy Nhon University, Quy Nhon, Binh Dinh, Vietnam
Advisor: [Duc T. Dinh](#)
Thesis title: On some convolution norm inequalities and their application

APPOINTMENTS

- 2023 - present Visiting Assistant Professor (Postdoc), University of Colorado Boulder, Boulder, CO 80309, USA
Mentor: [Sean O'Rourke](#)
- 2007 - 2015 Lecturer, Quy Nhon University, Binh Dinh, Vietnam
Mentor: [Quang T. Thai](#)

AWARDS, HONORS, AND GRANTS

- 2023 [The Raven Society](#).
- 2022 - 2023 [The Roselle-Huneke Award in Mathematics](#), Jefferson Scholars Foundation.
- 2021 - 2022 [All-University Graduate Teaching Award](#), University of Virginia.
- 2020 VIASM, [Mathematical Research Award](#): “Dynamic Picone’s identity and its applications”.
- 2018 - 2020 Co-PI, NAFOSTED grant 101.02-2017.310: “Some selected problems in inequalities, dynamical systems theory, and applications”, PI listed as [Duc T. Dinh](#).
- 2015 - 2017 Co-PI, NAFOSTED grant 101.02-2014.32: “Some problems on integral inequalities, differential variational inequalities, and stochastic differential equations”, PI listed as [Duc T. Dinh](#).
- 2013 - 2015 VIASM, [Mathematical Research Awards](#): “Inequalities for partial derivatives and their applications”, “Inequalities for differences and their applications”, and “Convolution inequalities in l_p weighted spaces”.
- 2012 - 2014 Co-PI, NAFOSTED grant 101.01-2011.15: “Some selected trends in mathematical analysis and their applications”, PI listed as [Duc T. Dinh](#).
- 2012 Quy Nhon University Award for Talented Young Scientists.
- 2009 - 2011 Co-PI, NAFOSTED grant 101.01.45.09: “Some selected trends in mathematical analysis and their applications”, PI listed as [Duc T. Dinh](#).
- 2010 ICM 2010 Travel Grant (\$1240).
- 2008 - 2009 Member, MOET grant B2008.28.12: “On some convolution inequalities in L_p -weighted spaces and their applications”, PI listed as [Duc T. Dinh](#).
- 2007 Second Prize, Vietnam Fund for Supporting Technological Creations Award;
Second Prize, Vietnam Scientific Research Student Award;
Quy Nhon University Award for Outstanding Students.
- 2004 - 2006 Four Second Prizes and two Third Prizes, Vietnam Mathematical Olympiad.
- 2006 Outstanding Students of the Year, Vietnam National Union of Students.
- 2005 Odon Vallet Scholarship (France) and Prudential Scholarship (Vietnam).

RESEARCH

My interests cover a wide range of areas, including Probability theory and stochastic processes, Real functions, Integral transforms, operational calculus, Functional analysis, Partial differential equations, and Operator theory.

■ Preprints

- [1] Yen Q. Do and Nhan D. V. Nguyen, Convergence theorems for real roots of generalized Kac polynomials, [in preparation](#).
- [2] Yen Q. Do, Nhan D. V. Nguyen, and Sean O'Rourke, Real roots of non-centered generalized Kac polynomials, [in preparation](#).
- [3] Yen Q. Do and Nhan D. V. Nguyen, Real roots of random polynomials with coefficients of polynomial growth: asymptotics of the variance, 33 pages, submitted. [arXiv:2303.05478](#)
- [4] Nhan D. V. Nguyen, The number of real zeros of elliptic polynomials, 46 pages, submitted. [arXiv:2111.10875](#)

■ Publications

- [1] Duc T. Dinh, Hue N. Nguyen, Nhan D. V. Nguyen, and Tuan K. Vu, Convexity according to a pair of quasi-arithmetic means and inequalities, *J. Math. Anal. Appl.* 488 (2020), no. 1, 124059, 23 pp. [MR4079595](#)
- [2] Nhan D. V. Nguyen, Duc T. Dinh, Tuan K. Vu, and Phung D. Tran, Dynamic Picone's identity and its applications, *J. Math. Anal. Appl.* 469 (2019), no. 1, 342–357. [MR3857526](#)
- [3] Nhan D. V. Nguyen, Phung D. Tran, Duc T. Dinh, and Tuan K. Vu, Opial and Lyapunov inequalities on time scales and their applications to dynamic equations, *Kodai Math. J.* 40 (2017), no. 2, 254–277. [MR3680561](#)
- [4] Duc T. Dinh, Nhan D. V. Nguyen, and Xuan T. Nguyen, Inequalities for partial derivatives and their applications, *Canad. Math. Bull.* 58 (2015), no. 3, 486–496. [MR3372865](#)
- [5] Duc T. Dinh and Nhan D. V. Nguyen, Norm inequalities for new convolutions and their applications, *Appl. Anal. Discrete Math.* 9 (2015), no. 1, 168–179. [MR3362704](#)
- [6] Nhan D. V. Nguyen, Duc T. Dinh, Tuan K. Vu, and Vu D. H. Nguyen, Inequalities for differences and their applications, *J. Difference Equ. Appl.* 20 (2014), no. 9, 1319–1343. [MR3226858](#)
- [7] Nhan D. V. Nguyen, Duc T. Dinh, and Tuan K. Vu, Weighted norm inequalities for derivatives and their applications, *Kodai Math. J.* 36 (2013), no. 2, 228–245. [MR3081244](#)
- [8] Nhan D. V. Nguyen and Duc T. Dinh, Norm inequalities for Mellin convolutions and their applications, *Complex Anal. Oper. Theory* 7 (2013), no. 4, 1287–1297. [MR3079856](#)
- [9] Nhan D. V. Nguyen and Duc T. Dinh, Various inequalities in reproducing kernel Hilbert spaces, *Taiwanese J. Math.* 17 (2013), no. 1, 221–237. [MR3028866](#)
- [10] Nhan D. V. Nguyen and Duc T. Dinh, Convolution inequalities and their applications to reproducing kernel Hilbert spaces, *Interactions between real and complex analysis*, 224–242, Sci. Technics Publ. House, Hanoi, 2012. [MR3135825](#)
- [11] Nhan D. V. Nguyen and Duc T. Dinh, Convolution inequalities in ℓ_p weighted spaces, *Canad. Math. Bull.* 55 (2012), no. 2, 355–367. [MR2957252](#)
- [12] Duc T. Dinh and Nhan D. V. Nguyen, Generalize some norm inequalities of Saitoh, *Kodai Math. J.* 34 (2011), no. 2, 191–201. [MR2811640](#)
- [13] Nhan D. V. Nguyen, Duc T. Dinh, and Tuan K. Vu, Weighted norm inequalities for a nonlinear transform, *Comput. Math. Appl.* 61 (2011), no. 4, 832–839. [MR2770487](#)
- [14] Nhan D. V. Nguyen, Duc T. Dinh, and Tuan K. Vu, Reverse weighted L_p -norm inequalities for convolution type integrals, *Armen. J. Math.* 2 (2009), no. 3, 77–93. [MR2556776](#)
- [15] Nhan D. V. Nguyen and Duc T. Dinh, Fundamental iterated convolution inequalities in weighted L_p spaces and their applications, *Math. Inequal. Appl.* 12 (2009), no. 3, 487–498. [MR2540972](#)
- [16] Duc T. Dinh and Nhan D. V. Nguyen, On some reverse weighted $L_p(\mathbb{R}^n)$ -norm inequalities in convolutions and their applications, *Math. Inequal. Appl.* 12 (2009), no. 1, 67–80. [MR2489351](#)
- [17] Nhan D. V. Nguyen, Duc T. Dinh, and Tuan K. Vu, Weighted L_p -norm inequalities for various convolution type transformations and their applications, *Armen. J. Math.* 1 (2008), no. 4, 1–18. [MR2472168](#)

- [18] Nhan D. V. Nguyen and Duc T. Dinh, Fundamental inequalities for the iterated Laplace convolution in weighted L_p spaces and their applications, *Integral Transforms Spec. Funct.* 19 (2008), no. 9–10, 655–664. [MR2454725](#)
- [19] Nhan D. V. Nguyen and Duc T. Dinh, Reverse weighted L_p -norm inequalities and their applications, *J. Math. Inequal.* 2 (2008), no. 1, 57–73. [MR2453635](#)
- [20] Nhan D. V. Nguyen and Duc T. Dinh, Weighted L_p -norm inequalities in convolutions and their applications, *J. Math. Inequal.* 2 (2008), no. 1, 45–55. [MR2453634](#)
- [21] Duc T. Dinh and Nhan D. V. Nguyen, Some applications of convolution inequalities in weighted L_p spaces, *Integral Transforms Spec. Funct.* 19 (2008), no. 7–8, 471–480. [MR2449616](#)
- [22] Duc T. Dinh and Nhan D. V. Nguyen, On some convolution norm inequalities in weighted $L_p(\mathbb{R}^n, \rho)$ spaces and their applications, *Math. Inequal. Appl.* 11 (2008), no. 3, 495–505. [MR2431214](#)

SEMINAR AND CONFERENCE TALKS

- Oct 2023 Correlations between the real roots of random polynomials, part II, University of Colorado Boulder, [Probability Seminar](#), 50-minute talk.
- Oct 2023 Correlations between the real roots of random polynomials, University of Colorado Boulder, [Probability Seminar](#), 50-minute talk.
- Mar 2023 Real roots of random polynomials, UVa Math Open House, Flash talk.
- Oct 2022 Real roots of random polynomials with coefficients of polynomial growth, University of Virginia, [Graduate Students Seminar](#), 50-minute talk.
- Jul 2022 Variance of real roots of random polynomials with coefficients of polynomial growth, Hanoi Institute of Mathematics, VAST (Vietnam), [Workshop on Random Structures and Related Topics](#), 25-minute talk.
- Apr 2022 Cumulants of the number of real zeros of random polynomials, The Ohio State University, [Combinatorics and Probability Seminar](#), 50-minute talk.
- Apr 2022 Variance of real zeros of random polynomials, University of Virginia, [Harmonic Analysis & PDE Seminar](#), 50-minute talk.
- Nov 2021 Kac-Rice formulas and the number of real roots of random polynomials, University of Virginia, [Graduate Students Seminar](#), 50-minute talk.
- Oct 2021 The number of real zeros of elliptic polynomials, University of Virginia, [Harmonic Analysis & PDE Seminar](#), 50-minute talk.
- Feb 2021 Variance of real zeros of elliptic polynomials, University of Virginia, [Harmonic Analysis & PDE Seminar](#), 50-minute talk.
- Nov 2020 Slepian's lemma and an application, University of Virginia, [Graduate Students Seminar](#), 50-minute talk.
- Mar 2020 What is the one force-one solution principle?, University of Virginia, ["What is..." Pre-colloquium Series](#), 50-minute talk.
- Apr 2019 The number of real roots of random polynomials, University of Virginia, [Harmonic Analysis & PDE Seminar](#), 50-minute talk.
- Sep 2019 Convexity according to a pair of quasi-arithmetic means and inequalities, University of Virginia, [Graduate Students Seminar](#), 50-minute talk.
- Jan 2016 Dynamic Picone identities and their applications, University of West Georgia, Center for Applied Mathematics and Science Seminar, 45-minute talk.
- Aug 2013 Convolution norm inequalities in reproducing kernel Hilbert spaces, [The 8th Vietnamese Mathematical Conference](#) (Nha Trang, Vietnam), 45-minute invited talk with Duc T. Dinh.
- Aug 2012 Inequalities for differences and their applications, [A Joint Congress of the French Mathematical Society and the Vietnamese Mathematical Society](#) (Hue, Vietnam), 30-minute talk.
- Jul 2012 Convolution inequalities and their applications to reproducing kernel Hilbert spaces, The 20th International Conference on Finite or Infinite Dimensional Complex Analysis and Applications (Hanoi, Vietnam), 30-minute talk.
- Mar 2011 Weighted ℓ_p -norm inequalities in convolutions, International Conference on Analysis & Applications (Ho Chi Minh City, Vietnam), 30-minute talk.
- Aug 2010 [International Congress of Mathematicians](#) (Hyderabad, India), attended.
- Aug 2008 Weighted L_p -norm inequalities for various convolution type transformations and their applications, The 7th Vietnamese Mathematical Conference (Quy Nhon, Vietnam), 15-minute talk.

REFEREEING

I have served as a referee for AIMS Mathematics, Integral Transforms and Special Functions, Korean Journal of Mathematics, Mathematica Bohemica, Mediterranean Journal of Mathematics, and Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales. Serie A. Matemáticas.

TEACHING EXPERIENCE

■ Instructor at the University of Colorado Boulder

- Spring 2024 Introduction to Probability Theory (flipped classroom model)
- Introduction to Linear Algebra for Non-Mathematics Majors (flipped classroom model)
- Fall 2023 Introduction to Linear Algebra for Non-Mathematics Majors (flipped classroom model)

■ Instructor at the University of Virginia

- Summer 2022 Calculus I (flipped classroom model)
- Spring 2022 Calculus I (flipped classroom model)
- Fall 2021 Calculus I (flipped classroom model)
- Summer 2021 A Survey of Calculus I (flipped classroom model, online)
- Fall 2020 A Survey of Calculus II (flipped classroom model, online)
- Fall 2019 A Survey of Calculus I (lecture oriented)

■ Teaching Assistant at the University of Virginia

- Spring 2023 Real Analysis and Linear Spaces I (Grader)
- Fall 2022 Elementary Numerical Analysis (Grader)
- Spring 2022 Differential Equations and Dynamical Systems (Grader)
- Spring 2021 Basic Real Analysis (Grader)
- Fall 2020 Introduction to Real Analysis (Grader)
- Summer 2019 Calculus III (discussion)
- Spring 2019 Ordinary Differential Equations (discussion, two sections)
- Fall 2018 Basic Real Analysis

■ Lecturer at Quy Nhon University

- Fall 2015 Calculus I, Calculus II, Measure Theory
- Spring 2015 Calculus III
- Fall 2014 Calculus I, Calculus II
- Summer 2014 Calculus I, Calculus II
- Spring 2014 Calculus III
- Fall 2013 Calculus I, Calculus II
- Spring 2013 Special Functions
- Fall 2012 Calculus I, Calculus II, Measure Theory
- Summer 2012 Calculus I, Calculus II
- Spring 2012 Special Functions, Partial Differential Equations
- Fall 2011 Calculus I, Calculus II
- Summer 2011 Calculus II, Partial Differential Equations
- Spring 2011 Calculus III, Partial Differential Equations
- Fall 2010 Calculus I, Calculus II
- Spring 2010 Calculus III, Ordinary Differential Equations
- Fall 2009 Calculus I, Calculus II, Ordinary Differential Equations

■ Teaching Assistant at Quy Nhon University

- Spring 2009 Calculus III, Complex Analysis, Partial Differential Equations
- Fall 2008 Calculus I, Calculus II
- Spring 2008 Calculus III, Complex Analysis, Partial Differential Equations

Fall 2007 Calculus I, Calculus II

MENTORING

■ Distinguished Majors Program at Quy Nhon University

- 2014 - 2015 Ngoc T. Y. Vo, Thesis title: “Lyapunov’s inequality and applications”.
- 2012 - 2013 Bao Q. Le, Thesis title: “Convolution inequalities and applications”.
- Them T. Nguyen, Thesis title: “On some convergence theorems”.
- Xuan T. Nguyen, Thesis title: “On the theory of reproducing kernels”.
- 2011 - 2012 Chuan T. M. Tran, Thesis title: “On n -normed spaces”.
- Quyem B. Tran, Thesis title: “Laplace transform and applications”.
- 2010 - 2011 Phung D. Tran, Thesis title: “Some norm inequalities in Sobolev spaces”.

■ Undergraduate Research Program at Quy Nhon University

- 2012 - 2013 Bao Q. Le, Research title: “Convolutions and applications”.
- Xuan T. Nguyen, Research title: “A generalization of Opial’s inequality”.

■ Vietnam Mathematical Olympiad

- 2007 - 2015 Training sessions for students at Quy Nhon University
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SKILLS

- Language Vietnamese, English
- Coding Matlab, Mathematica, R