

Department of Mathematics
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NGUYEN DUY CUONG

Education

- 2018 - 2021 PhD - Mathematical Sciences, [Federation University](#), Australia
Thesis title: [TRANSVERSALITY, REGULARITY AND ERROR BOUNDS IN
VARIATIONAL ANALYSIS AND OPTIMISATION](#) (Examiner A, Examiner B)
Principal supervisor: Prof. [Alexander Kruger](#)
Associate supervisor: Prof. [David Yost](#)
- 2013 - 2015 Master of Mathematical Analysis, [Can Tho University](#), Vietnam
CGPA : [3.77/4.0](#)
Thesis title: [CODERIVATIVES, EXTREMAL PRINCIPLES AND APPLICATIONS](#)
Supervisor: Dr [Dinh Ngoc Quy](#)
- 2009 - 2012 Bachelor of Education in Mathematics, [Can Tho University](#), Vietnam
CGPA: [3.85/4.0](#)
Thesis title: [TOPOLOGICAL VECTOR SPACES](#)
Supervisor: M.Sc [Le Hong Duc](#)

Appointments

- Oct. 2012 - now Lecturer, [Can Tho University](#)
- 2022 - now International Cooperation Assistant, [College of Natural Sciences, Can Tho University](#)
- 2022 - 2023 Postdoctoral Fellowship (STS.2022.40), [Vingroup Innovation Foundation \(VinIF\)](#)
- 2023 - 2024 Postdoctoral Fellowship (STS.2023.54), [Vingroup Innovation Foundation \(VinIF\)](#)

Awards

- 2024 [Excellent performance for two consecutive years](#), Vietnam Ministry of Education and Training
- 2023 [Domestic Postdoctoral Fellowship](#), Vingroup Innovation Foundation & Institute of Big Data
- 2022 [Domestic Postdoctoral Fellowship](#), Vingroup Innovation Foundation & Institute of Big Data
- 2021 [Lift-off Fellowship](#), Australian Mathematical Society
- 2021 [Excellent Achievement of Graduation](#), Doctor of Mathematical Sciences
- 2020 [Editors' Choice](#), Vietnam Journal of Mathematics
- 2018 [Australian Government Research Training Program Fee Off-Set Scholarship](#),
[Centre for Informatics and Applied Optimization \(CIAO\) PhD Research Scholarship](#)
- 2015 [Excellent Achievement of Graduation](#), Master of Mathematical Analysis
- 2012 [Excellent Achievement of Graduation](#), Bachelor of Education in Mathematics
- 2012 [Third](#) (Analysis) and [Second](#) (Algebra) Prizes, Vietnam Student Olympiad
- 2011 [Third](#) (Analysis) and [First](#) (Algebra) Prizes, Vietnam Student Olympiad
- 2010 [Second](#) (Analysis) and [Third](#) (Algebra) Prizes, Vietnam Student Olympiad
- 2009 [Third](#) Prize (Analysis), Vietnam Student Olympiad

Research interests

- [Variational Analysis](#)
- [Optimisation](#)
- [Calculus of Variations](#)
- [Optimal Control](#)

Selected publications

1. **Cuong N.D.:** [PRIMAL AND DUAL CHARACTERIZATIONS OF SIGN-SYMMETRIC NORMS.](https://arxiv.org/abs/2504.19642) <https://arxiv.org/abs/2504.19642> (2025)
2. **Cuong N.D., Kruger A.Y.:** [GENERALIZED SEPARATION OF COLLECTIONS OF SETS.](https://arxiv.org/abs/2412.05336) <https://arxiv.org/abs/2412.05336> (2024)
3. **Cuong N.D., Kruger A.Y.:** [SEQUENTIAL EXTREMAL PRINCIPLE AND NECESSARY CONDITIONS FOR MINIMIZING SEQUENCES.](#) **Optimization** (2025)
4. **Cuong N.D., Kruger A.Y., Thao H.N.:** [EXTREMALITY OF FAMILIES OF SETS AND SET-VALUED OPTIMIZATION.](#) **Set-Valued and Variational Analysis**, **33**(21) (2025)
5. Tam V.M., **Cuong N.D.**, Hien N.N., Hieu D.H.: [REGULARIZED GAP FUNCTIONS FOR \$p\$ -STRONGLY MONOTONE VARIATIONAL-HEMIVARIATIONAL INEQUALITIES AND APPLICATIONS TO GLOBAL ERROR BOUNDS.](#) **TWMS Journal of Applied and Engineering Mathematics** **15**(6), 1448-1459 (2025)
6. **Cuong N.D., Kruger A.Y., Thao H.N.:** [EXTREMALITY OF FAMILIES OF SETS.](#) **Optimization** **73**(12), 3593-3607 (2024)
7. **Cuong N.D.:** [TRANSVERSALITY, REGULARITY AND ERROR BOUNDS IN VARIATIONAL ANALYSIS AND OPTIMISATION.](#) **Bullentin of the Australian Mathematical Society** **106**(1), 167-169 (2022)
8. **Cuong N.D., Kruger A.Y.:** [ERROR BOUNDS REVISITED.](#) **Optimization** **71**(4), 1021-1053 (2022)
9. **Cuong N.D., Kruger A.Y.:** [UNIFORM REGULARITY OF SET-VALUED MAPPINGS AND STABILITY OF IMPLICIT MULTIFUNCTIONS.](#) **Journal of Nonsmooth Analysis and Optimization** **2** (2021)
10. **Cuong N.D., Kruger A.Y.:** [TRANSVERSALITY PROPERTIES: PRIMAL SUFFICIENT CONDITIONS.](#) **Set-Valued and Variational Analysis** **29**(2), 221–256 (2021)
11. **Cuong N.D., Kruger A.Y.:** [PRIMAL SPACE NECESSARY CHARACTERIZATIONS OF TRANSVERSALITY PROPERTIES.](#) **Positivity** **25**(2), 531–558 (2021)
12. Thao N.H., Bui T.H., **Cuong N.D.**, Verhaegen M.: [SOME NEW CHARACTERIZATIONS OF INTRINSIC TRANSVERSALITY IN HILBERT SPACES.](#) **Set-Valued and Variational Analysis** **28**(1), 5–39 (2020)
13. **Cuong N.D., Kruger A.Y.:** [DUAL SUFFICIENT CHARACTERIZATIONS OF TRANSVERSALITY PROPERTIES.](#) **Positivity** **24**, 1313-1359 (2020)
14. **Cuong N.D., Kruger A.Y.:** [NONLINEAR TRANSVERSALITY OF COLLECTIONS OF SETS: DUAL SPACE NECESSARY CHARACTERIZATIONS.](#) **Journal of Convex Analysis** **27**(1), 287–308 (2020)
15. Bui T.H., **Cuong N.D.**, Kruger A.Y.: [TRANSVERSALITY OF COLLECTIONS OF SETS: GEOMETRIC AND METRIC CHARACTERIZATIONS.](#) **Vietnam Journal of Mathematics** **48**, 277-297 (2020)

Research projects

Dates	Project Titles	Funding Organization	Role
2014-2015	T2014-50. Existence and stability properties in multiobjective optimization	Can Tho University	Researcher
2018-2021	DP160100854. Stability of generalised equations and variational systems	Australian Research Council	Researcher
2022-2023	VINIF.2022.STS.40. Regularity properties of set-valued mappings and applications in convergence analysis of computational algorithms	Vingroup Innovation Foundation (VINIF), Institute of Big Data (VNCDLL)	Principal Investigator
2023-2024	VINIF.2023.STS.54. Regularity properties of set-valued mappings and applications in convergence analysis of computational algorithms	Vingroup Innovation Foundation (VINIF), Institute of Big Data (VNCDLL)	Principal Investigator
2023	T2023-09. Necessary and sufficient conditions for nonlinear error bounds	Can Tho University	Principal Investigator
2023-2024	B2023-CTT-09. Transversality/Regularity properties in variational analysis and applications	Ministry of Science and Technology	Principal Investigator
2023-2025	B2024-CTT-03. Qualitative properties of differential variational inequalities and applications	Ministry of Science and Technology	Researcher
2025	T2025-11. Nonconvex separation results for collections of sets	Can Tho University	Principal Investigator

Supervision

Date	Name	Type	Title
2023	Nguyen Thi Diem My Applied Mathematics	Institutional Project	TSV2023-19. Extremal principles of collections of sets and applications
2023	Nguyen Thi Diem My Applied Mathematics	Undergraduate Thesis	Convex subdifferentials and related problems
2023	Ha Nguyen Huynh Anh Mathematical Analysis	Master's Thesis	Extremal principle of collections of set-valued mappings and applications
2023	Nguyen Mai Nhat Duong Mathematical Analysis	Master's Thesis	Metric regularity properties of set-valued mappings and applications
2024	Do Huynh Ngoc Han Applied Mathematics	Undergraduate Thesis	Differential calculus of functions of one variable and applications
2024	Doan Huu Hieu Mathematical Analysis	Master's Thesis	Existences and error bounds of mixed variational-hemivariational inequalities
2025	Truong Thanh Trung Mathematical Analysis	Master's Thesis	Error bounds of extended-real-valued functions and applications
2025	Nguyen Thi Thuy Duong Applied Mathematics	Undergraduate Thesis	Convex subdifferentials and related problems
2025	Ly Thi Thuy Van Applied Mathematics	Undergraduate Thesis	Clarke subdifferentials and related problems
2025	Thai Tuyet Nhi Applied Mathematics	Undergraduate Thesis	Litmiting subdifferentials and related problems
2025	Hoang Minh Thanh Applied Mathematics	Institutional Project	TSV2025-09. Regularity properties of collections of set-valued mappings
2025	Vo Hoang Khiem Applied Mathematics	Undergraduate Thesis	Subdifferentiability of convex functions and applications
2025	Nguyen Thi Mong Trinh Applied Mathematics	Undergraduate Thesis	Some properties of Banach spaces
2025	Nguyen Nhu Y Applied Mathematics	Undergraduate Thesis	Dual spaces and related problems
2025	Nguyen Thi Thu Huong Applied Mathematics	Undergraduate Thesis	Some problems on Hilbert spaces
2025	Nguyen Trong Phuc Applied Mathematics	Undergraduate Thesis	Differentiation of functions on normed spaces

Conferences/Workshops/Seminars

- July 2025 [Workshop on Applied Mathematics](#)
(Ton Duc Thang University, Khanh Hoa Campus, Vietnam)
- May 2025 [Seminar](#) (Can Tho University, Can Tho City, Vietnam)
Talk: **Sequential extremal principle and necessary conditions for minimizing sequences**
- April 2025 [Seminar](#) (Da Lat University, Da Lat City, Vietnam)
Talk: **Primal and dual characterizations of sign-symmetric norms**
- March 2025 [The International Workshop on Applied Mathematics 2025](#)
(Ton Duc Thang University, Khanh Hoa Campus, Vietnam)
Talk: **Generalized separation of collections of sets**
- August 2024 [The 5th International Conference: Mathematics of the Central Region and Central Highlands in 2024](#) (Khanh Hoa University, Vietnam)
- July 2024 [International Conference on Applied Mathematics](#) (Ton Duc Thang University, Vietnam)
Talk: **Extremality of collections of sets with respect to general perturbations**
- Sep. 2023 [Optimization Seminar](#) (Ton Duc Thang University, Vietnam)
Talk: **An overview on metric regularity properties**
- Aug. 2023 [The 10th Vietnam Mathematical Congress](#) (Da Nang University, Vietnam)
Talk: **Necessary and sufficient conditions for transversality properties of collections of sets**
- July 2023 [ICOVAA 2023](#) (VIASM, Vietnam)
Talk: **Necessary and sufficient conditions for Hölder metric regularity**
- July 2023 [The Workshop on Advanced Science and Technology](#) (Van Lang University)
Talk: **Error bounds: an overview**
- April 2023 [The 21st Workshop on Optimization and Scientific Computing](#) (Ba Vi, Ha Noi, Vietnam)
Talk: **Characterization properties of collections of set-valued mappings**
- April 2023 [Optimization Webinar](#)
Talk: **Error bounds - an overview**
- Feb. 2023 [Workshop on Computational Methods in Nonlinear Optimization and Applications](#)
(Dong Thap University, Vietnam)
Talk: **Sufficient conditions for nonlinear error bounds**
- Feb. 2021 [Variational Analysis and Optimisation Webinar](#) (MOCAO, Australia)
Talk: **Necessary conditions for transversality properties of collections of sets**
- Dec. 2020 [The 64th AustMS Meeting](#) (Online)
- Dec. 2020 [The 5th WoMBaT](#) (Online)
- Dec. 2019 [The 4th WoMBaT](#) (Swinburne University of Technology, Australia)
Talk: **Semitransversality of collections of set-valued mappings**

- Dec. 2019 [The 63rd AustMS Meeting](#) (Monash University, Australia)
Talk: [Characterizations of Robinson regularity properties of implicit multifunctions](#)
- May 2019 [SEIT Seminar](#), (Federation University, Australia)
Talk: [First-order and second-order sufficient conditions for nonlinear error bounds](#)
- Jan. 2019 [Confirmation of Candidature](#) (Federation University, Australia)
Talk: [Transversality, regularity and error bounds in variational analysis and optimisation](#)
- Dec. 2018 [The 62nd AustMS Meeting](#) (The University of Adelaide, Australia)
Talk: [Nonlinear parametric error bounds](#)
- Dec. 2018 [The 3rd WoMBaT](#) (Deakin University, Australia)
Talk: [Nonlinear transversality properties of collections of sets](#)
- Oct. 2018 [CIAO Seminar](#) (Federation University, Australia)
Talk: [Nonlinear parametric error bounds](#)
- Aug. 2018 [The 9th Vietnam Mathematical Congress](#) (Telecommunications University, Vietnam)
Talk: [Nonlinear transversality properties of collections of sets](#)
- May 2018 [Workshop on Fixed Points and Applications](#) (RMIT University, Australia)
- April 2018 [CIAO Seminar](#) (Federation University, Australia)
Talk: [Some extended versions of the extremal principle and applications](#)
- April 2018 [CIAO Showcase and Workshop](#) (Federation University, Australia)
Talk: [Some extended versions of the extremal principle and applications](#)
- Feb. 2018 [Variational Analysis Down Under](#) (Federation University, Australia)

Teaching

- Oct. 2012 - Now** Lecturer, [Can Tho University](#)
- [TN001. Single Variable Calculus](#) (general course)
 - [TN002. Multivariable Calculus](#) (general course)
 - [TN006. Advanced Math A](#) (general course)
 - [TN059. Advanced Math B](#) (general course)
 - [TN009-TN009E. Advanced Math C](#) (general course)
 - [TN099. Differential and integral calculus](#) (general course)
 - [TN188. Analysis I](#) (undergraduate course in Applied Mathematics)
 - [TN155. Analysis I](#) (undergraduate course in Statistical Mathematics)
 - [TN082. Multivariable Calculus](#) (undergraduate course in Applied Mathematics)
 - [TN545. Tensor Analysis](#) (undergraduate course in Applied Mathematics)
 - [TNT619. Complex Analysis](#) (graduate course in Mathematical Analysis)
- Semester 1 - 2020** Teaching Assistant, [Federation University Australia](#)
- [MATH1001. Modelling and Change](#)
 - [MATH2003. Profit, Loss and Gambling](#)

Referee Service

- [ESAIM: Control, Optimisation and Calculus of Variations](#)
- [Mathematics of Operations Research](#)
- [Optimization](#)
- [Journal of Optimization Theory and Applications](#)
- [Computational Optimization and Applications](#)
- [Set-Valued and Variational Analysis](#)
- [Mathematical Reviews](#)
- [Kybernetika](#)
- [Can Tho University Journal of Science](#)

Membership in Professional Societies

- [Vietnam Mathematical Society](#)
- [Australian Mathematical Society](#)

Languages

- Vietnamese - Mother tongue
- English - Fluent written and spoken ([IELTS 7.0](#))

References

[Dr. Alexander Kruger](#)

Professor

[Federation University Australia](#)

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[Dr. David Yost](#)

Professor

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