

Curriculum Vitae

A man with short black hair, wearing a dark blue long-sleeved shirt with a geometric pattern and a white Nike swoosh on the chest, stands in front of a poster. The poster is titled "Nonsmooth Variational Problems and Operator Equations" and features a large number "8" in a box. The text on the poster discusses fundamental problems in many technological fields, research efforts in nature and economy, and the development of tailored numerical algorithms. It also mentions "Gas Transport Problems" and "Optimal Control Problems". The poster includes several small icons of people and a list of authors: "J. J. More, S. M. Robinson, and J. F. Bonnafant".

"It is true that a mathematician who is not somewhat of a poet, will never be a perfect mathematician." - Karl Weierstrass

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- **Mathematical Optimization** ▷ Optimal Control, Shape Optimization, Topology Optimization.
- **Fluid Mechanics** ▷ Fluid Dynamics, Computational Fluid Dynamics (CFDs).
- **Turbulence** ▷ Turbulence modeling.

Experience

Vocational

- Jan 2025–now **Lecturer**, *University of Management & Technology (UMT)*, Ho Chi Minh City.
Department of Information Technology: Mathematics for Data Science & Artificial Intelligence.
- Jan 2022–Dec 2024 **Self-employed**, Ben Tre city, Vietnam.
Educator & Writer.
- Apr 2021–Dec 2021 **Software Development Engineer (SDE)**, *Math+ Tec GmbH*, Vienna, Austria.
Secondments for technical & scientific training at the industrial partner within ROMSOC project.
- Mar–Jun 2019 **Master Internship**, *IRMAR*, Rennes, Bretagne, France.

Miscellaneous

- 2015–2017 **Olympiad Trainer**, *Ben Tre High School for Gifted Students (CBT)*, Vietnam.
Trainer of the selected team of CBT for Vietnamese Mathematical Olympiads (VMOs).

Publications

- [Pub1] Nguyen Anh Dao, Jesús Ildefonso Díaz, Quan Ba Hong Nguyen. “*Pointwise Gradient Estimates in Multi-dimensional Slow Diffusion Equations with a Singular Quenching Term*”. *Adv. Nonlinear Stud.* (2020).
DOI <https://doi.org/10.1515/ans-2020-2076>. [pdf]

Preprints

- [Prp1] Nguyen Quan Ba Hong. “*Continuous Adjoint Approaches for Shape Optimization for Stationary Incompressible Stokes, Oseen, and Navier–Stokes Equations with Constant Density and Constant Viscosity: A Survey, General Formal Derivations, and Partial Rigorous Analysis*”. [arXiv]

Books & Other Writings

- [Bk1] Nguyễn Quân Bá Hồng, Nguyễn Quân Trung Nhân. *Some Thoughts on Learning, Teaching, & Research: A Short Novel – Vài Suy Nghĩ Về Việc Học, Việc Dạy, & Nghề Nghiên Cứu: 1 Tiểu Thuyết Ngắn*.

Courses

- Oct 12–23, 2020 Thematic Einstein Semester (TES): **Energy-based mathematical methods for reactive multiphase flows**.
▷ TES Student Compact Course: **Variational Methods for Fluids & Solids**.
- Apr–Jun 2020 Dr. **Stephan Schmidt**. *Computational Geometry & Shape Optimization*. Master course, Humboldt Universität zu Berlin, 2020.

Seminars

- Mar 2020–now **Berliner Oberseminar Nichtlineare partielle Differentialgleichungen (Langenbach-Seminar)**, Research Group 1: *Partial Differential Equations*, WIAS Berlin, Germany.
- Mar 2020–now **Material Modeling Seminar**, WIAS Berlin, Germany.
- Mar 2020–now **Numerical Mathematics Seminars**, Research Group 3: *Numerical Mathematics & Scientific Computing*, WIAS Berlin, Germany.
- Mar 2020–now **Modern Methods in Applied Stochastics & Nonparametric Statistics**, Research Group 6: *Stochastic Algorithms & Nonparametric Statistics*, WIAS Berlin, Germany.
- Mar 2020–now **Joint Research Seminar on Mathematical Optimization**, Research Group 8: *Non-smooth Variational Problems & Operator Equations*, WIAS Berlin, Germany.
- Mar 2021–now **Optimization, Control & Inverse Problems**, Research Group 8: *Non-smooth Variational Problems & Operator Equations*, WIAS Berlin, Germany.
- Mar 2020–now **Berlin Mathematics Research Center MATH⁺ Events**.
- Nov 2020–Apr 2021 ROMSOC Scientific ESRs Seminar.

Schools

- Jul 26–30, 2021 **Summer Schools on Applied Mathematics and Mechanics 2021 (SAMM 2021)**: *Shape & Topology Optimization*. **GAMM Juniors**, Graz University of Technology (Technische Universität Graz), Graz, Austria.

- Jul 1–2, 2021 [Durham Days of Analysis & PDE Summer School](#). Durham University, United Kingdom.
- Sep 7–10, 2020 [Model Order Reduction Summer School 2020 \(MORSS2020\)](#). École polytechnique fédérale de Lausanne (EPFL), Lausanne, Switzerland.
- Jul 20–24, 2020 [162nd European Study Group with Industry](#). University of Leeds, United Kingdom.

Workshops

- Apr 29, 2021 [FUHRI2021: Finite volume methods for Real-world applications](#), WIAS Berlin, Germany.
- Sep 28–29, 2020 ROMSOC Internal Workshop.
- Sep 15, 2020 ROMSOC Ethical Monitoring - 3rd Workshop on Ethics.

Conferences

- Mar 24–25, 2021 Annual Meeting of the Second Phase of the DFG Priority Programme 1962 ([SPP1962](#)): *Non-smooth & Complementarity-based Distributed Parameter Systems: Simulation & Hierarchical Optimization*. Deutsche Forschungsgemeinschaft (DFG) + WIAS, Germany.
- Sep 14–17, 2020 [Deutsche Mathematiker-Vereinigung](#) (German Mathematical Society) Annual Meeting 2020 ([DMV2020](#)), Technische Universität Chemnitz, Chemnitz, Germany.

Talks

- Apr 12, 2021 Hồng Quân Bá Nguyễn (WIAS Berlin). “*Optimal Shape Design of Air Ducts in Combustion Engines: Design a General Shape Optimization Framework*”. ROMSOC ESR Seminar. [[abstract](#)]
- Sep 7, 2020 Hong Nguyen (WIAS Berlin). “*A shape optimization problem for stationary Navier-Stokes flows in three-dimensional tubes*”. [Model Order Reduction Summer School 2020 \(MORSS2020\)](#), École polytechnique fédérale de Lausanne (EPFL), Lausanne, Switzerland. [[abstract](#)][[slide](#)]
- Jun 26, 2019 Hong Nguyen. “*Staggered & well-balanced discretization of shallow water equations*”. PhD interview, Department of Mathematics, RWTH Aachen University, Aachen, Germany. [[slide](#)]

Miscellaneous

- Feb 22, 2021 WIAS-Day2021 ▷ [Hong Quan Ba Nguyen \(Research Group 8\)'s Research Profile](#).
- Nov 30, 2020 [ROMSOC Blog](#) ▷ Hong Nguyen. *Optimal shape design of air ducts* [[pdf](#)].
- Jun 18, 2020 [Prof. Luis Miguel Rodrigues's recognition of Master equivalence & admission to doctoral studies of NGUYEN Quan Ba Hong](#). IRMAR, Rennes, France.
- May 27, 2019 [Prof. Luis Miguel Rodrigues's recommendation letter for NGUYEN Quan Ba Hong](#). IRMAR, Rennes, France.

Visits

- Apr 2021–now [MATH+TEC GmbH](#), Vienna, Austria.
- Apr 2021–now [Vienna University of Technology/Technische Universität Wien](#), Vienna, Austria.
- Apr 23, 2021 [University of Vienna/Universität Wien](#), Vienna, Austria.
- Mar 2020–now [Humboldt-Universität zu Berlin](#), Berlin, Germany.
- Jun 25–27, 2019 [Department of Mathematics, Rheinisch-Westfälische Technische Hochschule \(RWTH\) Aachen University](#), Aachen, Germany.
- Sep 2018–Jun 2019 [UFR Mathématiques, Université de Rennes 1](#), Rennes, Bretagne, France.
- Sep 2018–Dec 2018 [Université Rennes 2 - UFR Sciences sociales](#), Rennes, Bretagne, France.
- Mar 2017 [Vietnam Institute for Advanced Studies in Mathematics \(VIASM\)](#), Hanoi, Vietnam.

Awards & Scholarships

- Mar 2020–Aug 2021 [Marie Skłodowska-Curie Actions \(MSCA\) PhD Fellowship, Horizon 2020 - Innovative Training Network - European Industrial Doctorate Programs](#), Grant Agreement number: 765374 - [Reduced Order Modelling, Simulation & Optimization of Coupled Systems](#) (ROMSOC) [H2020-MSCA-ITN-2017-EID/ROMSOC/ESR11].
- 2018–2019 [Lebesgue Master Scholarship](#) for Master 2 program within ENS Rennes program.
- 2017 Scholarship of [Vietnam Institute for Advanced Studies in Mathematics \(VIASM\)](#).
- 2016 Special Prize ⇐ First Prize in Algebra + First Prize in Analysis, in [Vietnamese Mathematical Olympiad for College Students](#) (VMC 2016).
- 2015 Second Prize in Algebra, Second Prize in Analysis, in [Vietnamese Mathematical Olympiad for College Students](#) (VMC 2015).

- 2014 First Prize #1 in Ben Tre city Mathematical Olympiad for High School Students.
2013 Second Prize in Ben Tre city Mathematical Olympiad for High School Students.
2012 Gold Medal ranked #2, in *Vietnamese Apr 30th Mathematical Olympiad for Central & Southern Vietnam*.

Computer Skills

GitHub [GitHub/NQBH](#) > [GitHub/ROMSOC project](#).
Basic R, Fortran, Fireshape, Firedrake, FEniCS, Python 3, STAR-CCM+.
Intermediate git, C/C++, OpenFOAM.
Advanced UNIX/Linux [openSUSE, (K)Ubuntu], T_EX/L^AT_EX, MATLAB.

Languages

Vietnamese Mother tongue
English Intermediate

Referees

[5]	Prof. Michael Hintermüller	<i>Primary PhD Supervisor</i>
[4]	Prof. Nicolas Seguin	<i>Master Supervisor</i>
[3]	Dr. Nguyen Anh Dao	<i>Bachelor Supervisor</i>
[2]	Dr. Tan Trung Nguyen	<i>Bachelor Teacher</i>
[1]	Dr. Manh Khang Dao	<i>Bachelor Teacher</i>

Hobbies

- Psychology
- Literature
- Arts (emotions carriers): movies, animes, mangas, (instrumental) musics, etc.
- Philosophy
- Blogging



Updated to Oct 1, 2024.