NATHANAEL TEPAKBONG

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EDUCATION

Doctor of Philosophy - Department of Data Science Sep 2022 - Aug 2026 (Expected)
City University of Hong Kong, Hong Kong SAR
- Advisors: Prof. Xiang Zhou (CityU) & Prof. Ding-Xuan Zhou (University of Sydney)
- Research Topic: Statistical Learning Theory with Applications to Scientific Computing

Master's Degree - Mathematical Research and Innovation 2020 - 2021
Université Paul Sabatier, Toulouse (France)
- Graduate level Probability Theory and Mathematical Statistics
- Relevant Coursework: Stochastic Calculus, Asymptotic Statistics, Statistical Learning

Master of Science - Aerospace Engineering ("Diplôme d'Ingénieur") 2017 - 2021
ISAE-Supaéro, Toulouse (France)
- Leading "Grande École" in Aerospace. Specialization in Applied Mathematics and Data Science
- Relevant Coursework: Advanced Statistics, Multi-Disciplinary Optimization, Algorithms in Machine Learning

Preparatory Classes - Mathematics, Physics and Computer Science 2015 - 2017
Lycée Buffon, Paris (France)

RESEARCH WORKS

A Priori Error Bounds for Boundary-Adapted PINN Solutions of Elliptic PDEs: Application to Mean Escape Time Problems (2026)
N. Tepakbong, J. Fan, X. Zhou, D-X. Zhou

· In Preparation (Preliminary draft available upon request)

Taming the Loss Landscape of PINNs with Noisy Feynman–Kac Supervision: Operator Preconditioning and Non-Asymptotic Error Bounds (2026)
N. Tepakbong, H. Hu, C. Liu, X. Zhou

· Accepted for publication at ICML 2026: openreview.net/forum?id=yd4tq9Rf3L

Super-fast rates of convergence for Neural Networks Classifiers under the Hard Margin Condition (2026)
N. Tepakbong, X. Zhou, D-X. Zhou

· Accepted for publication at TMLR: openreview.net/forum?id=HXun3l0Feu

Algorithms to speed up the generation of stationary Gaussian Random Fields with the Circulant Embedding method (2022)
G. Pichot, S. Legrand, M. Kern, N. Tepakbong

· The SMAI Journal of computational mathematics, Volume 8 (2022), pp. 327-347: doi.org/10.5802/smai-jcm.89

Some Theory of Functional Data Classification with Shallow FeedForward Neural Networks (2021)
N. Tepakbong

· Master's Thesis (available upon request)

RESEARCH CONFERENCES

PhD Forum in Applied Mathematics Sep 2025
Fudan University, Shanghai, China

· Contributed Talk: Super Fast Rates of Convergence for Neural Network Classifiers Under the Hard Margin Condition.

The 14th AIMS Conference Dec 2024
New York University Abu Dhabi, Abu Dhabi, UAE

· Contributed Talk: Solving for the Mean Escape Time with Physics-Informed Neural Networks: Theory and Applications.

International Conference on Applied Mathematics May 2024
City University of Hong Kong, Hong Kong SAR

· Contributed Talk: Fast Asymptotic Rates of Convergence for Neural Networks under the Hard Margin Condition.

10th International Congress on Industrial and Applied Mathematics (ICIAM 2023) Aug 2023
Waseda University, Tokyo, Japan

· Poster Presentation: Exponential Convergence rates for binary classification with Deep Neural Networks.

EXPERIENCE

City University of Hong Kong (School of Data Science), Hong Kong 2021 - 2022
Research Assistant

· Advisor : Prof. Ding-Xuan Zhou

INRIA (Team SERENA), Paris Mar 2020 - Jul 2020
Research Intern

· Advisor : Géraldine Pichot

Robert Bosch Research and Technology Center, Singapore Mar 2019 - Sep 2019
R&D Intern

· Advisor : Stanley Eey

TECHNICAL SKILLS & LANGUAGES

Python (PyTorch, scikit-learn, pandas, matplotlib)
MATLAB, R, Java, C, C++, SQL, LaTeX
Parallel Computing: CUDA, MPI, OpenMP
Git, Bash & Shell Scripting, Docker

French - Native
English - Fluent
Mandarin - Conversational (≈ HSK5)
Cantonese - Conversational

TEACHING

SDSC2002 - Convex Optimization Semester B 25/26
SDSC5003 - Storing and Retrieving Data Semester A 25/26
SDSC2002 - Convex Optimization Semester B 24/25
SDSC3006 - Foundations of Machine Learning Semester A 23/24
SDSC2002 - Convex Optimization Semester B 23/24

ACADEMIC AWARDS

Hong Kong PhD Fellowship Scheme 2022