Norbert Djahou TOGNON

Curriculum Vitae

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▬ Personal information

Full Name	Djahou Norbert Tognon
Gender	Male
Day of Birth	July 06, 1995
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▬ Education

2022-2025 **PhD in Parallel-in-time methods and optimal control problems** , *Institut national de recherche en informatique et en automatique (INRIA-Paris) & Sorbonne University* , Paris, France

Supervisor Julien Salomon, INRIA-Paris & Sorbonne University, Paris, France.

2018-2020 **Master degree in numerical analysis**, *Institut de mathématiques et de sciences physiques (IMSP), University of Abomey-Calavi*, Benin

▬ Research area and skills

Research area Parallel-in-time, Domain decomposition, Optimal control, Machine learning.

Mathematics Skills Numerical analysis of partial differential equations, numerical analysis of optimal control problems, parallel-in-time methods, domain decomposition methods, Computing programming

Computing skills C++, Matlab, Python, Jax, Pytorch.

▬ Research Publications

In conference proceedings

2024 **J. Aghili, J. Atokple, M. Billaud-Friess, G. Garnier, O. Mula, N. Tognon**, A dynamical neural Galerkin scheme for filtering problems, (preprint)

2024 **F. Kwok, J. Salomon, N. Tognon**, A Parallel in time algorithm based ParaExp for Optimal control problem, (preprint)

Publications

2024 **N. Tognon**, Linear ParaOpt for unstable systems, (preprint)

2024 **F. Kwok, J. Salomon, N. Tognon**, Convergence of the ParaOpt Algorithm for general Runge-Kutta time discretizations, (preprint)

▬ Conferences and research schools attended

International conferences

June 2022 **45eme Congrès National d'Analyse Numérique**, *Evian-les-Bains, France*

Talk : ParaOpt algorithm for Unstable System.

July 2022 **27th International Conference on Domain Decomposition Methods**, *Prague,Czech Republic*

Talk: ParaOpt algorithm for Unstable System.

April 2023 **21st Copper Mountain Conference On Multigrid Methods**, *Copper Mountain, Corolado, USA*

Future Talk: ParaOpt algorithm and Runge-Kutta methods.

Research schools

Nov 2021 **Summer School on Advanced Domain Decomposition Methods**, *Politecnico di Milano*, Milan, Italy

May 2022 **Research School on High Dimensional Approximation and Deep Learning (HiDADeeL2022)**, *Centre Henry Lebesgue, University of Nantes* , Nantes, France

Sep 2022 **Research School on Domain decomposition methods for optimal control problems**, *University of Aix-Marseille* , Marseille, France

17-21 July 2023 **Research School on Scientific Machine Learning**, *University of Aix-Marseille & Centre International de Rencontres Mathématiques (CIRM)* , Marseille, France

Large audience conferences

Dec 2022 **Rencontres des jeunes chercheurs africains en France Cinquième Édition**, *Institut Henry Poincaré*, Paris, France

Talk : Parallel-in-time methods and Paraopt for unstable system

Aug 2023 **CEMRACS**, *Centre International de Rencontres Mathématiques (CIRM)*

Talk: A scalar inverse problem with Neural Galerkin Scheme (NGS)

Nov 2023 **Centre Interdisciplinaire en Modélisation Mathématiques de L'université Laval (CIMMUL)**, *Université Laval*, Québec City, Canada

Talk: Two time Parallel algorithms for solving optimality systems

Jan 2024 **Research stay at Hamburg University of Technology**, *Hamburg, Germany*

Talk: A scalar inverse problem with Neural Galerkin Scheme (NGS)

Grants

Jan 2023 **Mitacs-Globalinks grant**, *Ref : IT34057*, Sep-Dec 2023

Title: Time Parallel Algorithms for Optimal Control with PDE constraints.

Teaching Experience

2023-24 (S2) **Sorbonne Université**, *Licence 2*, Julien Guillod, TP, Programmation python pour les mathématique

2023-24 (S2) **Polytech Sorbonne**, *Licence 3*, Nathalie Ayi, TD, Probabilités -Statistiques

Research Experience

Nov 21- Mar 2022 **Research Engineer on "Analysis of ParaOpt a Parareal algorithm for optimality systems for unstable systems"**, *Institut national de recherche en informatique et en automatique (INRIA-Paris)*, Paris, France

Advisor Julien Salomon, INRIA-Paris & Sorbonne University, Paris, France.

24 July- 25 Aug 2023 **CEMRACS Hackathon on "A dynamical neural Galerkin scheme for filtering problems"**, *Centre International de Rencontres Mathématiques (CIRM)*, Marseille, France

Advisor Olga Mula, Eindhoven University of Technology, Eindhoven, Netherlands.

Sep- 24 Dec 2023 **Mitacs Globalink and INRIA-Paris project on "Time Parallel Algorithms for Optimal Control with PDE constraints"**, *Département de mathématiques et de statistique de l'Université Laval*, Québec City, Canada

Advisors Félix Kwok (Université Laval) and Julien Salomon (INRIA-Paris).

Language

Goun Native.

French Level C2.

English Level B2.