Djahou N. Tognon

Curriculum Vitae

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Personal informations

Full Name	Djahou Norbert Tognon
Gender	Male
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Education

Apr 2022-Mar 2025	**PhD in Parallel-in-time algorithms, optimal control problems and deep learning**, *Sorbonne University* , Paris, France
2018-2020	**Master degree in Numerical Analysis**, *Institut de Mathématiques et de Sciences physiques (IMSP), University of Abomey-Calavi*, Benin
2014-2016	**Bachelor degree in Applied Mathematics**, *Faculté des Sciences et Techniques, University of Abomey-Calavi*, Benin

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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.

Publications

Conference proceedings

2024	**J. Aghili, J. Atokple, M. Billaud-Friess, G. Garnier, O. Mula, D. N. Tognon**, A dynamical neural Galerkin scheme for filtering problems, (preprint)
2024	**F. Kwok, D. N. Tognon**, A Parallel in Time Algorithm Based ParaExp for Optimal Control Problems, IEEE 63 th Conference on Decision and Control, Dec, 2024, Milan, Italy

Journal papers

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

Talks

National and International conferences talks

Dec 2024	**63th IEEE Conference on Decision and Control**, *Milan, Italy*
	Talk: A Parallel in Time Algorithm Based on Paraexp for Optimal Control Problems.
April 2023	**21st Copper Mountain Conference On Multigrid Methods**, *Copper Mountain, Corolado, USA*
	Talk: ParaOpt algorithm and Runge-Kutta methods.
July 2022	**27th International Conference on Domain Decomposition Methods**, *Prague,Czech Republic*

Talk: Analysis of ParaOpt algorithm

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

Talk : ParaOpt algorithm for Unstable System.

Poster

May 2024   **46eme Congrès National d'Analyse Numérique**, *Le Bois-Plage-en-Ré*, Ile de Ré, France

Poster: A Parallel in Time Algorithm Based on Paraexp for Optimal Control Problems.

Seminar talks

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

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

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

Talk:Data assimilation methods with Neural Galerkin schemes (NGS)

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

Grants

Jan 2023   **Mitacs-Globalinks grant**, *Ref : IT34057*, Sep-Dec 2023
Title: Time Parallel Algorithms for Optimal Control with PDE constraints.

Apr 2022   **A.N.R. DEEP NUM**, *Deep Learning et Modelisation Numérique.*

Teaching Experiences

2023-24   **Programmation Python pour les Mathématique**, *Bachelor*, Lecturer: Julien Guillod, Faculté Sorbonne University

2023-24   **Probabilités -Statistiques**, *Engineer*, Lecturer: Nathalie Ayi, Polytech Sorbonne

Research Experiences

Sep 23 - Dec 23   **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).

Jul 23- Aug 23   **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.

Nov 21- Mar 22   **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.

Jan 21- July 21   **Intership on "Data Assimilation and Time Parallelization"**, *Institut de mathématiques et de sciences physiques (IMSP), University of Abomey-Calavi*, Dangbo, Bénin

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

Language

French   Level C2.

English   Level B2.