Date Generated: January 15, 2022

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Kwassi Joseph DZAHINI, PhD

Training

2022 – **Postdoctoral Researcher**, *Argonne National Laboratory, Lemont, IL (USA)*.
- **Supervisor** : Dr. Stefan M. WILD

2017–2020 **PhD in Applied Mathematics (Optimization)**, *Polytechnique Montréal (Canada)*.
- **Dissertation title** : Direct-search methods for stochastic blackbox optimization
- **Supervisors** : Prof. Sébastien Le DIGABEL (Polytechnique Montréal) & Prof. Michael KOKKOLARAS (McGill University)
- **PhD date (graduation)** : January 25, 2021

2015–2016 **MSc in Applied Mathematics**, *Université Lille 1 (France)*.
- **Thesis** : Non-Asymptotic Theory for Random Matrices
- **Supervisor** : Prof. Mylène MAIDA (Université Lille 1)

2014–2015 **First year of Graduate Studies in Applied Mathematics**, *Université Lille 1 (France)*.

2010–2013 **BSc in Mathematics**, *Université de Lomé (Togo)*.

Research Papers

1. ***K. J. DZAHINI*, S. Le DIGABEL and M. KOKKOLARAS**, *Constrained stochastic blackbox optimization using a progressive barrier and probabilistic estimates*, (in revision) https://arxiv.org/abs/2011.04225, 2020.
2. **K. J. DZAHINI**, *Expected complexity analysis of stochastic direct-search*, Computational Optimization and Applications, https://doi.org/10.1007/s10589-021-00329-9, 2020.
3. **C. AUDET, *K. J. DZAHINI*, M. KOKKOLARAS and S. Le DIGABEL**, *Stochastic mesh adaptive direct search for blackbox optimization using probabilistic estimates*, Computational Optimization and Applications, 79(1):1–34, https://doi.org/10.1007/s10589-020-00249-0, 2021.
4. **K. J. DZAHINI**, *Densities of sums and small ball probability*, Les Cahiers du GERAD Technical report, G-2017-68, https://www.gerad.ca/fr/papers/G-2017-68/view, 2017.

Other Research/Work Experience

Sep-Dec 2021 **Lecturer for Probability and Statistics courses (current position)**, *Polytechnique Montréal*.

2017 – 2021 **Lecturer for Probability and Statistics courses**, *Polytechnique Montréal*.

2021 **Review of articles for:** *Computational Optimization and Applications, Journal of Global Optimization.*

Apr 2021– **Continuous optimization book.**
- **Author** : Charles AUDET (Polytechnique Montréal)
- **Proofreading and correction of even numbered exercises** : Kwassi Joseph DZAHINI

Feb–Apr 2017 **Derivative-free Optimization course project**, *Polytechnique Montréal*.

Apr 2016 **Research project on Random Matrices**, *Université Lille 1*.
- **Topic** : Non-crossing Brownian paths and random matrices theory
- **Advisor** : Prof. Mylène MAIDA

Oct 2015 **Computer tools for Probability & Statistics**, *Université Lille 1*.
- **Topic** : Monte Carlo method for calculus
- **Advisor** : Prof. David DEREUDRE

Jan–May 2015 **Research internship**, *Université Lille 1*.
- **Topic** : Profiles decomposition in Sobolev spaces
- **Advisor** : Prof. Sahbi KERAANI

Talks

Aug 2021 **Seminar**, *Argonne National Laboratory*.
- **Title** : Direct-search methods for stochastic blackbox optimization

Jun 2021 **Online CORS Annual Conference, 2021**, *Waterloo (Canada)*.
- **Title** : Constrained stochastic blackbox optimization with MADS and the progressive barrier

May 2019 **CORS Annual Conference, 2019**, *Saskatoon (Canada)*.
- **Title** : Mesh-based constrained stochastic blackbox optimization using probabilistic estimates

May 2019 **Optimization days, 2019**, *HEC Montréal*.
- **Title** : Mesh-based constrained stochastic blackbox optimization using probabilistic estimates

Apr 2019 **Un chercheur du GERAD vous parle!**, *Polytechnique Montréal*.
- **Title** : Mesh-based constrained stochastic blackbox optimization using probabilistic estimates

May 2017 **GERAD Research Group Seminar**, *Polytechnique Montréal*.
- **Title** : Wigner's theorem (1954) and non-asymptotic theory for random matrices

Feb 2017 **Lunch-time Seminar**, *Université Laval (Canada)*.
- **Title** : Some non-asymptotic results on the extreme singular values of random matrices with sub-Gaussian entries

May 2016 **Lunch-time Seminar**, *Université Toulouse III – Paul Sabatier (France)*.
- **Title** : $\varepsilon - net$ argument and invertibility of random matrices

Awards and Scholarships

May 2020 **Bourse de doctorat en recherches, 21,000$ per annum**, *Scholarship for Doctoral studies awarded by Fonds de Recherche du Québec - Nature et Technologies, FRQNT (Canada)*.

May 2019 **Competition for Conference fees, 1,750$**, *GERAD (Canada)*.

Oct 2017 **Bourse de recherche co-supervisée aux études supérieures, 10,000$**, *Scholarship awarded by the GERAD Research Group (Canada)*.

2015-2016 **Bourse Scientifique Lille 1, 7,500€ per annum**, *Scholarship awarded by LabEx CEMPI for MSc degree, Université Lille 1 (France)*.

2014-2015 **Bourse Scientifique Lille 1, 7,500€ per annum**, *Scholarship awarded by LabEx CEMPI for first year of graduate studies, Université Lille 1 (France)*.

Sep 2009 **Government 1st prize of excellence**, *Prize awarded for being ranked 1st Nationwide at the 2nd year of high school general exam (Togo)*.

Social engagements

2018 – **Child sponsorship via Plan International Canada** *(From November 2018 to present)*.

Jul 2017 **Assistance with conference organization** *(Canada)*.
- 15th EUROPT Workshop on Advances in Continuous Optimization, HEC Montréal

Technical Strengths and Skills

Mathematics.

- Optimization: Stochastic, Nonlinear, Robust, Blackbox/Derivative-free, Dynamic Programming
- Others: Machine/Deep Learning (Ongoing), Probability, Stochastic Calculus/Processes, Statistics, Numerical Analysis, Partial Differential Equations, Functional Analysis, Algebra, Signal Processing

Computer skills.

- Operating system : Windows, Linux
- Scientific computing software and programming languages : Matlab, Scilab, R, Python

Languages.

- French (native), English (fluent)