ABOUT ME
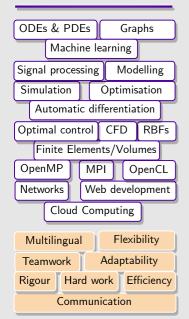
I am curious and creative. I like overcoming professional challenges by bringing in innovative ideas.

SKILLS

ODEs & PDEs · Graphs · Machine learning · Signal processing · Modelling · Simulation · Optimisation · Automatic differentiation · Optimal control · CFD · RBFs · Finite Elements/Volumes · OpenMP · MPI · OpenCL · Networks · Web development · Cloud Computing

Multilingual · Flexibility · Teamwork · Adaptability · Rigour · Hard work · Efficiency · Communication

TOOLS

Office 365 · C/C++ · Python · Julia · Jax · TensorFlow · PyTorch · Git · AWS · Linux · LaTeX · Docker

LANGUAGES

English ●●●●●
French ●●●●●
Japanese ●●●○○
Spanish ●●○○○

ROUSSEL DESMOND NZOYEM

PhD student leveraging machine learning and HPC for scientific computing.

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EDUCATION

PhD in Interactive Artificial Intelligence | University of Bristol | Bristol, UK
September 2021 — Present
- Combining physics- and data-driven techniques for efficient mesh-free control of PDEs;
- Parallelising neural ordinary differential equations in the time dimension.

MSc in Scientific Computing (CSMI) | University of Strasbourg | Strasbourg, FR
September 2019 — September 2021
- Modelisation, simulation, and optimisation of physical systems;
- Theoretical and practical aspects of data analysis and deep learning;
- Signal processing and high performance computing.

Bachelor's degree (BSc) in mathematics | Aix-Marseille University | Marseille, FR
November 2017 — July 2019
- Semesters 5 and 6 finalising my BSc with a particular accent on pure mathematical principles.

Advanced technician's degree | Oshima College of Technology | Oshima, JP
April 2017 — June 2019
- Intensive training focusing on mechanical, electrical, and computer science engineering;
- Assembly languages for the CASL and CASL II machines.

Associate degree in computer science | University of the People | Pasadena, USA
January 2017 — April 2019
- Theoretical and applied computer science followed by web and software development projects.
- Assembly language and low-level computer architecture

Associate degree in maths. and phys. sci. | Polytechnique (NASEY) | Yaoundé, CMR
September 2014 — April 2017
- First two years (MSP) consisting of mathematics and physics common core subjects;
- Ranked sixth at the entrance examination amongst more than 4000 candidates;

GCE A-level (Baccalaureate) | Gov. Bilingual High Shcool | Bamenda, CMR
September 2014 — April 2017
- Focused on mathematics, physics, computer science and chemistry;
- Finished top in Cameroon's North-West region with grade A.

RESEARCH EXPERIENCE

Interactive AI CDT Summer Project | UoB HPC Research Group | Bristol, UK
May 2022 — August 2022
- Improved algebraic multigrid linear solvers with Graph Neural Networks (GNNs);
- Tested several GNN library inclusing the PyTorch-based DGL and the JAX-based Jraph.

MSc Internship | Jacques-Louis Lions Laboratory (Sorbonne University) | Paris, FR
February 2021 — July 2021
- Studied the collapse of the Arctic ice cap via a percussive granular model of the MIZ. Ice floes were modelled with mass-spring-damper systems, and fracture with the Francfort-Marigo model.

MSc Internship | Research Institute Mathématiques Avancées (IRMA) | Strasbourg, FR
June 2020 — August 2020
- Inverse problem using ML (VNet) for the supervised reconstruction of a domain's density. The radiative transfer equation (RTE) was solved with a Finite Volume splitting scheme to generate ground thruth data.

MSc Final Year Project | INRIA - MIMESIS | Strasbourg, FR
October 2020 — January 2021
- Reviewed PhiFEM and immersed boundary methods for real-time soft-tissue simulation;
- Applied the PhiFEM method to the Poisson and the linear elasticity equations.

WORK EXPERIENCE

Teaching Assistant | University of Bristol | Bristol, UK
January 2022 — Present

Supporting several units: Introduction to Artificial Intelligence, Scientific Computing, Engineering Mathematics, and more.

Volunteer Private Instructor | ExamStar | Bristol, UK
September 2022 — Present

Affordable mathematics lessons for primary and secondary school pupils via Zoom and MS Teams.

Volunteer Language Tutor | University of Bristol (Global Lounge) | Bristol, UK
September 2022 — December 2022

Bi-weekly position as a French language tutor at the Global Lounge's Language Café.

Private Instructor | Complétude | Strasbourg, FR
January 2020 — January 2021

Weekly monitoring of high school students in mathematics and computer science with group tutoring during holidays.

Webmaster | Musica International | Strasbourg, FR
September 2019 — November 2019

Website management along with maintenance of a database containing millions of musical scores.

AWARDS AND SCHOLARSHIPS

CDT Studentship | UK Research and Innovation | Bristol, UK
June 2021

Fully-funded scholarship to pursue a PhD within the Interactive AI CDT at the University of Bristol.

MEXT (Monbukagakusho) | Japanese Government | Tokyo, JP
November 2016

For this prestigious international scholarship, I was the only one chosen amongst hundreds of candidates.

Fondation Hoffmann | University of the People (UoPeople) | Pasadena, USA
April 2017 & April 2018

Scholarship granted (and renewed) to fully support assessment fees.

Excellence Award | The President of the Republic of Cameroon | Yaoundé, CMR
July 2015 & July 2016

Prize awarded for two consecutive years for my outstading accomplishments at Polytechnique Yaoundé.

Excellence Award | PKFokam Institute of Technology | Yaoundé, CMR
July 2014

For my fourth place at the PKFokam Excellence national mathematical olympiad.

Excellence Award | Les Brasseries du Cameroun | Bamenda, CMR
October 2014

Grant awarded to the best student at the GCE A-level in every region of Cameroon.

REFERENCES

Dr. Tom Deakin (HPC Research Group, University of Bristol)
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Pr. David Barton (University of Bristol)
David.Barton@bristol.ac.uk — +44 11 74 56 00 18

Pr. Christophe Prudh'homme (IRMA, Unistra)
prudhomm@math.unistra.fr — +33 3 68 85 00 89

HOBBIES

Video games and coding: Fan and designer;
Cinema and music: Composition, documentary movies;
Football: Regular practice at the amateur level;
Traveling: Loves visiting the farthest corners of Earth.