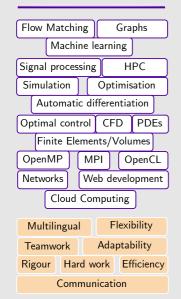## ABOUT

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

ROUSSEL DESMOND NZOYEM

PhD student leveraging high-performance computing for machine learning and scientific computing.

rd.nzoyemngueguin@bristol.ac.uk
+44 7878430616
https://ddrous.github.io
roussel-desmond-nzoyem
github.com/ddrous
28 yo

SKILLS

Flow Matching · Graphs · Machine learning · Signal processing · HPC · Simulation · Optimisation · Automatic differentiation · Optimal control · CFD · PDEs · Finite Elements/Volumes · OpenMP · MPI · OpenCL · Networks · Web development · Cloud Computing

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

TOOLS

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

LANGUAGES

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

EDUCATION

PhD in Interactive Artificial Intelligence | University of Bristol | Bristol, UK
September 2021 — September 2025

- Combining physics- and data-driven techniques for highly performant simulation and control of PDEs;
- Enhancing neural ordinary differential equations and generative modelling with meta-learning.

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

MSc Internship | SLB (Schlumberger) | Abingdon, UK
June 2024 — September 2024

- Scaling Graph Neural Networks (GNNs) as proxy models for carbon capture and storage;
- Focus on computational efficiency with JAX, super-resolution and transfer-learning on large GNNs.

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 including 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 truth data.

WORK EXPERIENCE

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

Supporting several units: High-Performance Computing, 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)
tom.deakin@bristol.ac.uk — +44 11 74 55 11 88

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.