Hervé Nicolas Nbonsou

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I am a PhD candidate in Biomedical Engineering, designing machine learning models for medical image and shape analysis at University of Cape Town. Coming from theoretical and engineering physics background, I possess strong analytical and computational skills. Experience in nonlinear analysis of ODE and PDE of electromechanical and bioengineering systems. Currently, extending my research to data-driven analysis.

EXPERIENCE

- **University of Cape Town (UCT)**
  Research scientist (PhD Candidate)
  Design data-driven pipelines for cross-modality medical image synthesis, proceed to data curation, develop machine learning models for medical data (images and shapes) analysis.
  March 2018 - Present
- **University of Cape Town (UCT)**
  Tutor
  Assist students with their tutorial in Physics
  March 2021 - Present
- **Gulf Field Institute of Petroleum**
  Lecturer
  Teaching first to second year university students in physics and mathematics, in Limbe, Cameroon.
  Jan 2018 to March 2018

EDUCATION

- **University of Cape Town (UCT)**
  PhD Candidate in Biomedical Engineering
  March 2018 - Present
- **Structural Master's Degree in Mathematical Sciences (M.Sc.)**
  African Institute for Mathematical sciences
  Aug. 2014 - Jun. 2015
- **Master in Engineering physics**
  University of Yaounde I
  Develop a computational model to mimic protein locomotion on actin filament.
  Oct. 2011 - Dec. 2012

AWARDS & RECOGNITION

- **PhD Fellowship**
  African Biomedical Engineering Mobility (ABEM)
  The Fellowship is offered to African graduates to undertake M.Sc. or Ph.D. research in Biomedical engineering in African Universities.
  2018
- **African Institute for Mathematical Sciences (AIMS)**
  The Fellowship is offered to African graduates to undertake one year training for a M.Sc. in mathematical science.
  2014

Research interests

- **Medical Image and shape Analysis**
  Image Synthesis and Segmentation, Bone and soft tissue cancer research, Domain translation
- **Statistical Inference**
  Statistical morphable model, machine learning
- **Nonlinear physics, applied physics**
  Translational research, Computational biology, Dynamical systems, Protein motion

SKILLS

- **Programming Languages**
  Python, FORTRAN, Scala, MATLAB, Maple, LaTeX
- **Machine learning & Data science**
  Tensorflow, PyTorch, Pandas, scikit-learn, Pandas, Matplotlib, SQL
- **Operating systems**
  Windows, Linux
- **Languages**
  English: Good; **French**: Native
- **Personal skills**
  Good adaptability and teamwork,
  Availability and intellectual curiosity
  Sense of responsibility and concern for a job well done
  Good interpersonal skills

OTHER HIGHLIGHTS

- Presented a paper: "Cross-Modality Image Adaptation Based on Volumetric Intensity Gaussian Process Models (VIGPM)", at **The 44^{th} International Conference of the IEEE Engineering in Medicine Biology Society *(EMBC)***, Scottish Event Campus, Glasgow, UK,11^{th} - 15^{th}, Jul. 2022,
- Presented a paper: "A Gaussian Process Model Based Generative Framework for Data Augmentation of Multi-modal 3D Image Volumes", at the **International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)**, 4^{th} - 8^{th} Oct. 2020.
- Presented a paper: "Diagnostic quality pseudo-Computed tomography synthetic from magnetic resonance images: Application to orthopedic pathologies", at **The South African Institution of Mechanical Engineering *(SAIMechE)*** at SARETEC, Cape Peninsula University of Technology, 9^{th} Nov. 2018