

STEPHEN NKYA NABOTH

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EDUCATION

RICE UNIVERSITY

Ph.D. Candidate in Computational Applied Mathematics and Operations Research

Research Focus: Mixed-Integer Nonlinear Optimization, Mathematical Optimization, and Machine Learning

Houston, TX

Expected May 2028

WORLDQUANT UNIVERSITY

M.S. in Financial Engineering

Washington, D.C.

May 2025

UNIVERSITY OF L'AQUILA

M.S. in Mathematical Modelling

L'Aquila, Italy

September 2022

UNIVERSITY OF NAIROBI

B.S. in Mathematics (Applied Mathematics)

Nairobi, Kenya

September 2018

SKILLS

Programming & Tools: Python, Julia, C++, SQL, MATLAB, R; Git, Linux, Docker, Jupyter, LaTeX

Optimization: Gurobi, SCIP, CPLEX; mixed-integer, nonlinear, and convex optimization; decomposition and cutting planes

Machine Learning & Data: PyTorch, scikit-learn, pandas, NumPy; forecasting, statistical modeling, and data visualization

RESEARCH EXPERIENCE

RICE UNIVERSITY

Ph.D. Researcher

Houston, TX

August 2023 - Present

- Develop algorithms for mixed-integer nonlinear, stochastic, and fairness-constrained optimization problems.
- Design bound-tightening, convex-relaxation, cutting-plane, and decomposition methods to strengthen difficult mathematical programs.
- Implement and benchmark methods in Python and Julia with Gurobi and SCIP, evaluating runtime, optimality gaps, solution quality, and branch-and-bound performance.
- Apply optimization and machine learning to energy systems, symbolic regression, multi-fidelity modeling, and scientific decision-making.

PUBLICATIONS & MANUSCRIPTS

Naboth, S. *A New Approach for Automatic Defect Detection via Thermal Image Processing and Deep Learning Tools*. Master's thesis, University of L'Aquila, 2022. Available on ResearchGate.

Naboth, S., and I. V. Hicks. *Weighted, Dynamic, and Endogenous Fairness in Mathematical Optimization*. Manuscript in preparation.

PROFESSIONAL EXPERIENCE

RICE UNIVERSITY - Summer Engineering Innovation Program (SEIP)

AI Engineer - Systems Innovations Team

Houston, TX

May 2026 - Present

- Develop an AI-assisted scholarship platform that helps users identify opportunities, assess eligibility, and manage structured application workflows.
- Build and integrate specialized LLM agents for document analysis, requirements extraction, profile matching, and personalized application coaching.
- Implement retrieval-augmented generation workflows that ground recommendations in scholarship and program documentation.
- Collaborate with a multidisciplinary team to translate user requirements into backend workflows and interactive product features.

MEDIPOST PHARMACY

Data Analyst

Nairobi, Kenya

Nov 2018 - Oct 2019

- Analyzed operational, sales, and inventory data to support business decision-making.
- Developed reports and dashboards to track inventory levels, sales trends, and key performance indicators.
- Applied forecasting techniques to improve inventory planning and identify stock-shortage risks.

LEADERSHIP & SERVICE

RICE UNIVERSITY GRADUATE STUDENT ASSOCIATION (GSA)

CMOR Department Representative

Houston, TX

Aug 2025 - May 2026

- Represented CMOR graduate students in the Graduate Student Association and communicated student priorities to university leadership.
- Supported initiatives in graduate engagement, professional development, and academic experience.