

# ISAAC THANI MOSES

✉ itmoses@andrew.cmu.edu

✉ thanimosesisaac3@gmail.com

☎ +250 798-287-781

🌐 isaacthani

🗨 Zikt

## Education

---

### Carnegie Mellon University, Rwanda & USA

August 2023 – May 2024

*Master of Science in Electrical and Computer Engineering*

- **Relevant Coursework:** Humanoid Robotics, Artificial Cognitive Systems, Machine Learning, Data Structures and Algorithms, Big Data Science, Applied Stochastic Processes, Augmented & Virtual Reality.

### Kazan State Power Engineering University, Kazan, Russia

September 2015 – July 2019

*Bachelors of Science in Electronics and Nanoelectronics*

- **Thesis:** Development of a Real-time Data Collection System using Raspberry Pi and Arduino.

### Voronezh State University of Engineering Technologies, Voronezh, Russia

December 2014 – July 2015

*Russian Language & University Preparatory Program*

- Completed an intensive, 6-month-long program in Russian language, literature, culture and scientific and technical communication in preparation for university studies.

## Research Experience

---

### Research Associate

June 2024 – Present

*CyLab-Africa/Upanzi Network*

*Kigali, Rwanda*

- Developed adaptive AI models and investigated hardware redesigns in parallel to mitigate bias in physiological sensors (EEG, pulse oximeters) for diverse populations.
- Engineered Human-Robot Interaction (HRI) frameworks for public infrastructure projects to ensure equitable and effective deployment of AI solutions.

### Undergraduate Research Student

September 2017 – June 2019

*Microprocessor Lab, Kazan State Power Engineering University*

*Kazan, Russia*

- Investigated the application of ultrasonic sensors for autonomous navigation in robotic systems.
- Designed and prototyped a microprocessor-based radar device, presenting findings at two international conferences.

### Electronics Engineering Intern

September 2017 – September 2018

*TEKO Security Systems*

*Kazan, Russia*

- Worked in the Electronics division on IoT connection module, Learnt Circuit Design Working with VMs and Custom ESP8266 for IoT

## Publications

---

Moses, I.T. (2018). "Device for Object Detection on a RISC-Controller." *Proceedings of the 11th All-Russian Scientific and Technical Conference on Information Technology in Electrical Engineering and Electric Power*, Cheboksary, Russia.

Moses, I.T., Akinola, A.O.S., & Akhmetvaleeva, L.V. (2017). "Development of a Microprocessor Simplified Radar Device." *Proceedings of XXIV International Scientific and Technical Conference "Radio Electronics, Electrical Engineering and Energy,"* Moscow Energy Institute, Russia.

## Talks and Presentations

---

### Ethically Responsible Human-Robot Interaction (with D. Tuyizere, G. M. Bwirayesu, and A. Avoka)

*University of Oulu, Finland*

April 2024

- Presented research on integrating ethical frameworks into robotic systems to enhance safe and empathetic interactions.

### Motivational Factors in Learning Environments and Increasing Engagement

*III Kazan International Linguistic Summit, Kazan Federal University, Russia*

October 2022

- Explored strategies for enhancing engagement in educational environments through motivational factors for all stakeholders.

### Towards a More Sustainable Future: Energy Transition in the UK

*4th Russian Forum for Young Specialists "Energy2030," Kazan Federal University, Russia*

April 2019

- Analyzed energy transition strategies in the UK and their implications for sustainability.

## Selected Research Projects

---

### Theory of Mind for Robots using Behavior Trees | *Course Project* 2024

- Engineered a robotic cognitive architecture integrating Theory of Mind (ToM) constructs with behavior trees to enable dynamic adaptation based on inferred human mental states.
- Designed the system to enhance a robot's capacity for intuitive and adaptive interaction in social HRI scenarios.

### Ethically Responsible Human-Robot Interaction | *Eva Robot, Humanoid Robotics Grand Challenge* 2023

- Integrated formal ethical frameworks into a robotic control system to guide decision-making, ensuring safe and empathetic human-robot interactions.
- Trained models on curated ethical datasets and validated the system in a Unity simulation with a humanoid robot, winning the course's grand challenge.

### Ray Tracing using MinilibX | *C/C++, Linux, MinilibX MiniRT* 2020 - 2021

- Developed a ray tracing engine from scratch in C/C++ to generate photorealistic images of scenes composed of simple geometric objects and complex lighting systems.

### Delat 3D Printer | *CAD, Circuit Design, Project Management Youtube Video* 2018

- We designed a safe and affordable 3D printer for use by hobbyist and learners

### Multi-Powered Lawn Mower | *Electronics, Metal Fabrication, Solar Panels* 2011 - 2012

- Designed an Ecological, Solar-Powered Lawn Mower and Hedge Cutter as a High School group project. this won a Silver Medal at the Eskom Expo in South Africa

## Academic Programs & Training

---

### TReND-CaMinA: Comp. Neuroscience & Machine Learning

*CMU-Africa, Kigali, Rwanda*

July 2024

- Participated in an intensive summer school on advanced topics in computational neuroscience and machine learning applications in Africa.

### PhD Course: Foundation of Human-Robot Physical Interaction

*University of Siena, Italy*

March 2024

- Completed a 20-hour doctoral-level course on the physical and kinesthetic engagement between humans and robots, covering interaction models, control systems, haptic interfaces, and VR/AR applications.

### Computer Vision Crash Course (CVCC)

*University of Genoa, Italy (Remote)*

July 2021

- Completed a 20-hour, PhD-level intensive course on foundational and advanced topics in computer vision.

### Computer Programming Intensive (42 Network Curriculum)

*School 21, Moscow, Russia*

2020 - 2021

- Developed a portfolio of C and C++ projects in a peer-to-peer, project-based learning environment. View projects on [GitHub](#).

### Energy Summer School

*Moscow School of Management SKOLKOVO, Russia*

Summer 2018

- Engaged with energy industry professionals and academics in a competitive summer program focused on the future of the global energy sector.

### Public Administration & Global Policy Summer Campus

*RANEPA, Moscow, Russia*

Summer 2016

- Selected to attend the Gaidar Forum as a prize, engaging in discussions with world leaders on global policy, economics, and immigration.

## Teaching Experience

---

- Teaching Assistant, Bridge Program** **September 2023 – March 2024**  
*Carnegie Mellon University Africa* *Kigali, Rwanda*
- Provided technical and academic mentorship to 40 undergraduate students from underrepresented backgrounds preparing for graduate school, resulting in a majority securing funded admissions.
- EFL/ESL Tutor** **2016 – 2018**  
*Master English/Tatarstan National Library* *Kazan, Russia*
- Taught English, prepared students for IELTS/TOEFL exams, and organized engaging weekly club activities.
- STEM Teacher** **Summer 2017**  
*The Gambia Academy* *The Gambia*
- Taught STEM to talented music students at the Sona Jobarteh-founded music school.
- Substitute Science/Math Teacher** **2013 – 2014**  
*Calvary Arrows College, Gboko* *Gboko, Nigeria*
- Graduated in the top 5% of my class and returned to teach grade 11 and 12 Further Maths and Science.

## Professional Experience

---

- Project Manager & Cambridge KS2 Teacher** **March 2022 – June 2023**  
*BC Academy Cambridge International School* *Kazan, Russia*
- Taught Cambridge KS2 curriculum and managed internal IT projects; recognized as an outstanding Employee of the Year.
- Senior Sales & Customer Success Specialist** **February 2021 – February 2022**  
*Remofirst.com* *Remote*
- Responsible for customer acquisition (90%), then moved to customer onboarding and success as well as employee training, Managed customer accounts across 30 countries.
- Project & Product Manager** **June 2017 – August 2022**  
*Freelance & In-House* *Remote*
- Responsible for product ideation at [UDT|X Venture builder](#).
  - Co-founded and managed product & business development for [Kwiberry.com](#), building the customer & merchant base 0-500 across 10 cities in Russia, Poland and Nigeria.
  - Co-founded [Delat Systems](#) to create affordable 3D printers for hobbyists ([Promotional Video](#)).

## Honors and Awards

---

- MasterCard Foundation Partial Scholarship**, Carnegie Mellon University/CMU-Africa **2023**
- BC Academy Outstanding Employee of the Year** **2022–2023**
- Rector's Award for Excellence in Academics, Research & Community Development**, 3-time Recipient **2016–2019**
- Best International Student**, Kazan State Power Engineering University **2018**
- Honorary Diploma of 1st Degree**, International Youth Conference on REEPE **2018**
- Nigeria-Russia Bilateral Education Agreement(BEA) Undergraduate Scholarship** **2014–2019**
- Silver Medal & Kevin Ward by US Embassy in South Africa** | *Eskom Expo for Young Scientists, Johannesburg* **2012**

## Skills

---

- Programming:** Python, C/C++, ROS, Lisp, SQL
- AI & Machine Learning:** PyTorch, TensorFlow, NumPy, Scikit-learn, Reinforcement Learning (OpenAI Gym)
- Robotics & Simulation:** ROS, Gazebo, Unity, MuJoCo, Control Theory
- Computer Vision:** OpenCV, PyTorch/TensorFlow Vision frameworks
- Hardware & Embedded Systems:** Raspberry Pi, Arduino, ESP8266, Circuit Design, CAD (Fusion 360)
- Data Analysis & Scientific Computing:** MATLAB, R, Git, Linux
- Spoken(Human) Languages:** English (Native), Hausa (Native), Russian (Full Professional Proficiency), French (Limited Working Proficiency)

## Leadership Experience

---

### Chairperson, Nigerians in Diaspora Organization (NIDO) Kazan

2020 – 2023

- Organized community events to foster cultural exchange and support the integration of Nigerians in Kazan, Russia.

### President, Union of International Students, KSPEU

2018 – 2019

- Represented international students at Kazan State Power Engineering University and city councils, developing programs to aid student adaptation.

### Recruiter and Section Assistant | *World Festival of Youth and Students, Sochi, Russia*

2017

- Conducted interviews and recruited volunteers for the 2017 festival which attracted over 25,000 participants from 190 countries.