

# Amath SOW

Python development, Data, Network , Cloud, ML, currently following the AMMI(African Master's in Machine Intelligence) program, mostly interesting about Reinforcement Learning, autonomous system and robotics. Actually I'm working on Deep COACH(Convergent Actor Critic By Human Feedback) which is an actor critic algorithm for high dimensional observations.

## ABOUT ME

Experienced with python development and support, especially with writing expert-level Python and full stack web development. Leverages OSS, high level languages, and frameworks to cut development time and improve code quality. Experienced with data engineering, ETL, solving machine learning problems, Object Detection and SLAM. Actually I'm focussing on Reinforcement Learning, representation learning and autonomous navigation.

## EXPERIENCE

### Intelligent Robot Learning Lab: Alberta: June 2020

- Building a framework for Human in the Loop algorithm(HLR): Tamer, COACH, Deep Tamer, Deep COACH, VR-COACH, DEEP VR-COACH
- Working on Deep version of variance reduced COACH for high dimensional observation and test it on bowling atari game.

### Next DREAM, Senegal, SN— CTO

September 2016 - December 2018

Startup working in 2 projects:

- Bayseddo (www.bayseddo.com): full stack python developer with Django, administration server, automation script with python, monitoring with Power BI,
- Karangue (www.karangue.com): full stack web development with Ruby on rails, script automation writing with php, Power BI for data monitoring, USSD mobile app development, SMS and Billing API, LINUX server admin.

### Huawei Technologies, Senegal, SN — RAN/ AS Engineer

January 2015- September 2016

Radio Access NEtwork (RAN) maintenance and monitoring for 3G and 4G. Maintenance of Application and Service (AS) for the network intelligent: CRM, CBS, API SMS, USSD, Network KPI

Manhattan, NY

Phone: (917) 517 47 05

Email: sowamath88@gmail.com

**LinkedIn:**

amath-sow-750a24113

**Github:**

<https://github.com/amathsow>

## SKILLS

**Programming Languages:**

Python, JavaScript, SQL, PHP,HTML/CSS

**Cloud Platforms:** GCP, AWS

**Tools:** Django, Pandas, Tensorflow,Pytorch, React.js,keras

**API:** Billing, SMS, USSD, AWS S3, AWS Glue

**Databases:** MSSQL, MySQL

**Systems:** Centos, Ubuntu, Windows Server, Debian

**Networking:** TCP/IP, DNS, IPTables, SSH/SFTP

**Other Skills:** Tech Support, ERP

monitoring.

## **ORANGE, Senegal, SN — IT security for 4G network**

Mars 2014 - June 2014

S1 and X2 interfaces securitization for Orange 4G network using IPSec. Tunneling usage with VPN, RSA asymmetric chiffrement with public key generation. Certification Authority (CA) Deployment on CENTOS Server

## **EDUCATION**

### **AMMI (African Master in Machine Intelligence)**

African Institute for Mathematical Sciences, Accra, Ghana

October 2019 - Present

- Recipient of the Google & Facebook scholarship,
- Courses: Foundations of Machine Learning, Deep learning, Reinforcement Learning, Natural Language Processing, Convolutional Neural Network, and more.

### **Master degree in telecommunication and network engineering**

Gaston Berger University, Senegal

October 2011 - August 2014

Network engineering degree: 2G 3G and 4G network deployment, system engineering.

### **Bachelor in Maths Physics and computer science**

Where?

October 2008 - August 2011

Linear algebra, probability, Optimization, numerization, theory of group and distribution. Electricity, Optic, electromagnetism. Algorithm, C, java and C++ programming

## **ONLINE COURSES**

Coursera and Udacity

- Google Cloud Platform Fundamentals: Core Infrastructure
- Robotics : Computational Motion Planning
- Practical Reinforcement Learning
- Convolutional Neural Network: Object Detection and Face Recognition
- Neural Network Deep Learning
- Intel Edge AI Scholarship: OpenVINO
- Machine Learning with Google Cloud Platform

## Projects realized:

- **Deep Variance Reduced COACH Enhancement** : For my master thesis I'm working on convergent actor critic algorithm with human feedback in partnership with The Intelligent Robot Learning in Alberta. I apply a variance reduced technique on policy gradient and consider human feedback as a reward and test vrcoach agent on bowling game .
- **Cassava Disease Classification**: The thematic objective was to classify a given image into 1 of 4 disease categories or a 5th category indicating a healthy leaf, using the images of cassava and Computer Vision approaches and semi-supervised learning.
- **Object tracking/Computer Vision**: This project was to build a simple object tracker using a Detectron2 pre-trained model by performing an instance segmentation task on a set of frames of a video in order to obtain the predictions. Then, we implemented an algorithm to link these predictions over time to perform an object tracking task.

## REFERENCES

Moustapha Cisse: Head of Google AI lab and founder of AMMI(African Master in MACHine Intelligence): [mcisssse@aimsammi.org](mailto:mcisssse@aimsammi.org)

Darren Sabo: Forging Strategic Partnerships between Silicon Valley and Africa at Orange: [darren.sabo@orange.com](mailto:darren.sabo@orange.com)

Sarah K Luger : Leading strategic AI/ML/NLP startups & technologies engagement, Spearheading AI Ethics & underserved languages research: [sarah.luger@orange.com](mailto:sarah.luger@orange.com)