Hamza **SAFRI**

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Toulouse France
Availability : Immediate

Teaching

Present
Oct 2023

Part-time instructor, National Institute of Applied Sciences, Toulouse-France
Supervise lab sessions and tutorials at INSA TOULOUSE

- Supervise hands-on sessions in DevOps, virtualization, and cloud using various tools, primarily OpenStack, Docker, and Kubernetes.
- Supervise network virtualization lab sessions
- Supervise Big Data labs using Hadoop.
- Supervise object-oriented design labs and projects using the UML language and object-oriented programming labs using the Java language.

Data | System | Programming | Networking | Virtualization | Containerization | Data Science.

Experience

Present
Feb 2022

PhD. student in computer science , Grenoble Alpes University/Carl-Berger-levrault, Toulouse-France
Federated learning For IoT applications

IoT | AI | Federated learning | Machine learning | Deep learning | Python | Data science

Apr 2023
Oct 2023

research visit, USC Information Sciences Institute, Los angeles - USA
Adapting the Pegasus WMS solution for machine learning workflows : Application to federated learning.

- Modeling Federated Learning as Directed Acyclic Graph (DAG) Workflows.
- Proposing an approach to facilitate the management of machine learning experiments within Pegasus-WMS workflows.
- proposal and implementation of data tracking approaches and management of experiments based on the mlops vision

Pegasus WMS | workflows | federated learning | tracking | versioning | IoT | and EDGE

Feb 2022
Dec 2020

R&D Engineer, Berger-levrault, Toulouse-France
Model generalization for IoT application

- Design and implementation of EDGE machine learning solutions
- Research on federated learning application for predictive maintenance

IoT | AI | Federated learning | Machine learning | Deep learning | Python | Data science

July 2020
Feb. 2020

R&D Intern, LAAS-CNRS, Toulouse-France
Design and implementation of a controller for the autonomous management of a software defined communication infrastructure

- Improvement of the proposed monitoring solution by enhancing features such as user-defined metrics and (re)-configuration of agent policies : basic metrics to be monitored, monitoring frequency and mode
- Mointoring integration in the autonomous MAPE-k loop for QoS management

ETSI | IoT | Python | REST | Microservices | Swagger | Flask | Flask Restplus | Netmiko | NFV | SDN | OpenAPI | JAVA | Docker | RKT | Kubernetes | OpenStack | MongoDB | QoS | Data visualization

Sept. 2019
March 2019

R&D Intern, LAAS-CNRS, Toulouse-France
Design and implementation of an on-demand monitoring solution for IoT QoS management
Design and implementation of an on-demand monitoring solution for IoT QoS management

- Design and implement monitoring component
- Design and implement software agents for virtualized network functions monitoring
- Design and implement an interactive Dashboard for :
  - Visualization of the metrics collected by the monitoring agents
  - Providing dynamic deployment of monitoring agents

ETSI | IoT | Python | REST | Microservices | Swagger | Flask | Flask Restplus | Netmiko | NFV | SDN | OpenAPI | JAVA | Docker | RKT | Kubernetes | OpenStack | MongoDB | QoS | Data visualization

Education

2020 **MSc-Embedded Networks and Connected Objects** INSA/ENSEEIHT **Toulouse -France**

IoT | Networking | SDN | Middleware | Cloud | SOA | Programmation | Big data | NFV | AI

2019 **MEng - Network and Telecommunications**, School of Applied Sciences (ENSA) **Safi-Morocco**

Networking | Routing | Switching | Administration | Telecom | Programmation | Security

Publications

July 2022 | Towards Developing a Global Federated Learning Plateform for IoT ,
42nd IEEE International Conference on Distributed Computing Systems, ICDCS22

May 2022 | A Federated Learning Framework for IoT : Application to Industry 4.0 ,
22nd IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing, CCGRID22

Submitted | Federated clustering for IoT client selection : Application to Industry 4.0, ,

Skills

Data science	**Machine learning :** Scikit-Learn, Pycaret **Deep learning :** Tensorflow **Data analysis :** Matplotlib, Numpy, Pandas **Big Data :** Hadoop, PySpark, Apache Flume
Frameworks	**Python :** Flask, Flask-restplus, OpenStack SDK, pip, **Java** : Spring Boot, OSGI, Maven
Database	**SQL :** MySQL **NoSQL :** DynamoDB, MongoDB
Internet Of Things(IoT))	Hardware design, Communications protocol(Zigbee, Bluetooth, Lora), Data transfer(HTTP, CoAP, MQTT), Cloud and data storage, Data visualization
Virtualisation & Cloud	**IaaS** : OpenStack. **Containerization** : Docker, Kubernetes
Networking & systems	**Routing & Switching :** Cisco, Huawei, **SDN :** Opendaylight, Floodlight, **NFV :** Openbaton **Linux** : Debian et Redhat, **Windows** : server 2012-16, **Scripting** : Bash, PowerShell, **Monitoring** : Zabbix, Nagios, Centreon

Projets

Forecast daily used bikes in the Montpellier Metropolis Jan. 2020 - Sept 2021

- Retrieving, preparing and analyzing data from bike counters bike counters .
- Training and evaluating a time series predictive model
- Design an API-Rest to expose the Model to clients
- Design and development of a web application to visualize the data collected from the different counters

IA | Machine learning | Time series | Data visualization | API | REST | Python | fbpophet

Shower water consumption management system Oct. 2019 - Feb. 2020

- Design and implementation of a connected electronic system for data collection
- Storage of collected data in a EDGE and remote database
- Visualization of the collected data

IoT | Cloud | MAPE-K | autonomie | Data visualization

Smart garden watering system Oct. 2018 - Feb. 2019

- Design and implementation of a connected electronic system for data collection
- Storage of collected data in a EDGE and remote database
- Stockage des données collectées dans une base de donnée distante
- Implementation of an autonomous watering system using the MAPE-K loop
- Visualization of the collected data

IoT | Cloud | MAPE-K | Data visualizations

Languages

English ●●●●○
French ●●●●●
Arabic ●●●●●

References

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