Bashir Mohammed

Postdoctoral Research Fellow

Scientific Data Management Group,
Deep Learning and AI High-performance Network Project (DAPHNE)

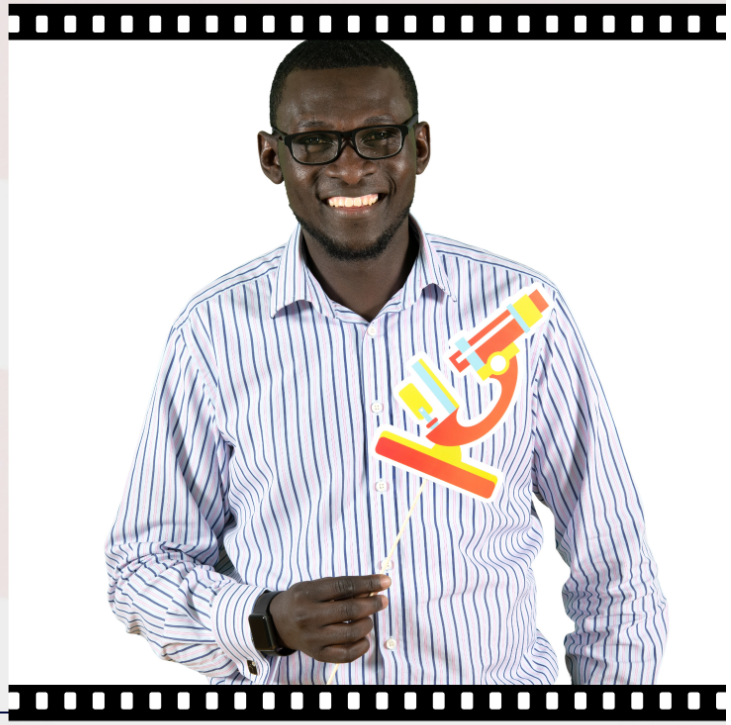
CRD

INTRODUCTION

MY RESEARCH AT THE LAB?

MY EXPERIENCE AT THE LAB

LIFE AS A RESEARCHER



CSSP Intern Talk Series, June 2021

SOCIAL MEDIA LINKS

ABOUT ME

1 **Personal profile:**
Experienced AI & ML engineer with 7 years of experience.
Current working as a postdoc on the DAPHNE project

2 **Achievements:**
Endorsed by the UK govt. as a world leading expectational Talent in Digital Technology - 2020
AI Coach on Codecademy - 2021
Berkeley lab Teaching Scholar - 2020
Winner (2nd) Berkeley Lab Research SLAM - 2019

3 **Education:**
PhD. Computing, University of Bradford, UK - 2019
MSc Control Systems, University of Sheffield, UK - 2012
Intern with Rolls-Royce Sheffield UK - 2011

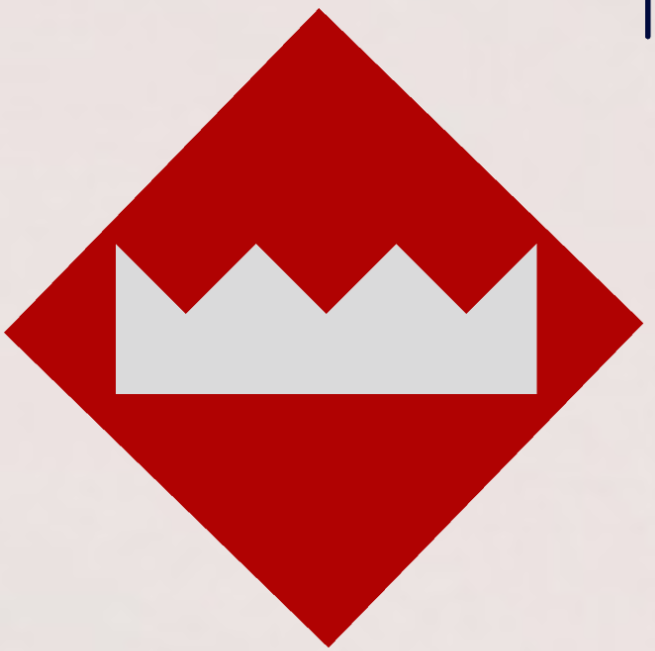
4 **Work experience:**
Worked in the Industry, Network operations research, Aerospace, Control systems, Fintech and Academia

Social Media Links:

https://www.linkedin.com/in/bashir-mohammed/

@BashirMohd100

https://bashirmohd.github.io



SOCIAL MEDIA LINKS

ABOUT ME

1 Personal profile:

Experienced AI & ML engineer with 7 years of experience.
Current working as a postdoc on the DAPHNE project

2 Achievements:

Endorsed by the UK govt. as a world leading expectational Talent in Digital Technology - 2020
AI Coach on Codecademy - 2021
Berkeley lab Teaching Scholar - 2020
Winner (2nd) Berkeley Lab Research SLAM - 2019

3 Education:

PhD. Computing, University of Bradford, UK - 2019
MSc Control Systems, University of Sheffield, UK - 2012
Intern with Rolls-Royce Sheffield UK - 2011

4 Work experience:

Worked in the Industry, Network operations research, Aerospace, Control systems, Fintech and Academia

Bashir Mohammed

Postdoctoral Research Fellow

Scientific Data Management Group,
Deep Learning and AI High-performance Network Project (DAPHNE)

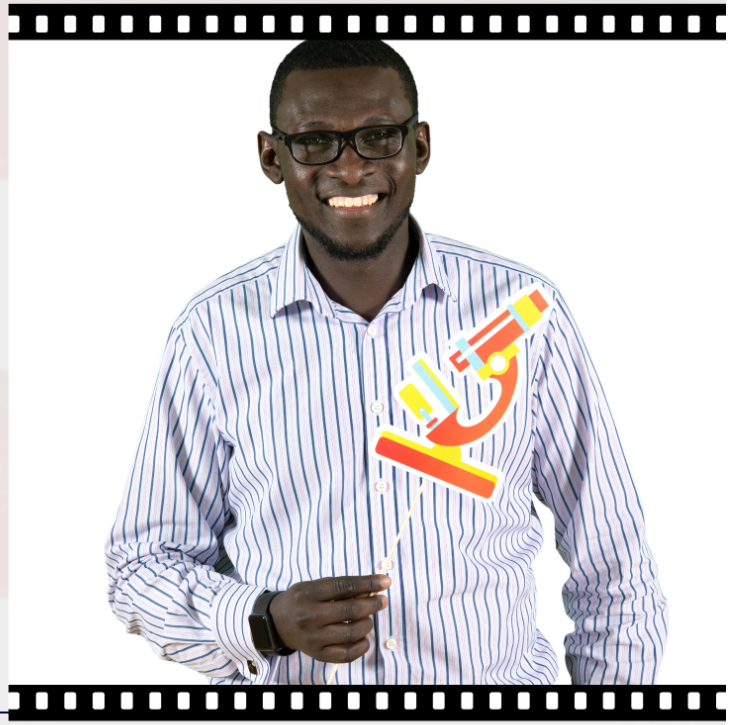
CRD

INTRODUCTION

MY RESEARCH AT THE LAB?

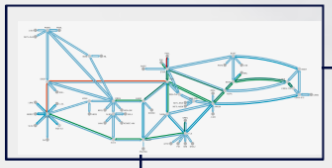
MY EXPERIENCE AT THE LAB

LIFE AS A RESEARCHER

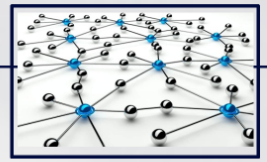


CSSP Intern Talk Series, June 2021

NETPREDICT



REINFORCEMENT LEARNING FOR NETWORK CONTROL



DEEP REINFORCEMENT LEARNING FOR LASER CONTROL

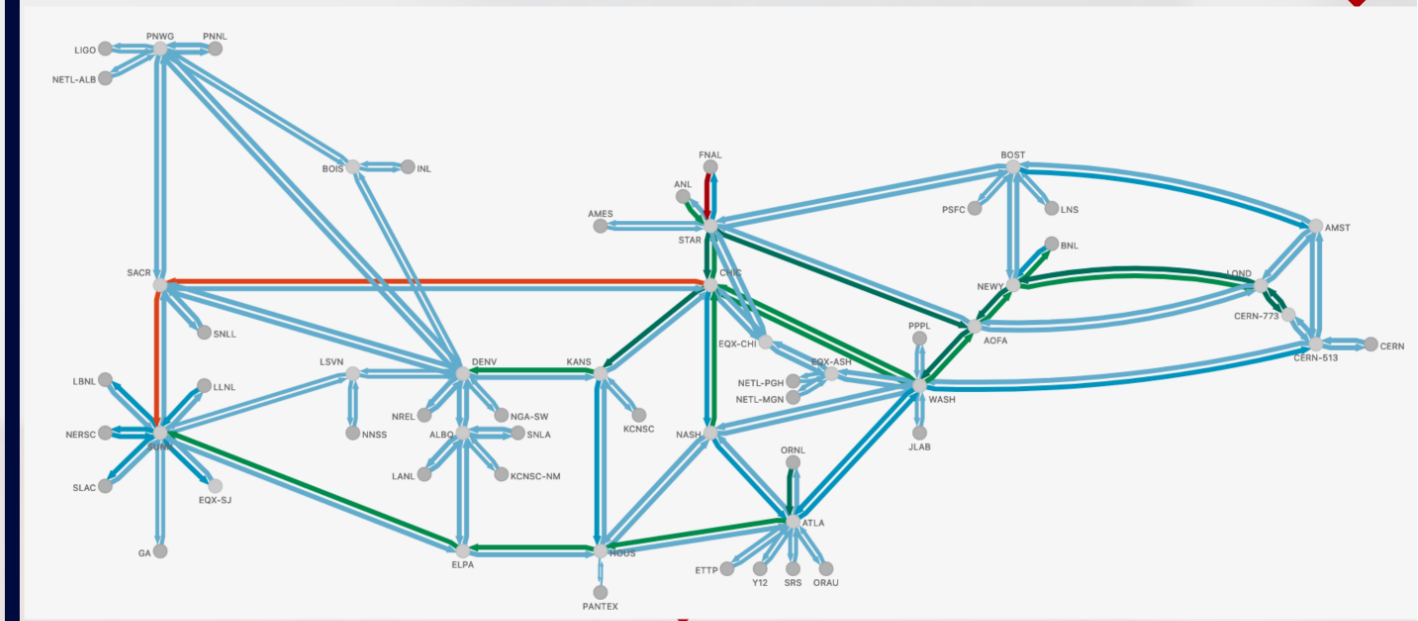
My current research focuses on developing AI and ML algorithms to control high-speed network for exascale science applications and to optimize how existing US DOE distributed network infrastructures are utilized.

Towards self-configuring, self-optimizing, self-healing and self-protecting Networks.

RESEARCH

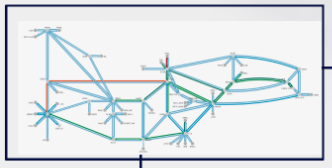
(NETPREDICT)
GOOGLE MAP FOR ESnet

- Designed to work with research and education networks to schedule big science data transfers up to seven days ahead to achieve optimum network performance.



Energy Science Network map

NETPREDICT



REINFORCEMENT LEARNING FOR NETWORK CONTROL

DEEP REINFORCEMENT LEARNING FOR LASER CONTROL

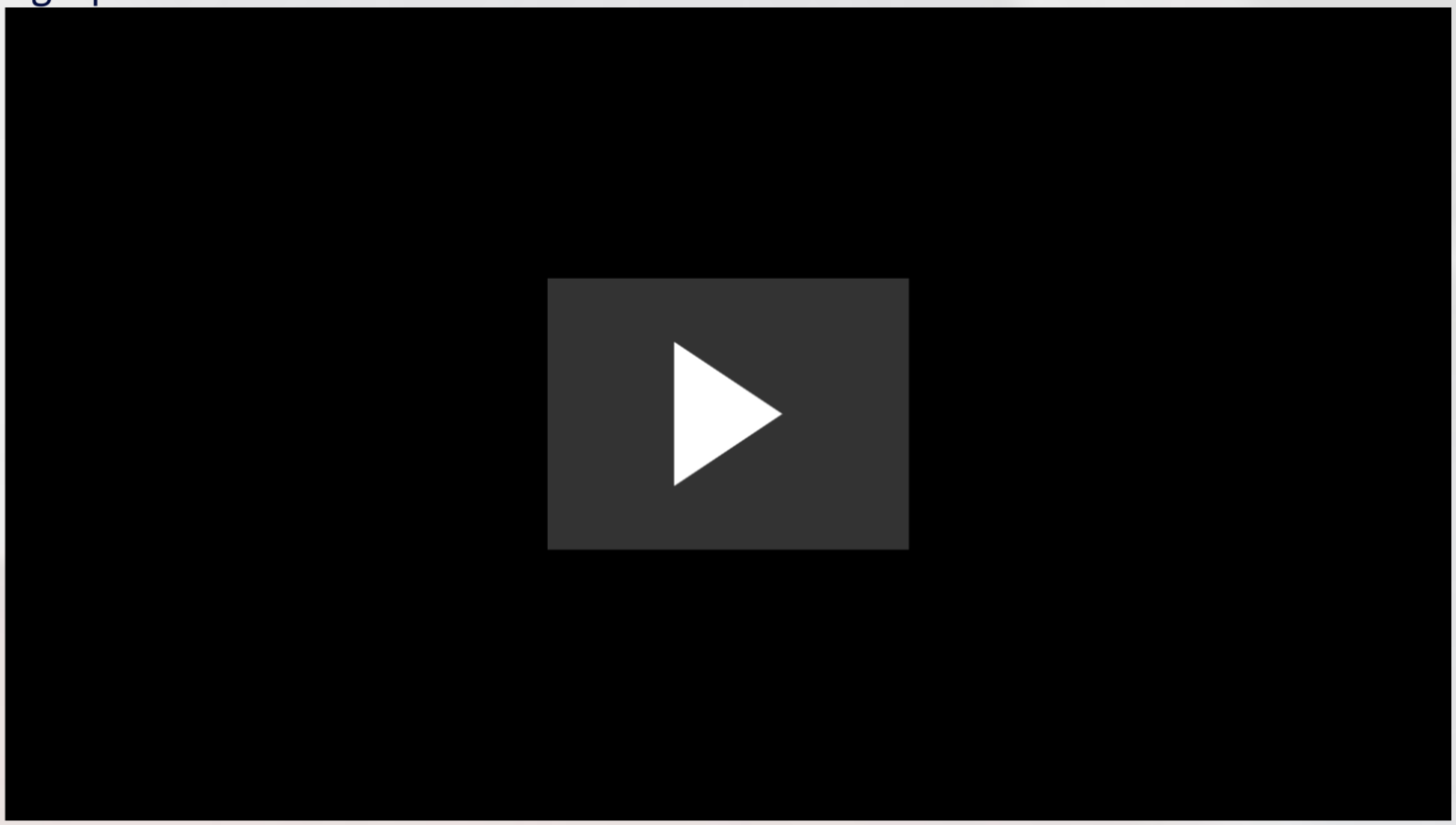
My current research focuses on developing AI and ML algorithms to control high-speed network for exascale science applications and to optimize how existing US DOE distributed network infrastructures are utilized.

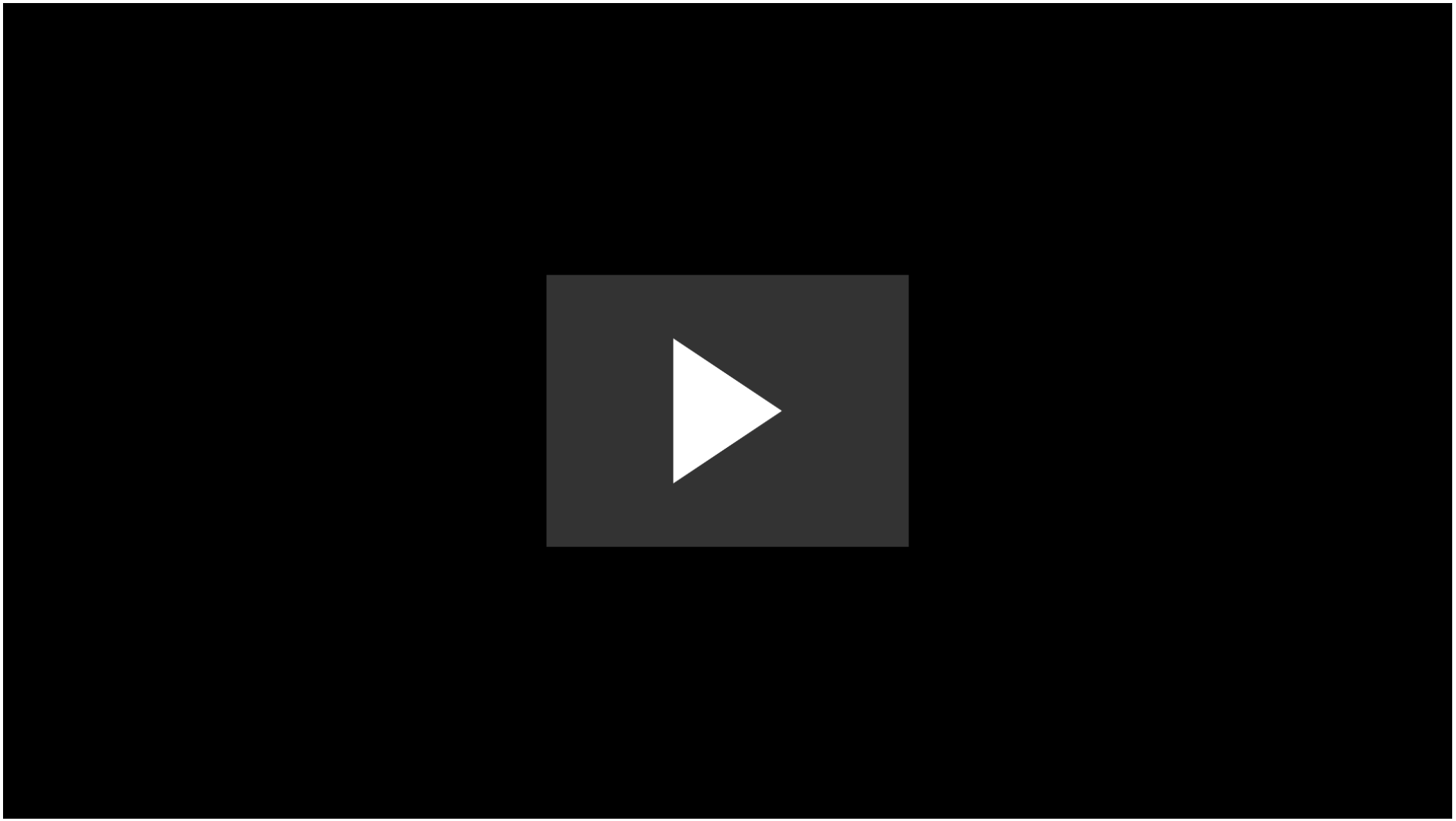
Towards self-configuring, self-optimizing, self-healing and self-protecting Networks.

RESEARCH

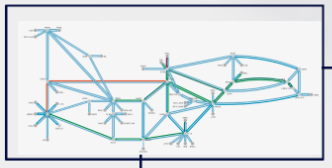
DRL FOR NETWORK CONTROL

- A Deep Reinforcement Learning approach for Dynamic Network Routing Optimization and SDN





NETPREDICT



REINFORCEMENT LEARNING FOR NETWORK CONTROL

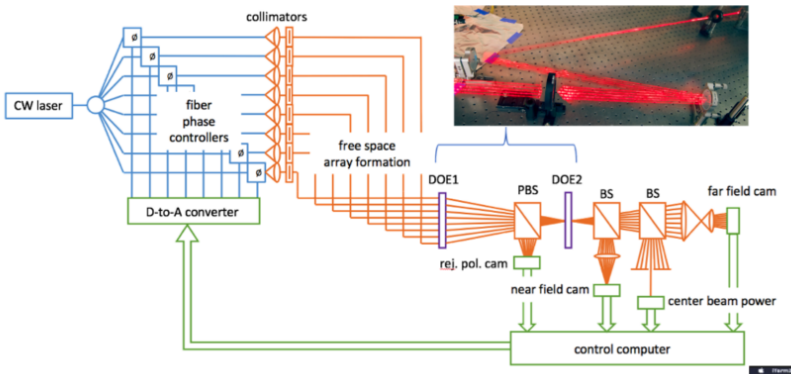
DEEP REINFORCEMENT LEARNING FOR LASER CONTROL

My current research focuses on developing AI and ML algorithms to control high-speed network for exascale science applications and to optimize how existing US DOE distributed network infrastructures are utilized.

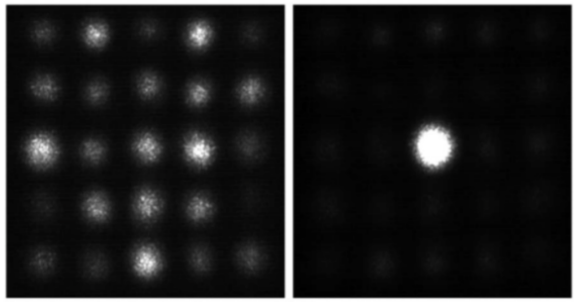
Towards self-configuring, self-optimizing, self-healing and self-protecting Networks.

RESEARCH

DRL FOR LASER CONTROL

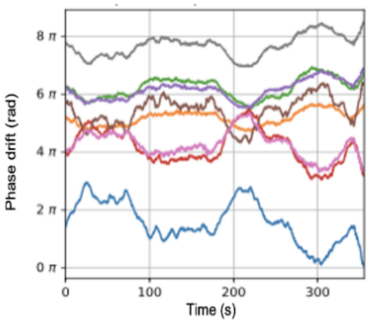


Real Setup

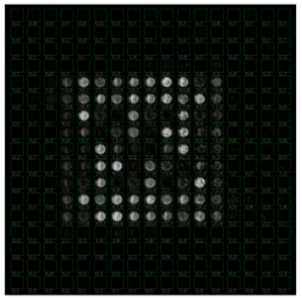


Free Running

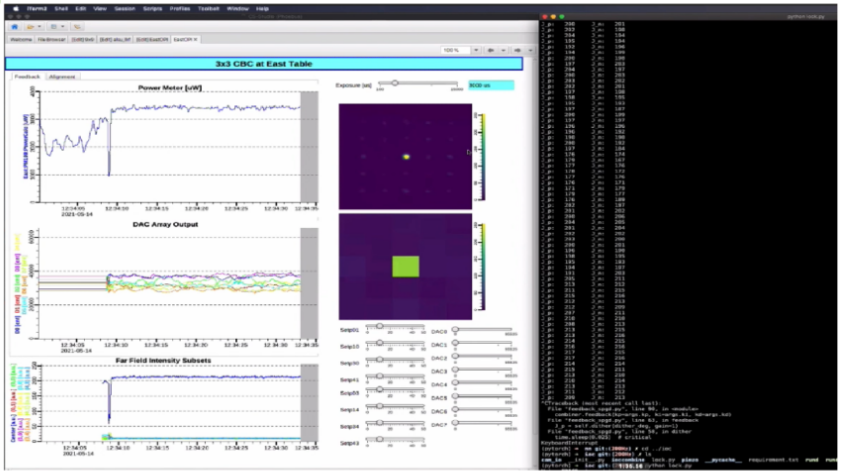
Phase Controlled



e.g.: measured phase drift

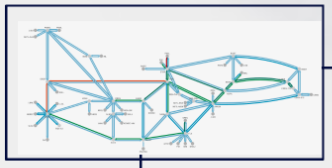


e.g. measured output
pattern intensity



Real-setup monitoring and control

NETPREDICT



REINFORCEMENT LEARNING FOR NETWORK CONTROL

DEEP REINFORCEMENT LEARNING FOR LASER CONTROL

My current research focuses on developing AI and ML algorithms to control high-speed network for exascale science applications and to optimize how existing US DOE distributed network infrastructures are utilized.

Towards self-configuring, self-optimizing, self-healing and self-protecting Networks.

RESEARCH

Bashir Mohammed

Postdoctoral Research Fellow

Scientific Data Management Group,
Deep Learning and AI High-performance Network Project (DAPHNE)

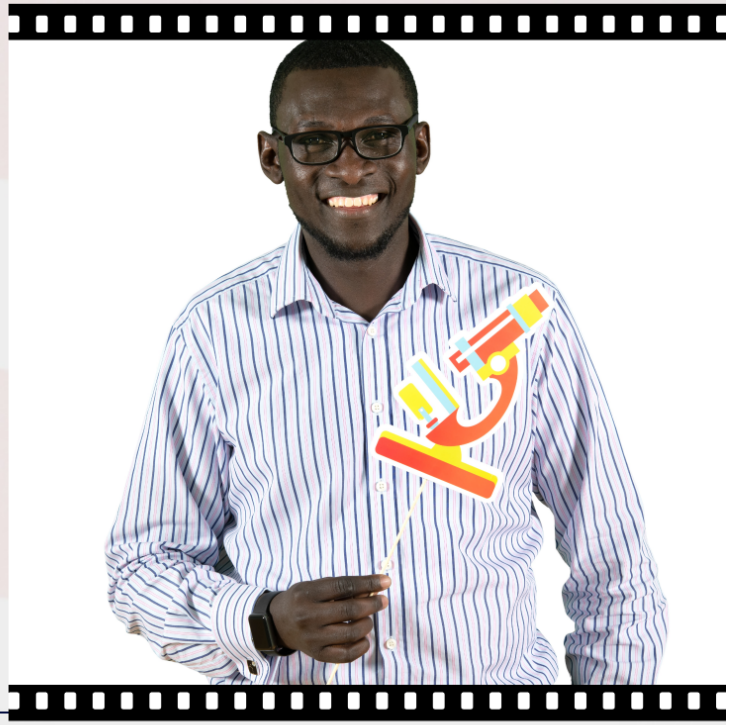
CRD

INTRODUCTION

MY RESEARCH AT THE LAB?

MY EXPERIENCE AT THE LAB

LIFE AS A RESEARCHER



CSSP Intern Talk Series, June 2021

My experience at the Lab has been an amazing one.

I have lived and worked in Multiple countries, so I have some international experience.

LAB EXPERIENCE

SCIENCE COMMUNICATION