Mohamadou Bella Bah

mbellabah | bellabah@mit.edu | 774-434-3012 | 229 Vassar St, Cambridge, MA 02139

EDUCATION

Massachusetts Institute of Technology (MIT) **August 2017 - Present**
Bachelor's Degree Candidate, 2021, Course 6-2 (Electrical Engineering and Computer Science) Cambridge, MA

- Relevant Coursework: Machine Learning, Signal Processing, Introduction to Algorithms, Introduction to Inference, Power Systems, Circuits and Electronics, Electromagnetism

RESEARCH AND EXPERIENCE

Mechanical Engineering Department, Massachusetts Institute of Technology (MIT) **September 2018 – December 2018**
Undergraduate Researcher Cambridge, MA

- Project examined the market pairings of natural gas and wind power producers via bilateral contracts to improve productivity of renewable resources and firm capacity within electricity markets (Advisor: Dr. Anuradha Annaswamy, David D'Achiardi).
- Wrote program to find suitable pairings between natural gas power producers and wind power producers in the New England region. See GitHub (coordinate-ngpp-wpp) on top left of page.

Physics Department, Massachusetts Institute of Technology (MIT) **July 2018 – September 2018**
Independent Undergraduate Researcher Cambridge, MA

- Designed multi-agent system (MAS) application for the U.S. electric grid (Advisor: Dr. Peter Fisher).
- Wrote papers detailing agent interactions, notably the protocols defining the relationship between an electric vehicle and a charging station. Paper on the "Coordination of Many Agents in a Power System" under review in MIT's Undergraduate Research Journal (MURJ).
- Programmed MAS platform in which autonomous agents negotiate on issues of price, quantity, and time of delivery of a bilateral contract. Agents possess diverse behaviours and capabilities including tit-for-tat, limited reasoning, and the ability to communicate dissatisfaction with counter-offers made by other agents. See GitHub (UROP-Multiagent-Platform) on top left of page.

Global Vehicle Leasing Programme (GVLP), World Food Programme, United Nations **July 2017 – August 2017**
Vehicle Engineering Intern Dubai, UAE

- Installed vehicle trackers for the global fleet management system.
- Troubleshooted and fixed faulty tracking units.
- Designed "Hardware Out of the Loop" (HOOTL) testbed.
- Updated records of the VTS (Vehicle Tracking System) and testing of the system.

LEADERSHIP AND PROJECTS

Project Auxo **January 2017 - Present**
Founder Cambridge, MA

- Project Auxo is a research group that applies multi-agent system methods to large heterogeneous networks; current focus is smart grids.
- Project Auxo aims to give currently 'dumb' grid-devices (residential solar and electric vehicles) human-like agency. This includes a limited understanding of causality and the ability to coordinate themselves according to an objective signal.
- Created functioning testbed using several BeagleBone Blacks and open source power-system simulators RIAPS and Gridlab-D. AI agents are capable of limited coordination. See GitHub (Project-Auxo-MAS) on top left of page – work ongoing.

ECOSOC Youth Conference **January 2018**
Participant New York City, NY

- One of five nominated by MIT's Political Science Department to attend the Economic and Social Council Youth Conference at the United Nations Headquarters in New York City.
- Engaged with high level policy makers, ministers of youth and sport, and youth delegates on issues regarding anticorruption on a global and Africa-centric scale.

TEDxYouth **September 2016**
Speaker Dubai, UAE

- Delivered TEDx Talk on the "Future of Solar Panels"; a talk focused on a free market platform that enables prosumer participation on the electric grid — video has over 34,110 views on YouTube.

SKILLS AND RESEARCH INTERESTS

Programming Languages: Python, C++, Java, MATLAB, with practical experiences.

- *Learning, Decision Theory and Game Theory*: Markov Decision Process, Applied Inference, Reinforcement Learning, Decentralized Multi-Task Learning
- *Systems, Networks and Control*: Coordination of Autonomous Systems, Distributed Intelligence, State Estimation
- *Humanitarian Research*: Climate Change, Sustainable Energy Systems, Anticorruption