



US 20230231886A1

(19) **United States**

(12) **Patent Application Publication**  
**Hamouda**

(10) **Pub. No.: US 2023/0231886 A1**

(43) **Pub. Date: Jul. 20, 2023**

(54) **DETECTING PHYSICAL ANOMALIES OF A  
COMPUTING ENVIRONMENT USING  
MACHINE LEARNING TECHNIQUES**

(52) **U.S. Cl.**  
CPC ..... **H04L 63/205** (2013.01); **G16Y 40/50**  
(2020.01)

(71) Applicant: **Dell Products L.P.**, Round Rock, TX  
(US)

(72) Inventor: **Mahmoud Hussein Hamouda**, Giza  
(EG)

(21) Appl. No.: **17/579,943**

(22) Filed: **Jan. 20, 2022**

**Publication Classification**

(51) **Int. Cl.**  
**H04L 9/40** (2006.01)  
**G16Y 40/50** (2006.01)

(57) **ABSTRACT**

Methods, apparatus, and processor-readable storage media for detecting physical anomalies of a computing environment using machine learning techniques are provided herein. An example computer-implemented method includes monitoring a physical environment corresponding to at least one component of a distributed computing system using at least one sensor that is one or more of: at least partially within the at least one component and attached to the at least one component; performing, by the at least one component, a machine learning process comprising: analyzing data generated by the at least one sensor to detect one or more physical anomalies associated with the physical environment, and in response to detecting a physical anomaly, selecting at least one automated action, involving at least one additional component of the distributed computing system, to at least partially mitigate the physical anomaly; and initiating a performance of the at least one automated action.

