



US 20240178776A1

(19) **United States**

(12) **Patent Application Publication**  
**INOUE et al.**

(10) **Pub. No.: US 2024/0178776 A1**

(43) **Pub. Date: May 30, 2024**

(54) **ABNORMALITY DIAGNOSIS DEVICE AND  
ABNORMALITY DIAGNOSIS METHOD**

**Publication Classification**

(51) **Int. Cl.**

**H02P 21/22** (2006.01)

**H02P 29/028** (2006.01)

(52) **U.S. Cl.**

**CPC** ..... **H02P 21/22** (2016.02); **H02P 29/028**  
(2013.01); **H02P 2205/01** (2013.01)

(71) Applicants: **Mitsubishi Electric Corporation**,  
Tokyo (JP); **mitsubishi**  
**ELECTRIC RESEARCH**  
**LABORATORIES, INC.**, Cambridge,  
MA (US)

(72) Inventors: **Hiroshi INOUE**, Tokyo (JP); **Bingnan**  
**WANG**, Cambridge, MA (US); **Lei**  
**ZHOU**, Cambridge, MA (US)

(73) Assignees: **Mitsubishi Electric Corporation**,  
Tokyo (JP); **mitsubishi**  
**ELECTRIC RESEARCH**  
**LABORATORIES, INC.**, Cambridge,  
MA (US)

(21) Appl. No.: **18/071,708**

(22) Filed: **Nov. 30, 2022**

(57)

**ABSTRACT**

An abnormality diagnosis device includes: a first interface to obtain a value of a driving current for driving a motor; and a processor to access a database including calculation data to be used to calculate a degree of abnormality of the motor, wherein the processor extracts a feature quantity for calculating the degree of abnormality from a current waveform specified by a value of the driving current, and calculates the degree of abnormality of the motor based on the extracted feature quantity and the calculation data.

