US 20220385305A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2022/0385305 A1**

KIM et al. (43) **Pub. Date: Dec. 1, 2022**

(54) **NEURAL SELF-CORRECTED MIN-SUM DECODER AND AN ELECTRONIC DEVICE COMPRISING THE DECODER**

(71) Applicant: **Samsung Electronics Co., Ltd.**, Suwon-si (KR)

(72) Inventors: **Taehyun KIM**, Suwon-si (KR); **Joosung PARK**, Suwon-si (KR)

(21) Appl. No.: **17/872,692**

(22) Filed: **Jul. 25, 2022**

Related U.S. Application Data

(63) Continuation of application No. PCT/KR2022/006018, filed on Apr. 27, 2022.

(30) **Foreign Application Priority Data**

May 25, 2021 (KR) 10-2021-0066935

Publication Classification

(51) **Int. Cl.**

H03M 13/11	(2006.01)
H03M 13/09	(2006.01)
G06N 3/04	(2006.01)

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

CPC ***H03M 13/1128*** (2013.01); ***H03M 13/1177*** (2013.01); ***H03M 13/09*** (2013.01); ***G06N 3/04*** (2013.01)

(57) **ABSTRACT**

An electronic device and an operating method of an electronic device are provided. The operating method includes configuring a self-correction condition for adjusting an information deletion and dropout rate, performing iterative decoding on the received information using decoding factors and a self-correction technique, determining whether decoding of the codeword succeeds or fails, based on a result of the decoding, storing a received signal and the codeword which are successfully decoded, based on a determination result, and optimizing the decoding factors, based on the stored received signal and codeword.