US 20230232073A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2023/0232073 A1**

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

(54) **MEDIA DEVICE HOUSEHOLDING AND DEDUPLICATION**

(71) Applicant: **The Nielsen Company (US), LLC**, New York, NY (US)

(72) Inventors: **Samantha M. Mowrer**, La Grange, IL (US); **David J. Kurzynski**, Elgin, IL (US); **Kevin Li**, Brooklyn, NY (US); **Joshua Edward Morgan**, Chicago, IL (US); **Zack Zofrea**, St. Petersburg, FL (US)

(21) Appl. No.: **17/902,645**

(22) Filed: **Sep. 2, 2022**

Related U.S. Application Data

(60) Provisional application No. 63/300,626, filed on Jan. 18, 2022.

Publication Classification

(51) **Int. Cl.**
H04N 21/45 (2006.01)
G06F 16/215 (2006.01)

(52) **U.S. Cl.**
CPC ***H04N 21/4532*** (2013.01); ***H04N 21/4516*** (2013.01); ***G06F 16/215*** (2019.01)

(57) **ABSTRACT**

Methods, apparatus, systems, and articles of manufacture are disclosed. An apparatus includes at least one memory, instructions, and processor circuitry to execute the instructions. The processor circuitry executes the instructions to deduplicate at least one of panel data, automatic content recognition data, or return path data to generate a deduplicated data set. The processor circuitry executes the instructions to generate a graph that connects devices identified in the deduplicated data set, the devices connected based on at least one of a shared intemet protocol addresses, a shared location identifier, or a common device identifier assigned by a common device identification algorithm. The processor circuitry executes the instructions to remove one or more connections based on an inconsistency between the one or more connections and personally identifiable information.