



- (51) **International Patent Classification:**
G06T 11/00 (2006.01)
- (21) **International Application Number:**
PCT/US2021/061309
- (22) **International Filing Date:**
01 December 2021 (01.12.2021)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
63/120,508 02 December 2020 (02.12.2020) US
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- (81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW,

- (54) **Title:** IMAGE AUGMENTATION TECHNIQUES FOR AUTOMATED VISUAL INSPECTION

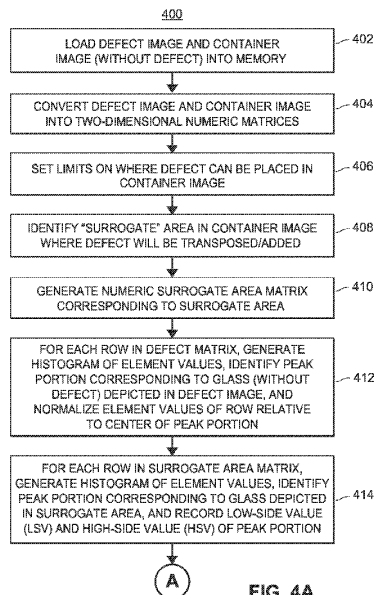


FIG. 4A

- (57) **Abstract:** Various techniques facilitate the development of an image library that can be used to train and/or validate an automated visual inspection (AVI) model, such as an AVI neural network for image classification. In one aspect, an arithmetic transposition algorithm is used to generate synthetic images from original images by transposing features (e.g., defects) onto the original images, with pixel-level realism. In other aspects, digital inpainting techniques are used to generate realistic synthetic images from original images. Deep learning-based inpainting techniques may be used to add, remove, and/or modify defects or other depicted features. In still other aspects, quality control techniques are used to assess the suitability of image libraries for training and/or validation of AVI models, and/or to assess whether individual images are suitable for inclusion in such libraries.

SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*