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(54) Title: TECHNIQUES FOR PREDICTING AND TREATING POST-OPERATIVE OUTCOMES IN SURGERY PATIENTS

(57) Abstract: Techniques for treating a subject undergoing spinal surgery include obtaining first data that indicates demographic, medical history or surgery information. A first probability for the subject developing post-operative urinary retention (POUR) is generated by inputting the first data into an input layer of a neural network trained with training data that indicates corresponding information for retrospective patients of spinal surgery and POUR outcomes for those patients. A signal is sent, which indicates a POUR classification for the subject based at least in part on the first probability. The subject is then treated based at least in part on the signal. A binomial regression models trained on a subset of training data is used optionally to produce a second probability. Optionally, the signal indicates a classification based on first or second cutoffs for the two probabilities.

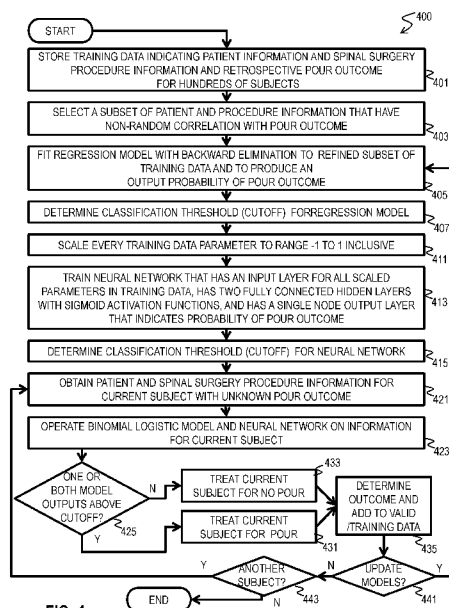


FIG. 4

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A. CLASSIFICATION OF SUBJECT MATTER

IPC - INV. G16H 50/20 (2023.01)

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

See Search History document

Electronic database consulted during the international search (name of database and, where practicable, search terms used)

See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y --- A	US 2020/0161000 A1 (UNIVERSITY OF FLORIDA RESEARCH FOUNDATION INCORPORATED) 21 May 2020; paragraphs [0006]-[0013], [0024]-[0028]	1-2, 18-19 --- 3-8, 15-17 --- 9-14
Y	LEE, KS et al. "Risk and Management of Postoperative Urinary Retention Following Spinal Surgery" 320-328. Int Neurourol J 2017; 21: Web. 30 November 2017; [Retrieved on 18 December 2023]; URL: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5756820/ ; DOI: 10.5213/inj.1734994.497; abstract, pages 320-328	3-4, 16-17
Y	US 2017/0220929 A1 (INTEL CORPORATION) 03 August 2017; paragraphs [0052]-[0054],	4
Y	US 11,064,953 B1 (PRINCE MOHAMMAD BIN FAHD UNIVERSITY) 20 July 2021; column.8, lines.51-column 9, lines.8	5-7
Y	US 2021/0158212 A1 (FUJITSU LIMITED) 27 May 2021; paragraphs [0087]-[0092]	8
Y --- A	US 2022/0223255 A1 (MEDTECH S.A.) 14 July 2022; paragraphs [0030]-[0034]	15 --- 9-14

Further documents are listed in the continuation of Box C. See patent family annex.

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"P" document published prior to the international filing date but later than the priority date claimed	

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