EUROPEAN PATENT OFFICE
U.S. PATENT AND TRADEMARK OFFICE

CPC NOTICE OF CHANGES 1750

DATE: MAY 1, 2025

PROJECT MP11897

The following classification changes will be effected by this Notice of Changes:

Action	Subclass	Group(s)
SCHEME:		
Titles Changed:	A61B	5/72, 5/7221, 5/7225, 5/7228, 5/7235, 5/725, 5/7264, 5/7271, 5/7278, 5/7282, 5/7285, 5/7296, 5/74, 5/742, 5/7425, 5/746
DEFINITIONS:		
Definitions New:	A61B	5/72, 5/7203, 5/7207, 5/721, 5/7214, 5/7217, 5/7221, 5/7225, 5/7228, 5/7232, 5/7235, 5/7239, 5/7242, 5/7246, 5/725, 5/7253, 5/7264, 5/7267, 5/7271, 5/7275, 5/7278, 5/7282, 5/7285, 5/7289, 5/7292, 5/7296, 5/74, 5/7405, 5/741, 5/7415, 5/742, 5/7425, 5/743, 5/7435, 5/744, 5/7445, 5/745, 5/7455, 5/746, 5/7465, 5/747, 5/7475, 5/748, 5/7485, 5/749, 5/7495

No other subclasses/groups are impacted by this Notice of Changes.

This Notice of Changes includes the following *[Check the ones included]:*

1. CLASSIFICATION SCHEME CHANGES

    ☒ A. New, Modified or Deleted Group(s)

    ☐ B. New, Modified or Deleted Warning(s)

    ☐ C. New, Modified or Deleted Note(s)

    ☐ D. New, Modified or Deleted Guidance Heading(s)

2. DEFINITIONS

    ☒ A. New or Modified Definitions (Full definition template)

    ☐ B. Modified or Deleted Definitions (Definitions Quick Fix)

3. ☐ REVISION CONCORDANCE LIST (RCL)

4. ☐ CHANGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)

5. ☐ CHANGES TO THE CROSS-REFERENCE LIST (CRL)

1. CLASSIFICATION SCHEME CHANGES

A. New, Modified or Deleted Group(s)

SUBCLASS A61B - DIAGNOSIS; SURGERY; IDENTIFICATION

Type*	Symbol	Indent Level Number of dots (e.g. 0, 1, 2)	Title "CPC only" text should normally be enclosed in {curly brackets}**	Transferred to#
M	A61B5/72	1	{Signal processing specially adapted for physiological signals or for diagnostic purposes}	
M	A61B5/7221	2	{Determining signal validity, reliability or quality (preventing, reducing or removing noise induced by motion artefacts A61B5/7207; noise originating from a therapeutic or surgical apparatus A61B5/7217)}	
M	A61B5/7225	2	{Details of analogue processing, e.g. isolation amplifier, gain or sensitivity adjustment, filtering, baseline or drift compensation (input circuits for detecting, measuring, or recording bioelectric or biomagnetic signals A61B 5/30; specific diagnostic methods using bioelectric or biomagnetic signals A61B 5/316)}	
M	A61B5/7228	2	{Signal modulation applied to the input signal sent to patient or subject; Demodulation to recover the physiological signal}	
M	A61B5/7235	2	{Details of waveform analysis (detecting specific parameters of the electrocardiograph cycle A61B5/349)}	
M	A61B5/725	3	{using specific filters therefor, e.g. Kalman or adaptive filters (specific diagnostics methods using using bioelectric or biomagnetic signals A61B 5/316)}	
M	A61B5/7264	3	{Classification of physiological signals or data, e.g. using neural networks, statistical classifiers, expert systems or fuzzy systems}	
M	A61B5/7271	2	{Specific aspects of physiological measurement analysis (specific diagnostics methods using bioelectric or biomagnetic signals A61B5/316)}	
M	A61B5/7278	3	{Artificial waveform generation or derivation, e.g. synthesizing signals from measured signals}	

M	A61B5/7282	3	{Event detection, e.g. detecting unique waveforms indicative of a medical condition (cough events A61B5/0823; seizures A61B 5/4094; sleep apnoea A61B 5/4818)}	
M	A61B5/7285	3	{for synchronizing or triggering a physiological measurement or image acquisition with a physiological event or waveform, e.g. an ECG signal}	
M	A61B5/7296	3	{for compensation of signal variation due to stress unintentionally induced in the patient, e.g. due to the stress of the medical environment or examination}	
M	A61B5/74	1	{Details of notification to user or communication with user or patient; User input means}	
M	A61B5/742	2	{using visual displays (displays for heart-related electrical signals, e.g. ECG, A61B 5/339)}	
M	A61B5/7425	3	{Displaying combinations of multiple images regardless of image source, e.g. displaying a reference anatomical image with a live image}	
M	A61B5/746	2	{Alarms related to a physiological condition, e.g. details of setting alarm thresholds or avoiding false alarms}	

*N = new entries where reclassification into entries is involved; C = entries with modified file scope where reclassification of documents from the entries is involved; Q = new entries which are firstly populated with documents via administrative transfers from deleted (D) entries. Afterwards, the transferred documents into the Q entry will either stay or be moved to more appropriate entries, as determined by intellectual reclassification; T = existing entries with enlarged file scope, which receive documents from C or D entries, e.g. when a limiting reference is removed from the entry title; M = entries with no change to the file scope (no reclassification); D = deleted entries; F = frozen entries will be deleted once reclassification of documents from the entries is completed; U = entries that are unchanged.

NOTES:

- **No {curly brackets} are used for titles in CPC only subclasses, e.g. C12Y, A23Y; 2000 series symbol titles of groups found at the end of schemes (orthogonal codes); or the Y section titles. The {curly brackets} are used for 2000 series symbol titles found interspersed throughout the main trunk schemes (breakdown codes).

- U groups: it is obligatory to display the required "anchor" symbol (U group), i.e. the entry immediately preceding a new group or an array of new groups to be created (in case new groups are not clearly subgroups of C-type groups). Always include the symbol, indent level and title of the U group in the table above.

- All entry types should be included in the scheme changes table above for better understanding of the overall scheme change picture. Symbol, indent level, and title are required for all types.

- "Transferred to" column must be completed for all C, D, F, and Q type entries. F groups will be deleted once reclassification is completed.

- When multiple symbols are included in the "Transferred to" column, avoid using ranges of symbols in order to be as precise as possible.

- For administrative transfer of documents, the following text should be used: "<administrative transfer to XX>", "<administrative transfer to XX and YY simultaneously>", or "<administrative transfer to XX, YY, ...and ZZ simultaneously>" when administrative transfer of the same documents is to more than one place.

- Administrative transfer to main trunk groups is assumed to be the source allocation type, unless otherwise indicated.
- Administrative transfer to 2000/Y series groups is assumed to be "additional information".
- If needed, instructions for allocation type should be indicated within the angle brackets using the abbreviations "ADD" or "INV": <administrative transfer to XX ADD>, <administrative transfer to XX INV>, or <administrative transfer to XX ADD, YY INV, ... and ZZ ADD simultaneously>.
- In certain situations, the "D" entries of 2000-series or Y-series groups may not require a destination ("Transferred to") symbol, however it is required to specify "<no transfer>" in the "Transferred to" column for such cases.
- For finalization projects, the deleted "F" symbols should have <no transfer> in the "Transferred to" column.
- For more details about the types of scheme change, see CPC Guide.

2. A. DEFINITIONS (new)

A61B 5/72

Definition statement

This place covers:

Non-trivial details of the following aspects:
- Signal processing, typically pre-processing, classified in subgroups A61B5/7203 - A61B5/7232, e.g. noise reduction, assessment of signal quality or analogue processing.
- Signal analysis, classified in subgroups A61B5/7235 - A61B5/7267, e.g. differentiation, integration, correlation, adaptive filtering, Fourier or wavelet transformations or classification.
- Medical applications of signal processing, classified in subgroups A61B5/7271 - A61B5/7296, e.g. risk or trend analysis, predictions, event detection or synchronising imaging with a physiological signal.

The processing or analysis of signals may be online or as post processing/analysis.

The signal is obtained or derived according to a diagnostic technique falling under group A61B5/00.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Telemetry of measured physiological signal	A61B5/0002
Input circuits specially adapted for detecting, measuring or recording bioelectric or biomagnetic signals of the body or parts thereof	A61B5/30
Medical imaging apparatus involving image processing or analysis	A61B2576/00
Signal processing systems in MRI	G01R33/54
Recognition of biometric, human-related or animal-related patterns in image or video data	G06V40/00
Pattern recognition	G06F18/00
Image enhancement or restoration	G06T5/00
Biomedical image inspection	G06T7/0012

Healthcare informatics, i.e. information and communication technology [ICT] specially adapted for the handling or processing of medical data	G16H

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

signal	a function that conveys time-varying information about a phenomenon and is provided by a sensor or derived from a sensor output

A61B 5/7203

Definition statement

This place covers:

Details of reducing the level of noise or artefacts in a signal using signal processing, e.g. by filtering.

Preventing noise or artefacts using signal processing techniques.

The noise may originate from any source, internally or externally to the patient or sensor, e.g. mains noise or common mode noise.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Determining signal validity, reliability or quality	A61B5/7221
Synchronising or triggering a physiological measurement or image acquisition with a physiological event or waveform, e.g. an ECG signal	A61B5/7285
Shielding or protection of sensors from environmental influences, e.g. protection from mechanical damage	A61B2562/18
Arrangements of medical sensors with cables or leads	A61B2562/22

Pattern recognition	G06F18/00
Image denoising; Image smoothing	G06T5/70

Special rules of classification

For measuring environmental noise, group A61B2560/0242 should also be considered.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

noise or artefacts	any part of a signal other than the useful signal, e.g. drift

A61B 5/7207

Definition statement

This place covers:

Details of reducing the level of noise or artefacts in a signal, e.g. by filtering, wherein the noise or artefacts are induced by motion, e.g. motion of the patient with the sensor or relative motion of sensor and patient.

Preventing such noise or artefacts using signal processing techniques, e.g. selecting an appropriate time for a measurement.

A61B 5/721

Definition statement

This place covers:

Reducing the level of noise or artefacts in a signal using a separate sensor to detect motion or using motion information derived from signals other than the physiological signal to be measured.

The motion sensor may be an inertial sensor, e.g. an accelerometer or gyroscope, an impedance sensor or a contactless senor, e.g. using microwaves.

The motion information may be derived from other physiological signals, e.g. using breath flow measurements to detect respiration or ECG to detect heartbeats.

Illustrative example of subject matter classified in this place:
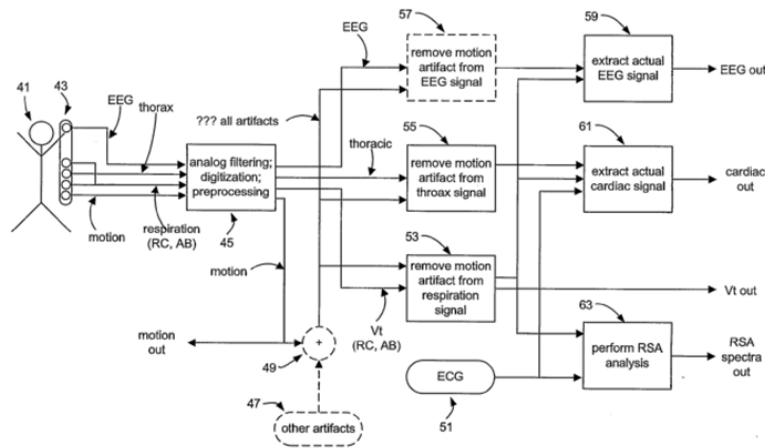
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Measuring movement of the entire body or parts thereof	A61B5/11
Details of inertial sensors, e.g. accelerometers, gyroscopes, tilt switches	A61B2562/0219
Measuring speed, acceleration; Indicating presence or direction of movement	G01P
Analysis of motion by image analysis	G06T7/20

A61B 5/7214

Definition statement

This place covers:

Reducing the level of motion-induced noise or artefacts in a signal using two identical spaced apart sensors sensing the signal. Motion artefacts are extracted or cancelled by comparing the signals of both sensors.

Reducing the level of motion-induced noise or artefacts in a signal by analysing two signals from the same sensor, e.g. for different wavelengths. Often used for analysing photoplethysmographic signals.

Illustrative example of subject matter classified in this place:
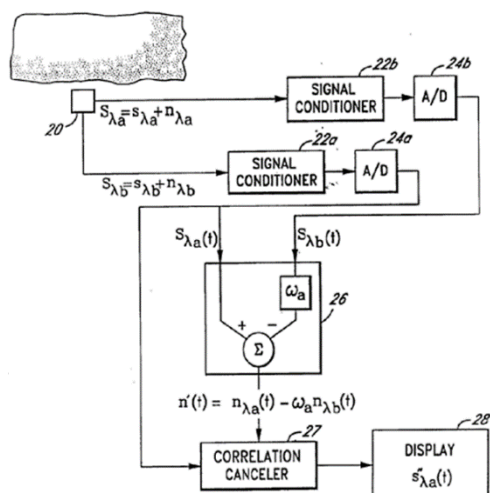
Relationships with other classification places

Subject matter relating to cancellation of other sources of noise, for example due to environmental factors, is classified in group A61B5/7203.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangements of multiple sensors of the same type	A61B2562/04

A61B 5/7217

Definition statement

This place covers:

Reducing the level of noise or artefacts originating from a therapeutic or surgical apparatus using signal processing. The therapeutic or surgical apparatus may be internal or external to the patient.

Examples of therapeutic apparatus are pacemakers, defibrillators, neurostimulators, e.g. cochlear implant or spinal cord stimulator.

Examples of surgical apparatus are ablation or electrocautery devices.

Examples of types of noise are common mode noise or mains noise.

Relationships with other classification places

Subject matter describing reduction of noise originating from sensing or imaging devices, e.g. MRI, or from other non-medical appliances, is classified in group A61B5/7203.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Common mode rejection in input circuits for bioelectric or biomagnetic signals	A61B5/305
Electrical control of surgical instruments based on electric or electromagnetic phenomena other than conductivity sensed at the treatment site	A61B2017/00039
Surgical instruments for transferring non-mechanical forms of energy to the body	A61B18/00
Surgical instruments for transferring non-mechanical forms of energy to the body, wherein the application of energy is controlled based on sensed bioelectric parameters, e.g. ECG, EEG	A61B2018/00839

| Shielding or protection of sensors from environmental influences, e.g. protection from mechanical damage | A61B2562/18 |
| Electrotherapy circuits for monitoring, protecting, controlling or indicating | A61N1/08 |

A61B 5/7221

Definition statement

This place covers:

Details of determining signal quality, e.g. signal-to-noise ratio [SNR], interferences or confidence score.

The signal may optionally be processed to reduce noise.

Discarding parts of the signal due to insufficient quality.

Details of determining signal reliability or validity, e.g. whether the signal is in a plausible range, whether (part of) a signal was lost because a sensor has lost contact.

References

Limiting references

This place does not cover:

| Prevention, reduction or removal of noise induced by motion artefacts | A61B5/7207 |
| Prevention, reduction or removal of noise originating from a therapeutic or surgical apparatus, e.g. from a pacemaker | A61B5/7217 |

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Protection against failure of bioelectric electrodes | A61B5/276 |
| Monitoring apparatus function | A61B2560/0266 |

A61B 5/7225

Definition statement

This place covers:

Details of analogue processing, e.g. analogue filtering, amplification using operational amplifiers or removal of DC baselines using a capacitor.

Illustrative example of subject matter classified in this place:
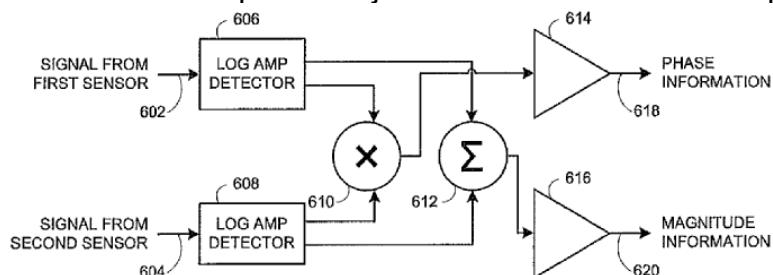
References

Limiting references

This place does not cover:

Input circuits specially adapted for detecting, measuring or recording bioelectric or biomagnetic signals of the body or parts thereof	A61B5/30
Specific diagnostics methods using bioelectric or biomagnetic signals	A61B5/316

Informative references

Attention is drawn to the following places, which may be of interest for search:

Sensors mounted on specially adapted printed circuit boards	A61B2562/166
Arrangements of medical sensors with cables or leads; Connectors and couplings	A61B2562/22
Transformers for specific applications	H01F38/00
Amplifiers in general	H03F

A61B 5/7228

Definition statement

This place covers:

Modulation includes taking a physiological input signal, e.g. optical signal or electric current for impedance measurement, and encoding it, e.g. with a characteristic pattern or frequency.

Demodulation includes taking a sensed signal and using a characteristic pattern or frequency to recover the physiological signal.

The modulating may involve the use of a lock-in amplifier or applying a watermark to an input signal.

The purpose may be to reduce noise, crosstalk or aliasing or to be able to correctly assign the measured signal to a particular input signal.

Examples of modulation include amplitude, phase or frequency modulation.

Documents in which the input signal is not modulated within or on the patient's/subject's body.

Illustrative example of subject matter classified in this place:
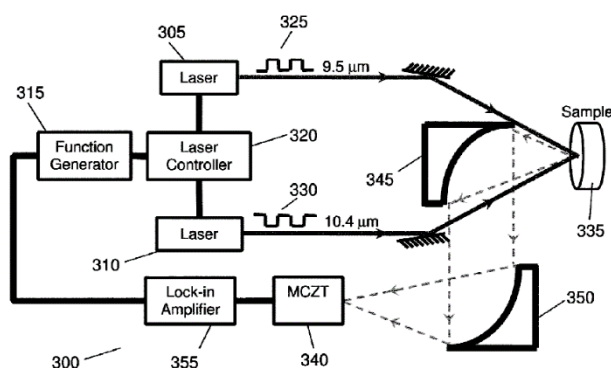
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Telemetry, including modulation therefor	A61B5/0002
Acoustooptic measurements	A61B5/0097
EEG using evoked response	A61B5/377
Modulation in general	H03C
Demodulation in general	H03D
Modulating or demodulating	H04L27/00

A61B 5/7232

Definition statement

This place covers:

Details of compression of the measured physiological signal, e.g. to extend the recording period or to facilitate transmission.

The degree of compression may be variable based on signal quality or according to medical criteria, e.g. detected conditions.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Telemetry of measured physiological signal	A61B5/0002
Recording apparatus specially adapted for ECG	A61B5/333
Constructional features of memory means	A61B2560/0475
Compression of digital data in general	H03M7/30

A61B 5/7235

Definition statement

This place covers:

Non-trivial details of analysis of waveforms, specially adapted for physiological signals or for diagnostic purposes.

References

Limiting references

This place does not cover:

Detecting specific parameters of the electrocardiograph cycle	A61B5/349

Informative references

Attention is drawn to the following places, which may be of interest for search:

Noise prevention, reduction or removal	A61B5/7203
Pattern recognition	G06F18/00
Methods or arrangements for processing data by operating upon the order or content of the data handled	G06F7/00
Complex mathematical operations	G06F17/10
Biomedical image inspection using an image reference approach involving temporal comparison	G06T7/0016
Analysis of motion by image analysis	G06T7/20

A61B 5/7239

Definition statement

This place covers:

Details of analysis of waveforms specially adapted for physiological signals or for diagnostic purposes by calculating first or higher order derivatives thereof, e.g. time derivatives to determine a rate of change.
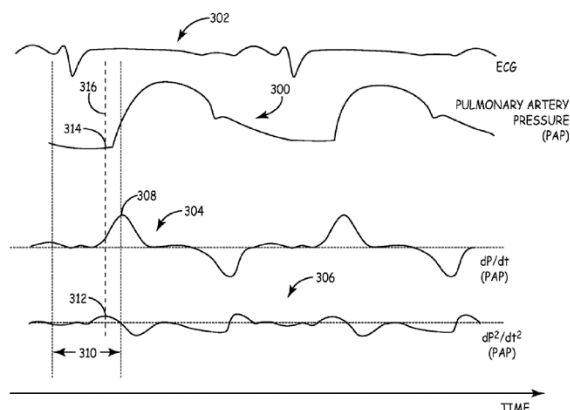
The details of analysis may concern the calculation of the derivatives as such or the analysis of the derivatives, e.g. to obtain a particular diagnosis.

The calculation may be analogue or digital.

Illustrative example of subject matter classified in this place:

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Classification of physiological signals or data	A61B5/7264

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

differentiation	mathematical term for the process of finding the derivative, or rate of change, of a function

A61B 5/7242

Definition statement

This place covers:

Details of analysis of waveforms specially adapted for physiological signals or for diagnostic purposes by calculating integrals thereof, e.g. integrals over time.

The calculation may be analogue or digital.

The details of analysis may concern the calculation of the integrals as such or the analysis of the integrals, e.g. to obtain a particular diagnosis.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

integration	mathematical term for finding the area to the x-axis from the signal function, i.e. the area under the curve; the reverse of differentiation

A61B 5/7246

Definition statement

This place covers:

Details of analysis of waveforms specially adapted for physiological signals or for diagnostic purposes by calculating correlations, e.g. autocorrelation or cross-correlation.

The correlation may be between measured signals or between a signal and a reference template.

The calculation may be analogue or digital.

The details of analysis may concern the calculation of the correlation as such or the analysis thereof, e.g. to obtain a particular diagnosis.

Documents which use non-physical templates.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

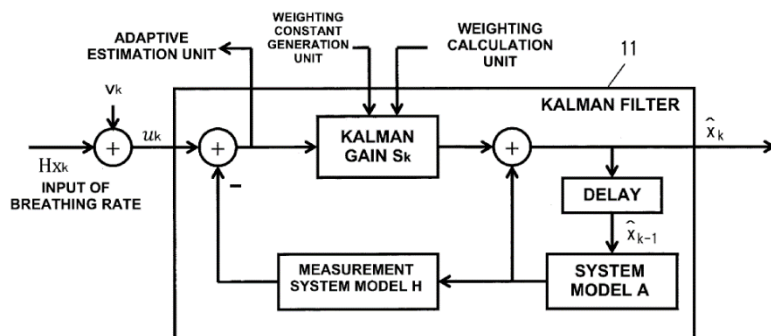| Physical templates for measuring ECG waveforms	A61B5/322
Correlation function computation in general	G06F17/15

A61B 5/725

Definition statement

This place covers:

Details of analysis of waveforms specially adapted for physiological signals or for diagnostic purposes by using specific filters, e.g. finite or infinite response filters [FIR, IIR] or Kalman or other adaptive filters.

The filtering may be analogue or digital.

The details of analysis may concern the filtering as such or the analysis of the filtered signal, e.g. to obtain a particular diagnosis.

Illustrative example of subject matter classified in this place:

References

Limiting references

This place does not cover:

Specific diagnostics methods using bioelectric or biomagnetic signals	A61B5/316

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Noise prevention, reduction or removal	A61B5/7203

A61B 5/7253

Definition statement

This place covers:

Details of analysis of waveforms specially adapted for physiological signals or for diagnostic purposes by using transforms, e.g. Hilbert or Laplace transforms.

The transformation may be analogue or digital.

The details of analysis may concern the transformation as such or the analysis of the transformed signal, e.g. to obtain a particular diagnosis.

Illustrative example of subject matter classified in this place:
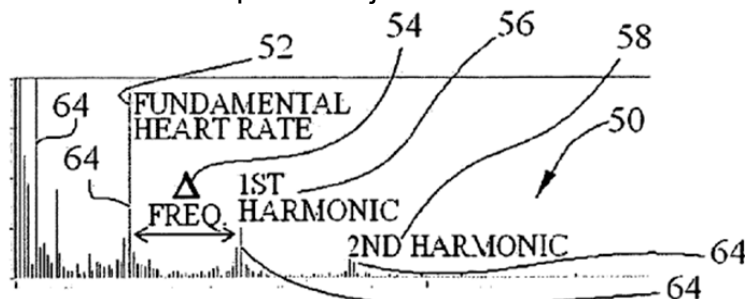
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Fourier, Walsh or analogous domain transformations in general	G06F17/14

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

transforms	signal processing term for models of a signal as a collection of waveforms of a particular form, e.g. sinusoids, wavelets, basis functions

A61B 5/7264

### Definition statement

This place covers:

Details of classification of physiological signals or data, e.g. artificial neural networks, statistical classifiers such as Bayes classifiers or Hidden Markov Models, rule-based systems, expert systems or fuzzy systems.

The details of classification may also concern feature extraction or selection, e.g. how features/parameters are derived from the signal or data or which are selected for a particular classification.

The classifiers may be analogue or digital.

The classification may be according to type of disease, type of motion, state of mind, sleep state, etc., but also according to signal or data quality or reliability.

Illustrative example of subject matter classified in this place:
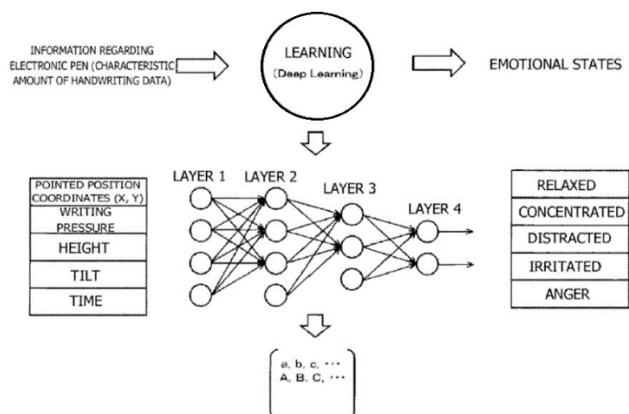
Relationships with other classification places

In line with the notes under G16H, classification may additionally be considered in group G16H50/00 for healthcare informatics relating to medical diagnosis.

Signal classification based on simple comparison to thresholds is covered in the respective modality group within group A61B5/00.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

|	
Discriminating type of movement, e.g. walking or running	A61B5/1123
Evaluating the state of mind, e.g. depression, anxiety	A61B5/165
Determining sleep stages or cycles	A61B5/4812
Determining trends in physiological measurement data; Predicting development of a medical condition based on physiological measurements, e.g. determining a risk factor	A61B5/7275
Event detection	A61B5/7282
Alarms related to a physiological condition, e.g. details of setting alarm thresholds or avoiding false alarms	A61B5/746
Clustering techniques for pattern recognition in general	G06F18/23
Classification techniques for pattern recognition in general	G06F18/24
Computing arrangements based on biological models	G06N3/00
Computing arrangements using knowledge-based models	G06N5/00
Computing arrangements based on specific mathematical models	G06N7/00
Biomedical image inspection	G06T7/0012
Special algorithmic details of training or learning in image analysis	G06T2207/20081
Special algorithmic details of Artificial neural networks [ANN] in image analysis	G06T2207/20084
Arrangements for image recognition using machine learning	G06V10/70
Recognition of biometric patterns based on physiological signals, e.g. heartbeat, blood flow, in image or video data, in general	G06V40/15
Recognition of walking or running movements, e.g. gait recognition, in image or video data, in general	G06V40/25
Recognition of multimodal biometrics, e.g. combining information from different biometric modalities	G06V40/70
ICT specially adapted for computer-aided diagnosis, e.g. based on medical expert systems	G16H50/20
ICT specially adapted for calculating health indices	G16H50/30

A61B 5/7267

Definition statement

This place covers:

Details of training of machine learning, support vector machines, artificial neural networks, e.g. back propagation algorithms, evolutionary programming, continuous or incremental learning, supervised or unsupervised learning, specially adapted for physiological signals or for diagnostic purposes.

The details of training may concern the use of the physiological signals or diagnostic data as the training data, e.g. how such data is selected.

Illustrative example of subject matter classified in this place:
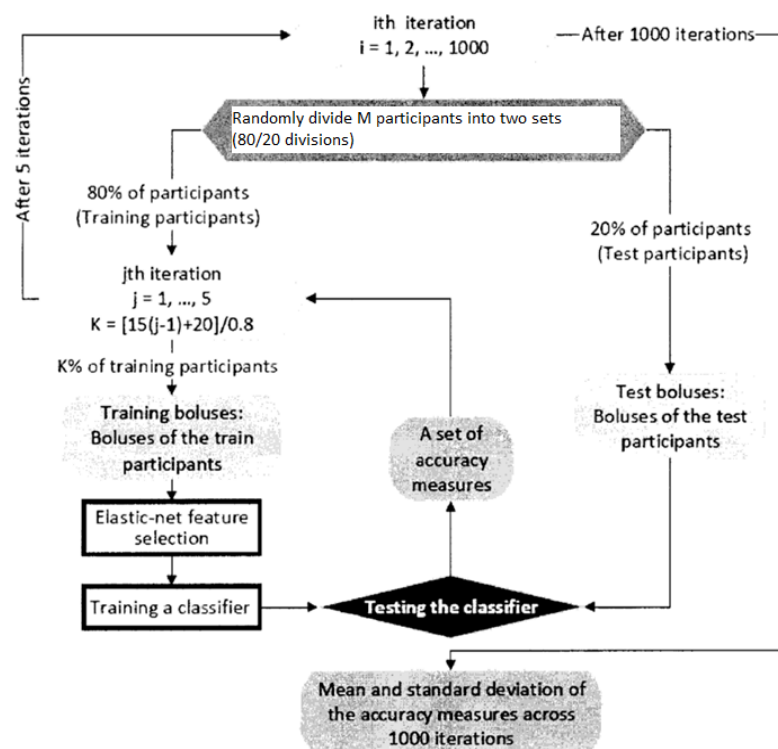
Relationships with other classification places

In line with the notes under G16H, classification may additionally be considered in groups G16H50/20 or G16H50/70 for healthcare informatics relating to medical diagnosis.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Learning methods for neural networks	G06N3/08
Machine learning	G06N20/00
Clustering techniques for pattern recognition, in general	G06F18/23
Classification techniques for pattern recognition, in general	G06F18/24
Special algorithmic details of training or learning in image analysis	G06T2207/20081
Special algorithmic details of artificial neural networks [ANN] in image analysis	G06T2207/20084
Arrangements for image recognition using machine learning	G06V10/70
Teaching or training of natural persons	G09B
ICT specially adapted for medical diagnosis, medical simulation or medical data mining	G16H50/00

A61B 5/7271

Definition statement

This place covers:

Details of particular medical applications of signal analysis, e.g. calculation of particular health indices by combining particular parameters.

Relationships with other classification places

Subject matter relating to triggering an alarm related to a physiological condition, e.g. calculating a threshold therefor, is classified in group A61B5/746.

References

Limiting references

This place does not cover:

Specific diagnostic methods using bioelectric or biomagnetic signals	A61B5/316

A61B 5/7275

Definition statement

This place covers:

Risk assessment of whether a medical condition is going to happen in the future, e.g. sudden cardiac death, hypo- or hyperglycaemia, or seizures.

Prognosis of a medical condition, e.g. whether a medical condition is going to get better or worse in the future.

Details on determining a future trend of a particular medical condition or physiological parameter, e.g. to optimise treatment or prevent medical conditions from occurring, such as predicting development of blood glucose or to prevent hypo- or hyperglycaemia.

Relationship with other classification places

In line with the notes under G16H, classification may additionally be considered in group G16H50/30 for healthcare informatics related to medical diagnosis.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Measuring glucose in vivo	A61B5/14532
Diagnosing or monitoring seizure diseases, e.g. epilepsy	A61B5/4094
Event detection, e.g. detecting unique waveforms indicative of a medical condition	A61B5/7282
ICT specially adapted for calculating health indices; For individual health risk assessment	G16H50/30

A61B 5/7278

Definition statement

This place covers:

Generating a waveform representing a particular physiological parameter obtained from a measured signal relating to another physiological parameter, e.g. respiration waveforms based on oxygen saturation or photoplethysmographic signals or glucose concentration waveforms obtained from oxygen saturation.

Generating a waveform representing a physiological parameter measured at a particular location on or in the body, obtained from a signal relating to the same physiological parameter, but measured at a different location on or in the body, e.g. to compensate for a missing signal from a sensor in an array of sensors or to provide the user with an easier way to interpret a signal.

It is not required that the generated waveform is actually displayed.

Illustrative example of subject matter classified in this place:
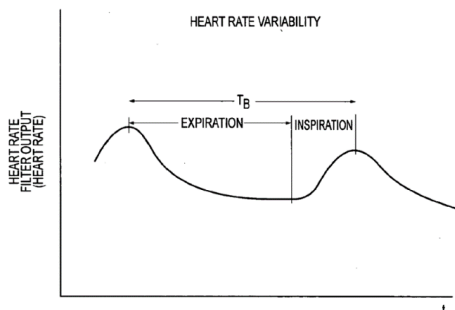
Relationships with other classification places

Subject matter relating to artificial physiological waveform generation or derivation by merely changing the domain, e.g. time to frequency domain, to waveforms obtained from a measured waveform merely by standard means of signal processing, e.g. filtering, curve-fitting, up- or down-sampling, is classified in the respective modality group within A61B5/00, e.g. converting PPG signal to heartrate frequency, group A61B5/02416.

Subject matter relating to the generation of artificial ECG signals based on measured signals is classified in group A61B5/327.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Simultaneously evaluating both cardiovascular conditions and different types of body conditions	A61B5/0205
Displaying an image simultaneously with additional graphical information, e.g. symbols, charts, function plots	A61B5/743
Artificial life, i.e. computing arrangements simulating life	G06N3/004
Simulators for teaching or training purposes	G09B9/00

A61B 5/7282

Definition statement

This place covers:

Details of detecting medical events, e.g. respiratory events such as asthma attacks, hypo- or hyper-glycaemic events.

An event is a sudden change, e.g. in a physiological parameter, a suddenly occurring medical condition or movement of the body or part thereof, e.g. contraction, acute condition, newly occurring condition. An event includes periodically occurring events, e.g. respiration events, but is not a detection of a condition that already exists, e.g. chronic condition.

Relationships with other classification places

Detection of responses to intentional stimuli, e.g. evoked potentials in EEG or responses to drugs, e.g. anaesthetics, given to the patient/subject are not considered to be "events" included here but are covered in group A61B5/377 or group A61B5/1106 respectfully.

Subject matter relating to apparatus for detecting, measuring or recording ECG in combination with analysis of specific parameters of the electrocardiograph cycle in order to determine a diagnosis is classified in group A61B 5/349.

References

Limiting references

This place does not cover:

Detecting or evaluating cough events	A61B5/0823
Diagnosing or monitoring seizure diseases, e.g. epilepsy	A61B5/4094
Detecting sleep apnoea	A61B5/4818

Informative references

Attention is drawn to the following places, which may be of interest for search:

Detecting response to application of mechanical forces or stimuli	A61B5/0048
Detecting or evaluating apnoea events	A61B5/0826
Detecting tremor	A61B5/1101
Detecting muscular movement of the eye, e.g. eyelid movement	A61B5/1103
Measuring movement of the entire body or parts thereof induced by stimuli or drugs	A61B5/1104
Measuring contraction of parts of the body, e.g. organ, muscle	A61B5/1107
Monitoring leaving of a patient support, e.g. a bed or a wheelchair	A61B5/1115
Determining posture transitions	A61B5/1116
Fall detection	A61B5/1117
Audiometering, e.g. hearing capacity in response to acoustic stimuli	A61B5/12
Testing reaction times	A61B5/162
Magnetoencephalography [MEG] using evoked response	A61B5/246
Evaluating swallowing	A61B5/4205
Diagnosing or evaluating reflux	A61B5/4211
Assessing uterine contractions	A61B5/4356
Evaluating bruxism	A61B5/4557
Detecting sleep stages or cycles	A61B5/4812
Assessing touch sensitivity by thermal stimulation	A61B5/483
Measuring or inducing nystagmus	A61B5/4863
Inducing physiological or psychological stress, e.g. applications for stress testing	A61B5/4884
Determining trends in physiological measurement data; Predicting development of a medical condition based on physiological measurements, e.g. determining a risk factor	A61B5/7275
Alarms related to a physiological condition, e.g. details of setting alarm thresholds or avoiding false alarms	A61B5/746

Biomedical image inspection using an image reference approach involving temporal comparison	G06T7/0016

A61B 5/7285

Definition statement

This place covers:

Synchronising, triggering or gating a physiological measurement or image acquisition with a concurrently acquired physiological event or waveform recorded using a different sensor than the triggered one.

The concurrently acquired physiological event or waveform may be acquired, e.g. using ECG to determine the phase in the cardiac cycle or using a video camera to track motion of parts of the body, e.g. occurring during breathing to determine the phase of respiration.

The synchronising or gating may be simultaneous, i.e. the physiological measurement or image acquisition is initiated at the moment a particular event is detected.

At least one of the synchronised, triggered or gated physiological measurement or image acquisition and the measurement of the triggering physiological event or waveform are performed using a sensing or imaging technique falling under the scope of group A61B5/00.

Relationships with other classification places

Subject matter relating to detection of R peaks, e.g. for synchronising diagnostic apparatus, is classified in group A61B5/352.

Subject matter relating to apparatus for radiation diagnosis involving processing of raw data to produce diagnostic data is classified in group A61B6/5205. Subject matter relating to apparatus for radiation diagnosis involving acquisition triggered by a physiological signal is classified in group A61B6/541.

Subject matter relating to diagnosis using ultrasonic, sonic or infrasonic waves involving processing of raw data to produce diagnostic data, e.g. for generating an image is classified in group A61B8/5207. Subject matter relating to diagnosis using ultrasonic, sonic, or infrasonic waves involving acquisition triggered by a physiological signal is classified in group A61B8/543.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Tracking parts of the body	A61B5/1114
Measuring movement of the entire body or parts thereof occurring during breathing	A61B5/113
For noise prevention, reduction or removal	A61B5/7203
NMR imaging systems gated by physiological signals	G01R33/567

A61B 5/7289

Definition statement

This place covers:

Retrospective synchronising or gating, i.e. measured signals or images are associated with a physiological event after a particular measurement has been made or a particular image has been acquired, e.g. by simultaneously recording an additional physiological signal during the measurement or image acquisition.

A61B 5/7292
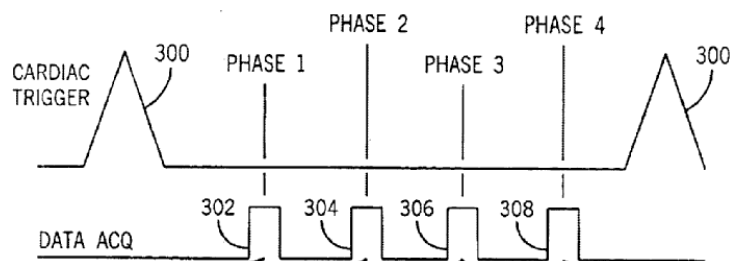
Definition statement

This place covers:

Synchronising, triggering or gating a physiological measurement or image acquisition with a concurrently acquired physiological event or waveform, recorded using a different sensor than the triggered one. The synchronising or gating is prospective, i.e. based on an analysis of the concurrently acquired physiological event or waveform, a future optimum time for physiological measurement or image acquisition is determined.

For example, based on R-peak detection using ECG, an optimum future time for imaging is determined to acquire an image at a particular later phase of the cardiac cycle.

Illustrative example of subject matter classified in this place:

A61B 5/7296

Definition statement

This place covers:

Compensating a physiological measurement, e.g. a raised heart rate or blood pressure caused by the white coat effect, i.e. abnormal values of physiological parameters when measured in a clinical setting, but not in other environments.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

|	
Determining activity level of the entire body or parts thereof	A61B5/1118
Evaluating the state of mind, e.g. depression, anxiety	A61B5/165
Evaluating the autonomic nervous system	A61B5/4035
Evaluating sweat secretion	A61B5/4266
Inducing physiological or psychological stress, e.g. applications for stress testing	A61B5/4884

A61B 5/74

Definition statement

This place covers:

Details of constructional or operational adaptations of input/output means to a diagnostic procedure. The input may originate from a patient, medical practitioner or others. Likewise, the output may be directed to a patient, medical practitioner or others.

Illustrative example of subject matter classified in this place:
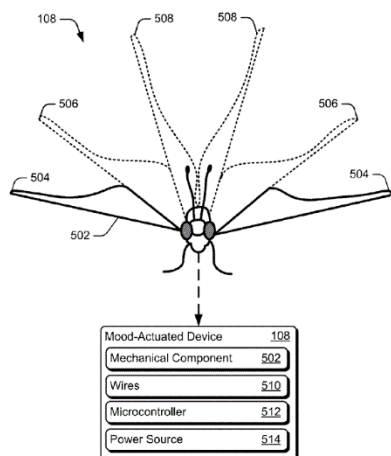
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Endoscopes provided with data input arrangements for the user	A61B1/00039
Endoscopes provided with signal output arrangements	A61B1/00043
Generation of stimuli to evoke EEG response	A61B5/377
Bio-feedback	A61B5/486
Electrical control of surgical instruments with audible or visual output	A61B2017/00115
User interfaces for electrotherapy devices	A61N1/37247
Indicating measured values in general	G01D7/00
Input or output arrangements for computers in general	G06F3/00
ICT specially adapted for the operation of medical devices	G16H40/60

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

user	physician, nurse or any other person, not limited to medical practitioners, including the person to be examined, not limited to (potentially) sick persons

A61B 5/7405

Definition statement

This place covers:

Constructional details of sound output units, e.g. integration into a monitoring apparatus.

Operational details of sound output units, e.g. use of sound output in a medical procedure to alert a user of an abnormal physiological value, to assist a user during use of a particular monitoring device or to take a predetermined position during measurement.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Evaluating hearing capacity	A61B5/121
Devices for producing or ending sleep by stimulating the hearing sense	A61M2021/0027
Alerts to patients for an electrotherapy device	A61N1/37258
Audible indication of measured values in general	G01D7/12

A61B 5/741

Definition statement

This place covers:

Notifications provided in a spoken form, e.g. by transforming a measured parameter into words or by issuing stored verbal messages.

The synthesized speech may be pre-recorded or artificially generated.

References

Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Speech synthesis per se	G10L13/00

A61B 5/7415

Definition statement

This place covers:

Sonification of measured physiological parameters, e.g. generation of audio tone in synchronism with heartbeat or with its pitch depending on a measured parameter.

Illustrative examples of subject matter classified in this place:
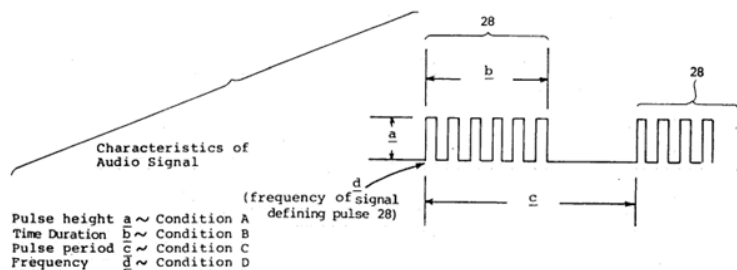
1a.
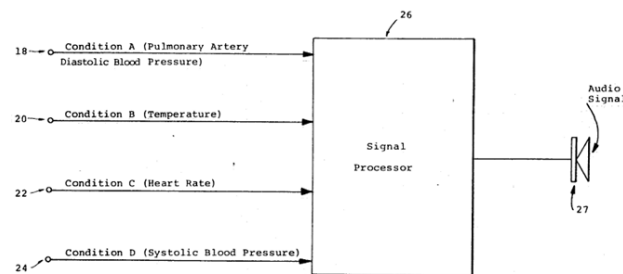
1b.

References

Limiting references

This place does not cover:

Details of notification to user or communication with user or patient using synthesised speech	A61B5/741

## A61B 5/742

Definition statement

This place covers:

Constructional or operational details of visual indication, e.g. using screens, monitors or displays, for controlling a diagnostic procedure or monitoring results of physiological parameters measurements, e.g. multi-parameter hemodynamic monitors.

Illustrative example of subject matter classified in this place:
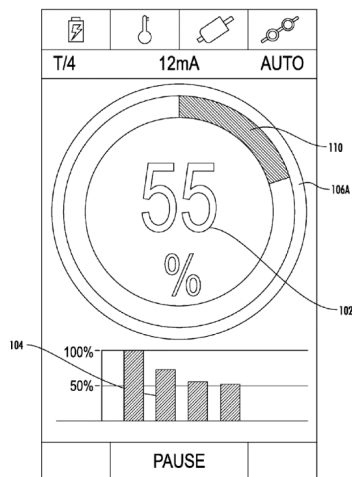
References

Limiting references

This place does not cover:

Displays for heart-related electrical signals, e.g. ECG	A61B5/339

Informative references

Attention is drawn to the following places, which may be of interest for search:

Display arrangements in apparatus for testing the eyes	A61B3/0041
Devices for presenting test symbols or characters in apparatus for testing the eyes	A61B3/032
Multi-parameter vital signs monitoring	A61B5/0205
Flicker fusion testing	A61B5/161
Surgical systems with images on a monitor during operation	A61B90/37
Drawing of charts or graphs	G06T11/206
Medical applications in image generation or computer graphics	G06T2210/41

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

images	anatomical images, i.e. two- or three-dimensional images recorded by imaging modalities such as magnetic resonance imaging [MRI] or optical coherence tomography [OCT], including functional imaging or images of the body surface. Includes also images representing local distribution of physiological parameters not recorded by imaging modalities, such as body composition measured by impedance. Includes images changing over time, e.g. videos. Graphs, e.g. three-dimensional graphs, are not considered images, even if such a three-dimensional graph represents the value of a physiological parameter along two orthogonal axes in space.

A61B 5/7425

Definition statement

This place covers:

Simultaneous display of a plurality of images of a patient or a patient body part, e.g. side-by-side, superimposed or tiled.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Endoscopes comprising display arrangements combining images, e.g. side-by-side, superimposed or tiles	A61B1/0005
Geometric transforms for image registration	G06T3/14
Image enhancement or restoration using two or more images, e.g. image averaging, image fusion, image merging, image subtraction	G06T5/50
Image analysis algorithms for registration of images	G06T7/30
Manipulating 3D models or images for computer graphics	G06T19/00
Manipulating 3D models or images for computer graphics with mixed reality	G06T19/006
Manipulating 3D models or images for computer graphics with multiple view windows	G06T2219/028
Control of mixing or overlay of colours for visual indicators	G09G5/026

A61B 5/743

Definition statement

This place covers:

Display of combination of image(s) and other representation(s) of physiological data, e.g. symbols, graphs, curves, waveforms or risk scores. The combined display may be side-by-side, superimposed or tiled.

Illustrative example of subject matter classified in this place:
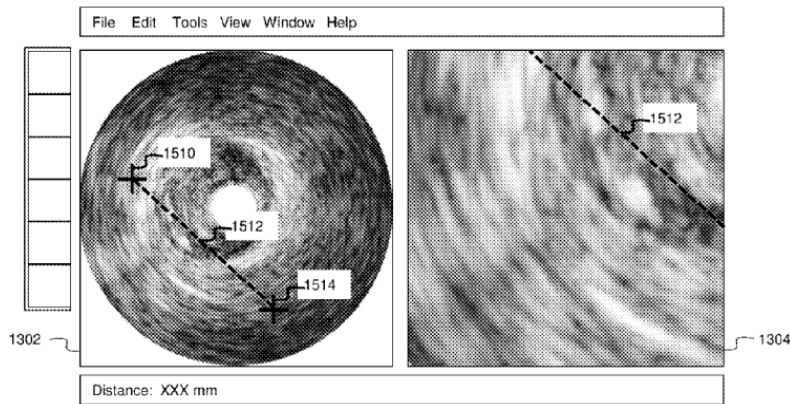
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

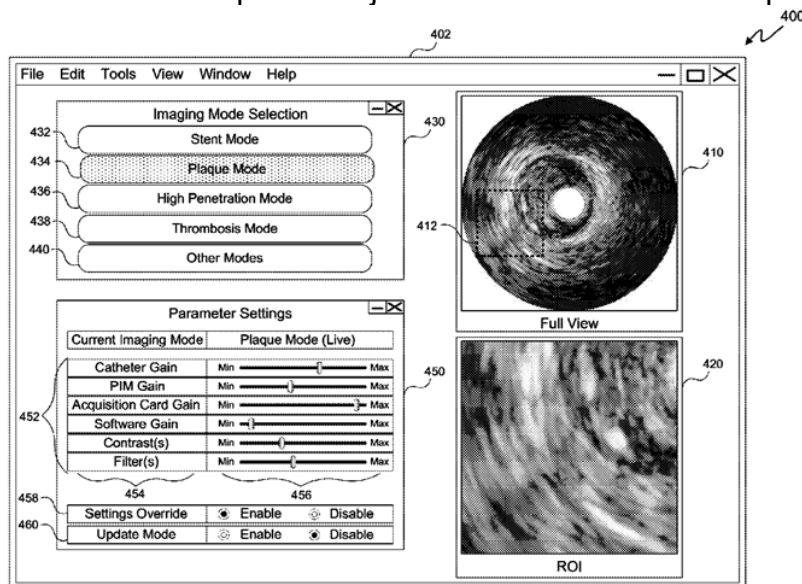|	
Superposing sensor position on an image of the patient	A61B5/066
Sonar systems comprising composite cathode ray tube displays, e.g. split-screen displays; Combination of multiple images or of images and alphanumeric tabular information	G01S7/52074
Manipulating 3D models or images for computer graphics with mixed reality	G06T19/006
Manipulating 3D models or images for computer graphics with annotating, labelling	G06T2219/004
Display of multiple viewports	G09G5/14

DATE: MAY 1, 2025

PROJECT MP11897

A61B 5/7435

Definition statement

This place covers:

Details of GUI design, including buttons or icons for selecting, e.g. imaging parameters.

Illustrative example of subject matter classified in this place:

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

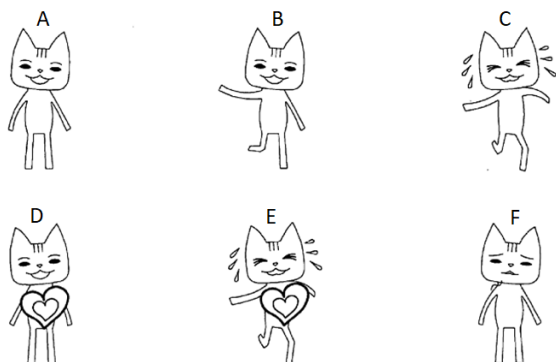| User interfaces for surgical systems	A61B34/25
Interfaces between NMR imaging systems and the user	G01R33/546
Constructional features related to user interfaces of sonar systems particularly adapted to short-range imaging	G01S7/52084
Graphical user interfaces in general	G06F3/048
ICT specially adapted for the operation of medical devices	G16H40/60
Electronic questionnaires	G16H10/20

A61B 5/744

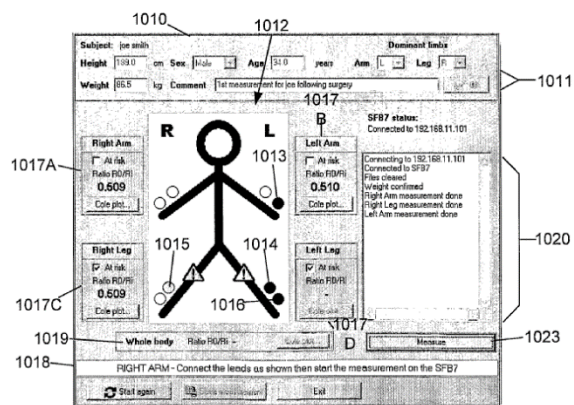### Definition statement

This place covers:

Displaying a character varying in appearance according to measured physiological information or displaying a character on which physiological information is shown.

Illustrative examples of subject matter classified in this place:

1.

2.

A61B 5/7445

Definition statement

This place covers:

Details of display construction, e.g. wearable displays, head-up displays, support for displays or details of arrangements of display units in a device or in a room, e.g. use of multiple display units.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Wristwatch-type diagnostic devices	A61B5/681
Portable consumer electronic devices with sensors, e.g. telephones, tablet computers	A61B5/6898
Details of monitor hardware of surgical systems	A61B2090/372
Constructional details of apparatus	A61B2560/04
Display arrangements for sonar systems particularly adapted to short-range imaging	G01S7/52053
Head-up displays	G02B27/01
Digital output to display device; Cooperation and interconnection of the display device with other functional units	G06F3/14
3D animation of characters	G06T13/40

A61B 5/745

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Image-producing devices specially adapted for surgery or diagnosis comprising augmented reality, i.e. correlating a live optical image with another image	A61B2090/365
Holographic processes in general	G03H1/00

Optical systems or apparatus for producing three-dimensional effects	G02B30/00

A61B 5/7455

Definition statement

This place covers:

Haptic or electrical non-therapeutic stimulation of patient or user without testing the response to the stimulus.

Delivering tactile feedback on, e.g. probe position or abnormal physiological parameters.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Diagnosis by applying mechanical forces or stimuli	A61B5/0048
Measuring blood pressure by inducing vibration	A61B5/02133
Testing reaction times	A61B5/162
Biofeedback	A61B5/486
Surgical manipulators having means for providing feel, e.g. force or tactile feedback	A61B34/76
Ergonomically shaped housings of apparatus	A61B2560/0425
Devices for producing or ending sleep using tactile means	A61M2021/0022
Devices for producing or ending sleep using electric currents	A61M2021/0072
Input arrangements with force or tactile feedback as computer generated output to the user, in general	G06F3/016

A61B 5/746

Definition statement

This place covers:

Details of alarm parameter settings, e.g. adaptive or multiple thresholds.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Endoscopes provided with visual or acoustic output arrangements for alerting the user	A61B1/00055
Determining quality of measured signal	A61B5/7221
Event detection	A61B5/7282
Alarms in surgical instruments created in response to an abnormal condition	A61B2017/00119
Alarms for surgical instruments for transferring non-mechanical forms of energy to the body, e.g. electrosurgery or laser surgery	A61B2018/00898
Monitoring or limiting apparatus function	A61B2560/0266
Input or output devices integrated in time-pieces for measuring external physiological data	G04G21/025
Safety alarms	G08B21/02
User interface in a mobile telephone with alarms based on specific conditions	H04M1/72448

A61B 5/7465

Definition statement

This place covers:

Interactive communication between patient and medical practitioner or computerized expert system, e.g. by two-way audio-visual or voice link, for remote administration of tests. Includes communication via websites.

Relationships with other classification places

In line with the notes under G16H, classification may additionally be considered in G16H80/00 for healthcare informatics related to telehealth.

References

Limiting references

This place does not cover:

Telemetry of measured physiological signal	A61B5/0002

Informative references

Attention is drawn to the following places, which may be of interest for search:

Recording user messages or annotations	A61B2560/0295
Intercom or optical viewing arrangements, structurally associated with NMR apparatus	G01R33/283
Information and communication technology specially adapted for facilitating communication between medical practitioners or patients	G16H80/00
Closed-circuit television systems	H04N7/18
Video conferencing	H04N7/14

A61B 5/747

Definition statement

This place covers:

Interactive communication with emergency site, e.g. to deliver rescue instructions.

A61B 5/7475

## Definition statement

This place covers:

Constructional details of input arrangements, e.g. joysticks, foot-activated controllers, cameras for gesture-based interaction or spatial configuration of input buttons or switches.

Details of use of input means during a diagnostic procedure, e.g. for switching between different diagnostic modes.
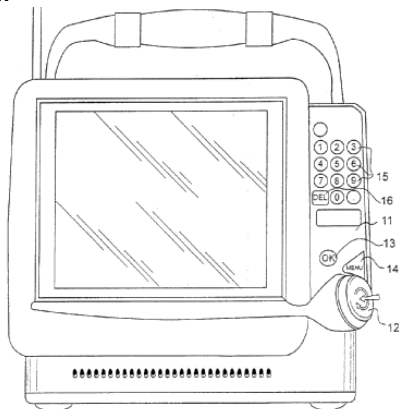
Documents which more than merely mention standard user input or interface means or standard uses thereof, e.g. zooming or manual input of patient parameters are standard uses.

Illustrative examples of subject matter classified in this place:
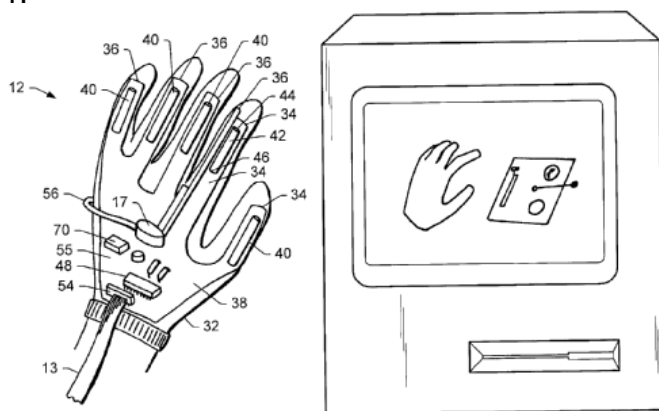
1.

2.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Constructional features of the display of endoscopes	A61B1/00048
User input arrangements of instruments for examining the eyes	A61B3/0033
Computer input devices comprising sensors	A61B5/6897
Portable consumer electronic devices, e.g. music players, telephones, tablet computers	A61B5/6898
Displaying user selection data, e.g. icons in a GUI	A61B5/7435
Electric control of surgical instruments, e.g. gesture control	A61B2017/00017
User interfaces for surgical systems	A61B34/25
Manipulators specially adapted for use in surgery	A61B34/70
Recording user messages or annotations	A61B2560/0295
Constructional details of user interfaces	A61B2560/0487
Input arrangements for interaction between user and computer in general	G06F3/01

A61B 5/748

Definition statement

This place covers:

Details of user input for selection of a region/volume/area of interest [ROI]. The selection is usually performed directly on an image.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Interactive definition of region of interest	G06T2207/20104

A61B 5/7485

Definition statement

This place covers:

Details of at least partly automatic selection of a region/volume/area of interest [ROI], e.g. the region is determined by a processor based on one or more seeding points defined by a user.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Medical imaging apparatus involving image processing or analysis	A61B2576/00
Image segmentation	G06T7/10
Region-based image segmentation	G06T7/11
Image segmentation involving region growing; Involving region merging; Involving connected component labelling	G06T7/187
Image segmentation involving foreground-background segmentation	G06T7/194

A61B 5/749

Definition statement

This place covers:

Details of use of speech or voice to input control commands.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Speech control of surgical instruments	A61B2017/00203
Constructional details of voice-controlled user interfaces	A61B2560/0493

Sound input arrangements for interfacing with computers	G06F3/16
Speech recognition	G10L15/00
Speech or voice analysis techniques	G10L25/00

A61B 5/7495

Definition statement

This place covers:

Details of use of barcodes or other smart codes, e.g. RFID codes, for inputting patient or diagnostic device parameters.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Endoscopes provided with identification means	A61B1/00059
Instruments for examining the eyes with identification means	A61B3/0066
Sensors provided with identification means	A61B2562/08
Identification means for patients or instruments, e.g. tags	A61B90/90
Methods or arrangements for sensing record carriers	G06K7/00
Identification bracelets	G09F3/005