

# CPC COOPERATIVE PATENT CLASSIFICATION

## G PHYSICS (NOTES omitted)

### INSTRUMENTS

## G06 COMPUTING; CALCULATING; COUNTING (NOTES omitted)

## G06N COMPUTING ARRANGEMENTS BASED ON SPECIFIC COMPUTATIONAL MODELS

### WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

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|-------------|---|-------------|--|
| <b>3/00</b> | <b>Computing arrangements based on biological models</b>  | 3/086       | . . . {using evolutionary programming, e.g. genetic algorithms}  |
| 3/002       | . {Biomolecular computers, i.e. using biomolecules, proteins, cells (using DNA <a href="#">G06N 3/123</a> ; using neurons <a href="#">G06N 3/061</a> )}                                 | 3/088       | . . . {Non-supervised learning, e.g. competitive learning}   |
| 3/004       | . {Artificial life, i.e. computers simulating life}   | 3/10        | . . Simulation on general purpose computers  |
| 3/006       | . . {based on simulated virtual individual or collective life forms, e.g. single "avatar", social simulations, virtual worlds or particle swarm optimisation}                           | 3/105       | . . . {Shells for specifying net layout}   |
|             |   | 3/12        | . using genetic models   |
| 3/008       | . . {based on physical entities controlled by simulated intelligence so as to replicate intelligent life forms, e.g. robots replicating pets or humans in their appearance or behavior} | 3/123       | . . {DNA computers, i.e. information processing using biological DNA}  |
|             |   | 3/126       | . . {Genetic algorithms, i.e. information processing using digital simulations of the genetic system}  |
| 3/02        | . using neural network models   | <b>5/00</b> | <b>Computing arrangements using knowledge-based models</b>   |
| 3/04        | . . Architectures, e.g. interconnection topology  | 5/003       | . {Dynamic search techniques; Heuristics; Dynamic trees; Branch-and-bound}   |
| 3/0409      | . . . {Adaptive resonance theory [ART] networks}  | 5/006       | . . {Automatic theorem proving}  |
| 3/0418      | . . . {using chaos or fractal principles}   | 5/02        | . Knowledge representation   |
| 3/0427      | . . . {in combination with an expert system}  | 5/022       | . . {Knowledge engineering; Knowledge acquisition}   |
| 3/0436      | . . . {in combination with fuzzy logic}   | 5/025       | . . {Extracting rules from data}   |
| 3/0445      | . . . {Feedback networks, e.g. hopfield nets, associative networks}   | 5/027       | . . {Frames}   |
| 3/0454      | . . . {using a combination of multiple neural nets}   | 5/04        | . Inference methods or devices   |
| 3/0463      | . . . {Neocognitrons}   | 5/041       | . . {Abduction}  |
| 3/0472      | . . . {using probabilistic elements, e.g. p-rams, stochastic processors}  | 5/042       | . . {Backward inferencing}   |
| 3/0481      | . . . {Non-linear activation functions, e.g. sigmoids, thresholds}  | 5/043       | . . {Distributed expert systems; Blackboards}  |
| 3/049       | . . . {Temporal neural nets, e.g. delay elements, oscillating neurons, pulsed inputs}   | 5/045       | . . {Explanation of inference steps}   |
| 3/06        | . . Physical realisation, i.e. hardware implementation of neural networks, neurons or parts of neurons  | 5/046       | . . {Forward inferencing; Production systems}  |
| 3/061       | . . . {using biological neurons, e.g. biological neurons connected to an integrated circuit}  | 5/047       | . . . {Pattern matching networks; RETE networks}   |
| 3/063       | . . . using electronic means  | 5/048       | . . {Fuzzy inferencing}  |
| 3/0635      | . . . . {using analogue means}  | <b>7/00</b> | <b>Computing arrangements based on specific mathematical models</b>  |
| 3/067       | . . . using optical means   | 7/005       | . {Probabilistic networks}   |
| 3/0675      | . . . . {using electro-optical, acousto-optical or opto-electronic means}   | 7/02        | . using fuzzy logic (computing arrangements based on biological models <a href="#">G06N 3/00</a> ; computing arrangements using knowledge-based models <a href="#">G06N 5/00</a> ) |
| 3/08        | . . Learning methods  | 7/023       | . . {Learning or tuning the parameters of a fuzzy system}  |
| 3/082       | . . . {modifying the architecture, e.g. adding or deleting nodes or connections, pruning}   | 7/026       | . . {Development tools for entering the parameters of a fuzzy system}  |
| 3/084       | . . . {Back-propagation}  | 7/04        | . . Physical realisation   |

7/043	. . . {Analogue or partially analogue implementation}	10/80	. Quantum programming, e.g. interfaces, languages or software-development kits for creating or handling programs capable of running on quantum computers; Platforms for simulating or accessing quantum computers, e.g. cloud-based quantum computing
7/046	. . . {Implementation by means of a neural network (neural networks using fuzzy logic G06N 3/0436)}		
7/06	. . Simulation on general purpose computers		
7/08	. using chaos models or non-linear system models		
<b>10/00</b>	<b>Quantum computing, i.e. information processing based on quantum-mechanical phenomena</b>		
	<b>WARNING</b> Group <a href="#">G06N 10/00</a> is impacted by reclassification into groups <a href="#">G06N 10/20</a> , <a href="#">G06N 10/40</a> , <a href="#">G06N 10/60</a> , <a href="#">G06N 10/70</a> and <a href="#">G06N 10/80</a> . All groups listed in this Warning should be considered in order to perform a complete search.		<b>WARNING</b> Group <a href="#">G06N 10/80</a> is incomplete pending reclassification of documents from group <a href="#">G06N 10/00</a> . Groups <a href="#">G06N 10/00</a> and <a href="#">G06N 10/80</a> should be considered in order to perform a complete search.
10/20	. Models of quantum computing, e.g. quantum circuits or universal quantum computers	<b>20/00</b>	<b>Machine learning</b>
	<b>WARNING</b> Group <a href="#">G06N 10/20</a> is incomplete pending reclassification of documents from group <a href="#">G06N 10/00</a> . Groups <a href="#">G06N 10/00</a> and <a href="#">G06N 10/20</a> should be considered in order to perform a complete search.	20/10	. using kernel methods, e.g. support vector machines [SVM]
		20/20	. Ensemble learning
		<b>99/00</b>	<b>Subject matter not provided for in other groups of this subclass</b>
		99/007	. {Molecular computers, i.e. using inorganic molecules (using biomolecules <a href="#">G06N 3/002</a> )}
10/40	. Physical realisations or architectures of quantum processors or components for manipulating qubits, e.g. qubit coupling or qubit control		
	<b>WARNING</b> Group <a href="#">G06N 10/40</a> is incomplete pending reclassification of documents from group <a href="#">G06N 10/00</a> . Groups <a href="#">G06N 10/00</a> and <a href="#">G06N 10/40</a> should be considered in order to perform a complete search.		
10/60	. Quantum algorithms, e.g. based on quantum optimisation, quantum Fourier or Hadamard transforms		
	<b>WARNING</b> Group <a href="#">G06N 10/60</a> is incomplete pending reclassification of documents from group <a href="#">G06N 10/00</a> . Groups <a href="#">G06N 10/00</a> and <a href="#">G06N 10/60</a> should be considered in order to perform a complete search.		
10/70	. Quantum error correction, detection or prevention, e.g. surface codes or magic state distillation		
	<b>WARNING</b> Group <a href="#">G06N 10/70</a> is incomplete pending reclassification of documents from group <a href="#">G06N 10/00</a> . Groups <a href="#">G06N 10/00</a> and <a href="#">G06N 10/70</a> should be considered in order to perform a complete search.		