

# CPC COOPERATIVE PATENT CLASSIFICATION

## G06N COMPUTER SYSTEMS BASED ON SPECIFIC COMPUTATIONAL MODELS

**3/00 Computer systems based on biological models**  
(analogue computers simulating functional aspects of living beings [G06G 7/60](#))

- 3/002
  - . {Biomolecular computers, i.e. using biomolecules, proteins, cells (using DNA [G06N 3/123](#); using neurons [G06N 3/061](#))}
- 3/004
  - . {Artificial life, i.e. computers simulating life}
- 3/006
  - . . {based on simulated virtual individual or collective life forms, e.g. single "avatar", social simulations, virtual worlds (computer games [A63F 13/00](#); medical simulations [G06F 19/00](#); information retrieval [G06F 17/30873](#); image processing [G06T](#); telecommunication protocols [H04L 29/06034](#))}
- 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 (toys or dolls [A63H 3/00](#); industrial robot control [G05B 19/00](#); [B25J 9/00](#); artificial neural networks [G06N 3/00](#); rule based artificial intelligence [G06N 5/00](#))}
- 3/02
  - . using neural network models (for adaptive control [G05B 13/00](#); for image pattern matching [G06K 9/00](#); for image data processing [G06T 1/20](#); for phonetic pattern matching [G10L 15/16](#))
- 3/04
  - . . Architectures, e.g. interconnection topology
- 3/0409
  - . . . {Adaptive Resonance Theory [ART] networks}
- 3/0418
  - . . . {using chaos or fractal principles}
- 3/0427
  - . . . {in combination with an expert system}
- 3/0436
  - . . . {in combination with fuzzy logic}
- 3/0445
  - . . . {Feedback networks, e.g. hopfield nets, associative networks}
- 3/0454
  - . . . {using a combination of multiple neural nets}
- 3/0463
  - . . . {Neocognitrons}
- 3/0472
  - . . . {using probabilistic elements, e.g. p-rams, stochastic processors}
- 3/0481
  - . . . {Non-linear activation functions, e.g. sigmoids, thresholds}
- 3/049
  - . . . {Temporal neural nets, e.g. delay elements, oscillating neurons, pulsed inputs}
- 3/06
  - . . Physical realisation, i.e. hardware implementation of neural networks, neurons or parts of neurons
- 3/061
  - . . . {using biological neurons, e.g. biological neurons connected to an integrated circuit}
- 3/063
  - . . . using electronic means
- 3/0635
  - . . . . {using analogue means}
- 3/067
  - . . . using optical means
- 3/0675
  - . . . . {using electro-optical, acousto-optical or opto-electronic means}
- 3/08
  - . . Learning methods
- 3/082
  - . . . {modifying the architecture, e.g. adding or deleting nodes or connections, pruning}
- 3/084
  - . . . {Back-propagation}
- 3/086
  - . . . {using evolutionary programming, e.g. genetic algorithms}
- 3/088
  - . . . {Non-supervised learning, e.g. competitive learning}
- 3/10
  - . . Simulation on general purpose computers

- 3/105
  - . . . {Shells for specifying net layout}
- 3/12
  - . using genetic models
- 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}

**5/00 Computer systems utilising knowledge based models**

- 5/003
  - . {Dynamic search techniques, heuristics, branch-and-bound ([G06N 5/046](#) take precedence; for optimisation [G06Q 10/04](#))}
- 5/006
  - . . {Automatic theorem proving}
- 5/02
  - . Knowledge representation ([G06N 5/04](#) takes precedence)}
- 5/022
  - . . {Knowledge engineering, knowledge acquisition}
- 5/025
  - . . . {Extracting rules from data (learning in general [G06F 15/18](#))}
- 5/027
  - . . {Frames}
- 5/04
  - . Inference methods or devices
- 5/041
  - . . {Abduction}
- 5/042
  - . . {Backward inferencing}
- 5/043
  - . . {Distributed expert systems, blackboards}
- 5/045
  - . . {Explanation of inference steps}
- 5/046
  - . . {Forward inferencing, production systems}
- 5/047
  - . . . {Pattern matching networks, RETE}
- 5/048
  - . . {Fuzzy inferencing}

**7/00 Computer systems based on specific mathematical models**

- 7/005
  - . {Probabilistic networks}
- 7/02
  - . using fuzzy logic ([G06N 3/00](#), [G06N 5/00](#) take precedence; for adaptive control [G05B 13/00](#))
- 7/023
  - . . {Learning or tuning the parameters of a fuzzy system}
- 7/026
  - . . {Development tools for entering the parameters of a fuzzy system}
- 7/04
  - . . Physical realisation
- 7/043
  - . . . {Analogue or partially analogue implementation}
- 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

**99/00 Subject matter not provided for in other groups of this subclass**

- 99/002
  - . {Quantum computers, i.e. information processing by using quantum superposition, coherence, decoherence, entanglement, nonlocality, teleportation}
- 99/005
  - . {Learning machines, i.e. computer in which a programme is changed according to experience gained by the machine itself during a complete run (neural networks [G06N 3/02](#); knowledge based models [G06N 5/00](#); fuzzy logic systems [G06N 7/02](#); adaptive control systems [G05B 13/00](#))}

- 99/007     • {Molecular computers, i.e. using inorganic molecules (using biomolecules [G06N 3/002](#))}