

1979 - 2020

1979-1981 topic 4

number equation point
set process computational
abstract cost function constraint
efficient decision constraint
algorithm
dynamic solving linear
case mathematical optimization
problem
programming program
technique
time optimal
procedure represented
variable

1982-1984 topic 1

search tree polynomial general
process linear set
algorithm
program case decision
function order
number property
simple structure time
complexity efficient technique
presented problem computation
abstraction type procedure transformation
point

1985-1987 topic 4

dynamic image controller
equation dimensional set
control
order space presented
abstract object edge
algorithm
class state number tree
time solution
structure matrix
problem
linear optimal constraint

1991-1993 topic 14

complexity network bound
optimal efficient space
search neural time
time solution linear
problem
training parallel function graph
case point path
algorithm
tree learning class
class optimization size
number bound log
set size

1994-1996 topic 16

property space bound
optimal tree log time path
set function structure
algorithm
minimum graph point
order case complexity linear
size problem class
polynomial vertex matrix
general number finite filter
solution

1997-1999 topic 13

time space vertex edge
bound set point polynomial
log condition finite general
problem
solution complexity algorithm
property prove number
function linear graph case
theorem matrix class tree
order abstract

2000-2002 topic 15

algorithm equation
graph point complexity case
number point dimension tree
set property space finite
function

2003-2005 topic 9

order class variable
linear function
state bound number
optimization matrix computation
constraint optimal space
time general
tree case
graph structure problem complexity
search point cost
property efficient

2006-2008 topic 18

state fuzzy parameter
case nonlinear condition dynamic
point order class
algorithm
theory solution graph
space number equation
problem
linear time variable
property optimal neural set
constraint optimization numerical
matrix optimization matrix

2009-2011 topic 17

solving function approximation
linear particle number
point theory robot
problem order
genetic bound
space constraint
optimization optimal state
algorithm parameter numerical
finite numerical
equation linear
solution property
problem set
optimization set
matrix algorithm
variable condition
solving number
optimization constraint

2012-2014 topic 18

parameter state solution
order estimation
space numerical finite
filter distribution
case numerical
nonlinear optimal set
problem property
input probability
function condition control

2015-2017 topic 7

numerical order
point function computational
approximation graph optimal math
space class time complexity
solve matrix state property
algorithm
case solving number
optimization constraint

2018-2020 topic 17

approximation
set
order
space
general
state
point
solution
framework
class
problem
property
agent
quantum
analysis
bound
matrix
case
probability
abstract
variable
function
linear
structure
algorithm
constraint
number
theory
distribution

1979 - 2020

1979-1981 topic 4

number equation point
set process computational
abstract cost constraint
general function decision
efficient algorithm
cost function constraint
dynamic solving linear
case mathematical optimization
algorithm
problem
programming technique
time optimal
procedure represented
variable

1997-1999 topic 5

optimal performance vector
constraint time
space efficient computation
test circuit
set function heuristic
genetic approximation cost
algorithm
solution number path search
presented computational
fault technique
point size optimization linear

2000-2002 topic 19

algorithm performance computational
set cost rule
function decision solve fuzzy solving
constraint optimal technique analysis parameter
problem presented strategy search genetic efficient
optimization numerical case number process time

2012-2014 topic 19

number performance local
search graph solving
cost image
time function computational
efficient algorithm
objective multi compared
point compression optimal set
high order constraint quality
edge solve technique
solution

2015-2017 topic 7

numerical problem order
structure function bound
point equation computational
approximation graph optimal math
space class time complexity set
solution linear property
solve matrix state algorithm
case solving number optimization constraint

2018-2020 topic 17

approximation set space general
order point solution class
framework state property agent
quantum analysis bound
matrix probability abstract variable
function theory linear structure constraint
algorithm number provide

1979 - 1993

1979-1981 topic 1

computation semantics verification
machine grammar
context formal proof
language
structure type programming
definition type
logic
free log introduced class
operation property class complexity
algebra rule form
function array
specification object

1982-1984 topic 14

attribute
number
theory abstract integer called
relation sequence element function
property program
program database subset language logic
subset defined theorem query relational
subset structure proof string
subset definition form relational
subset database query

1985-1987 topic 3

concept function net
rule term program
logic semantics
order structure class type
set algebra property
language grammar extension prolog free
abstract programming defined
specification theorem formal definition

1988-1990 topic 12

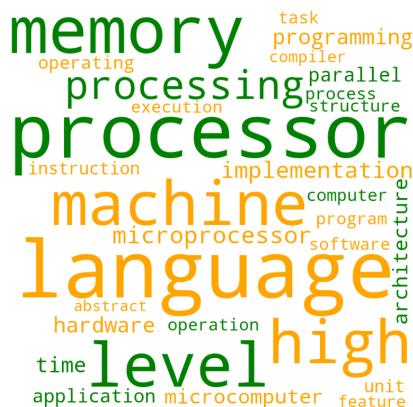
number classification theorem formula
class logic
structure representation
Set type relation
function pattern net
theory variable order general space
term notion case problem abstract form finite
property

1991-1993 topic 17

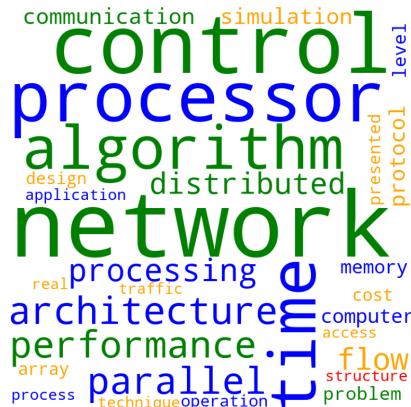
function italic
logic
property structure theorem
proof abstract chapter
Set order semantics
theory notion class finite constraint
language relation general extension form operator

1979 - 2017

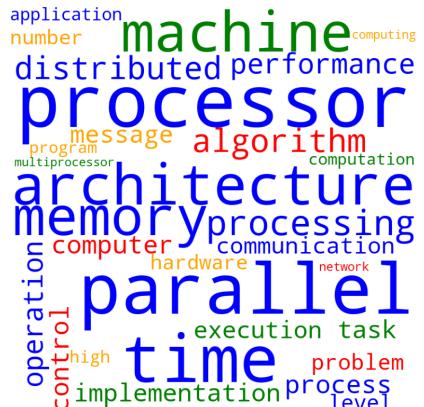
1979-1981 topic 8



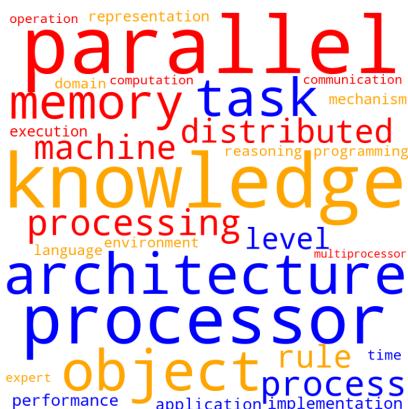
1982-1984 topic 12



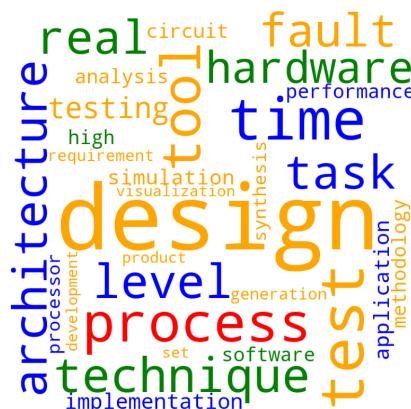
1985-1987 topic 20



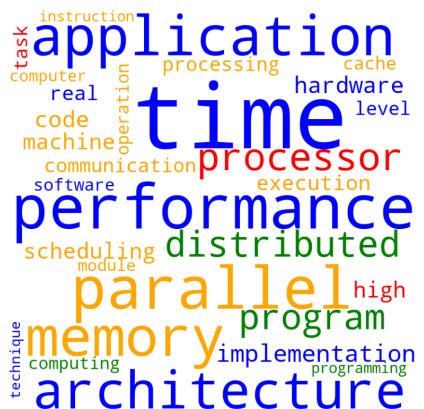
1988-1990 topic 8



1994-1996 topic 19



1997-1999 topic 4



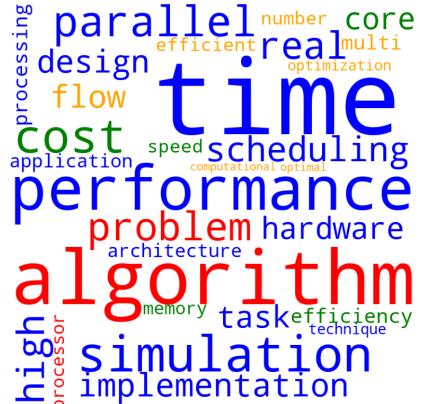
2003-2005 topic 5



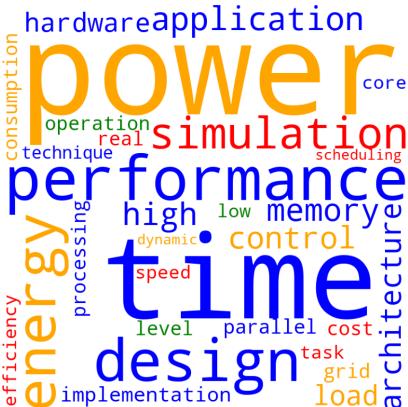
2006-2008 topic 14



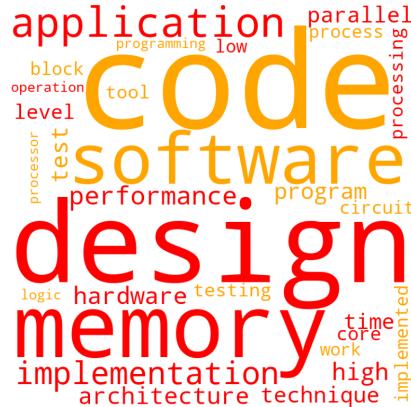
2009-2011 topic 20



2012-2014 topic 2



2015-2017 topic 8



1979 - 2020

1979-1981 topic 14

rate average access
delay time scheme
probability routing
channel node
number buffer
flow protocol
tree traffic service presented
distribution queue
message communication link
capacity mechanism
network

1985-1987 topic 9

traffic satellite curve
area communication
routing optical delay
local radio wave
surface queue distribution
transmission performance
rate service access
protocol node
switching time voice
channel link packet point

1988-1990 topic 7

link channel protocol layer
traffic local
performance simulation
message learning packet number
network
cache delay connection
scheme etx neuron
architecture service routing
neural presented
communication time transmission

1991-1993 topic 2

application packet load
communication
performance channel multiple service
node control high access time number
distributed delay etx
station fault architecture
link protocol scheme routing
traffic message simulation
network

1994-1996 topic 9

connection station buffer
antenna network
service channel link delay
message packet receiver
signal mobile
protocol performance source
call time
transmission receiver
communication bandwidth
cell traffic atm wireless

1997-1999 topic 17

qos rate scheme ip
service delay
protocol bandwidth
network high loss time
traffic quality reliability link layer
packet atm allocation
performance transmission mechanism

2000-2002 topic 7

traffic routing algorithm application
network delay qos distributed
control resource flow mobile
performance link communication cache
mechanism protocol scheme access service
ip path node layer time
packet wireless bandwidth
simulation

2003-2005 topic 1

peer distributed ip ad
node scheme
wireless routing
scheduling load service
network delay layer
resource communication packet
time mechanism control
bandwidth protocol
algorithm simulation
performance path
qos traffic hoc link

2006-2008 topic 19

efficient capacity number
routing delay
multiple node
cost path energy
power sensor time
transmission
algorithm
problem simulation
compared interference optimal
error wireless technique
channel multi
network rate complexity

2009-2011 topic 9

communication simulation control
security route
packet node scheme path
algorithm time
wireless energy performance
link mechanism
network attack topology
problem key topology
protocol delay ad
routing layer sensor mobile
transmission

2012-2014 topic 4

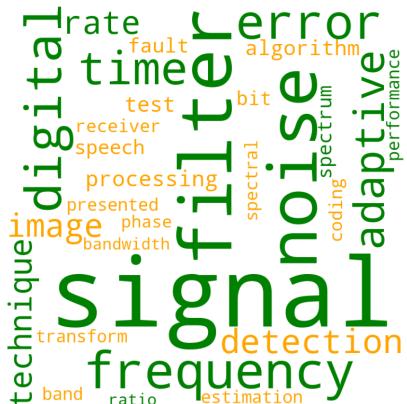
path distributed
agent multi packet
communication
problem link fuzzy topology
dynamic destination
route layer hoc
connectivity
network
mobile routing neural number
node protocol
simulation traffic mechanism
message wireless mobility

2018-2020 topic 9

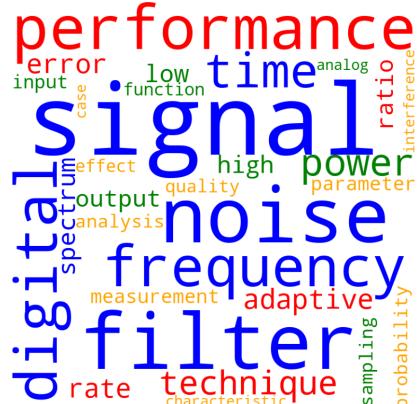
radio channel routing rate delay
driver performance
scheme simulation
communication
station mobile
interference link
vehicle wireless road protocol
wireless sensor access
node user scenario power
traffic packet number
transmission multiple

1979 - 2020

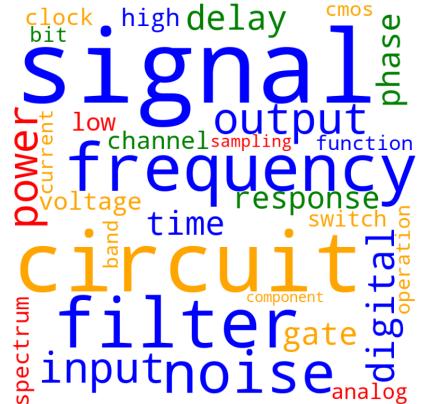
1979-1981 topic 18



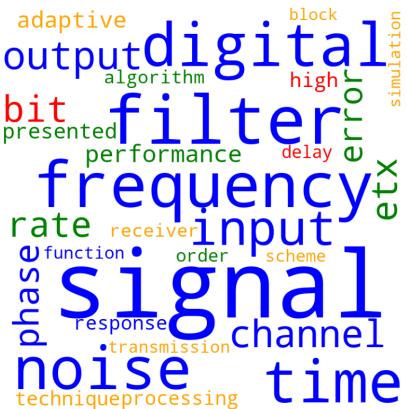
1982-1984 topic 6



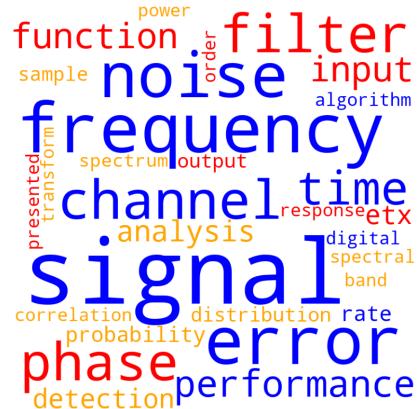
1985-1987 topic 18



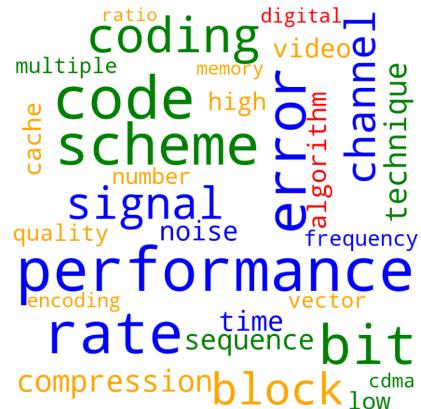
1988-1990 topic 15



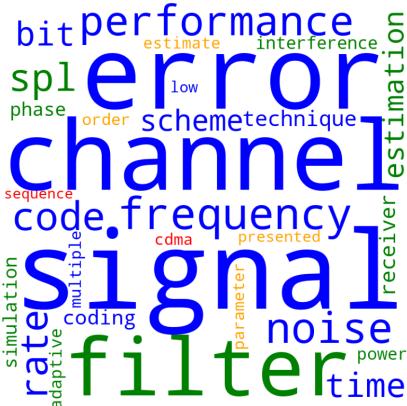
1991-1993 topic 16



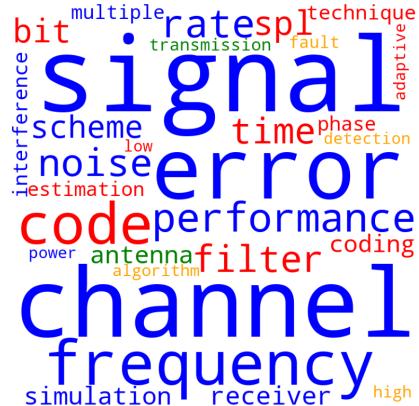
1994-1996 topic 3



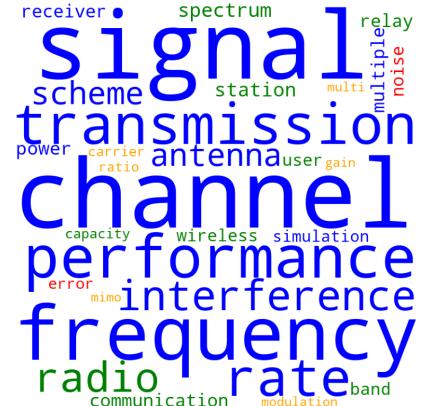
1997-1999 topic 19



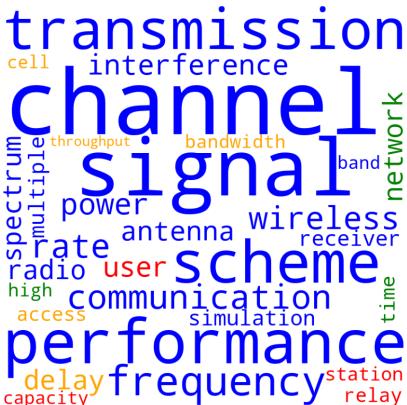
2000-2002 topic 4



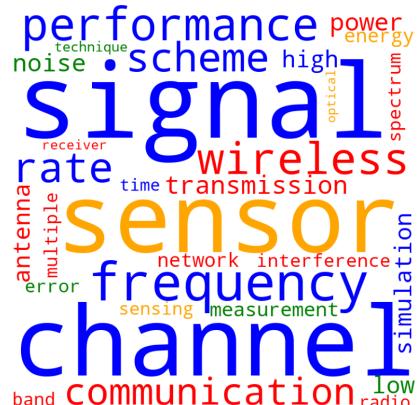
2009-2011 topic 1



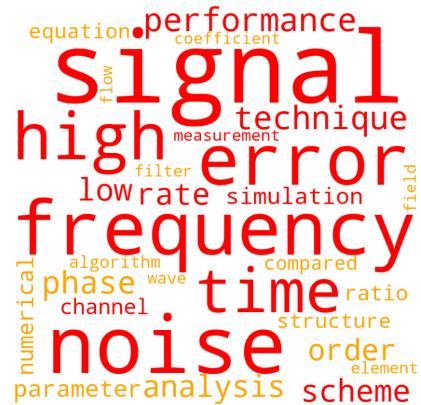
2012-2014 topic 5



2015-2017 topic 19



2018-2020 topic 7

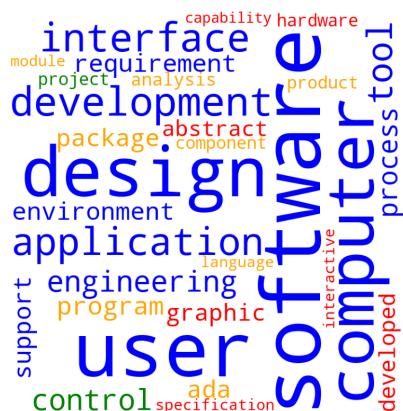


1982 - 2020

1982-1984 topic 2



1985-1987 topic 17



1988-1990 topic 9



1991-1993 topic 15



1994-1996 topic 5



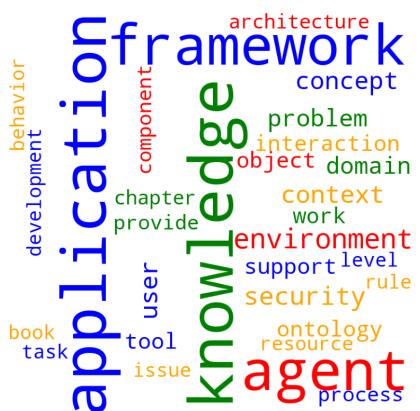
1997-1999 topic 12



2000-2002 topic 17



2006-2008 topic 4



2009-2011 topic 5



2015-2017 topic 16



2018-2020 topic 5

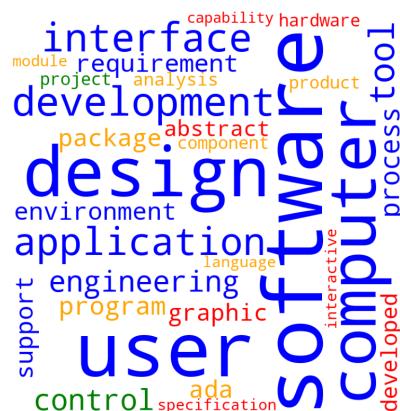


1982 - 2020

1982-1984 topic 2



1985-1987 topic 17



1988-1990 topic 9



1991-1993 topic 15



1994-1996 topic 5



1997-1999 topic 12



2006-2008 topic 10



2009-2011 topic 4



2012-2014 topic 20



2015-2017 topic 16

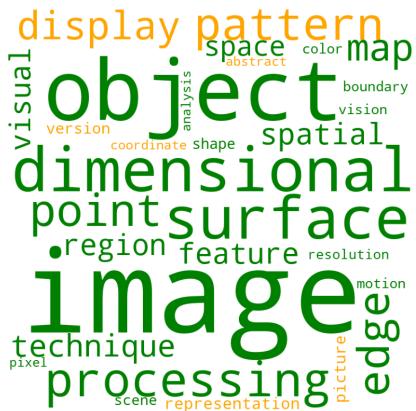


2018-2020 topic 5

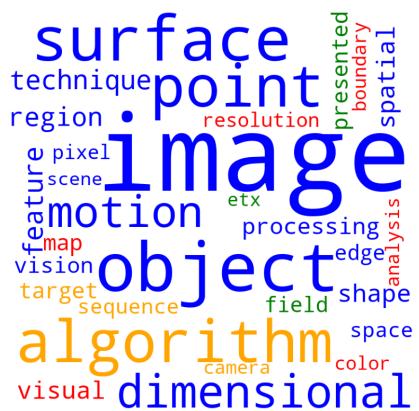


1982 - 2017

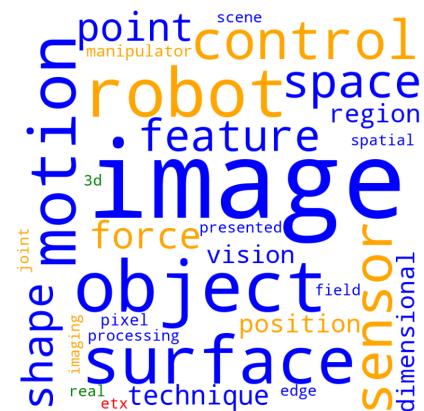
1982-1984 topic 7



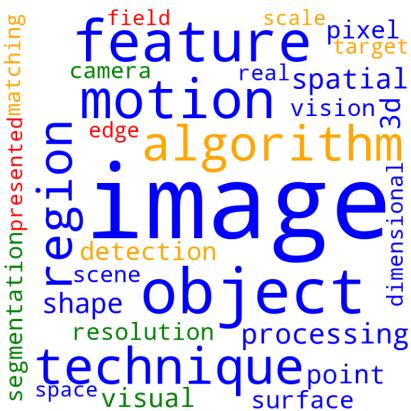
1988-1990 topic 19



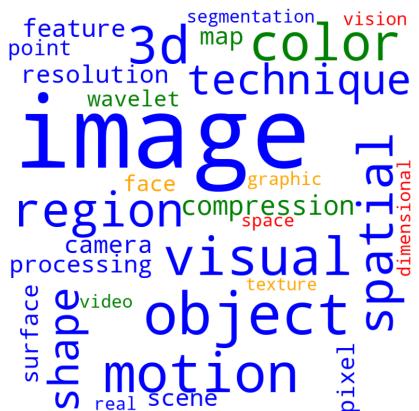
1991-1993 topic 5



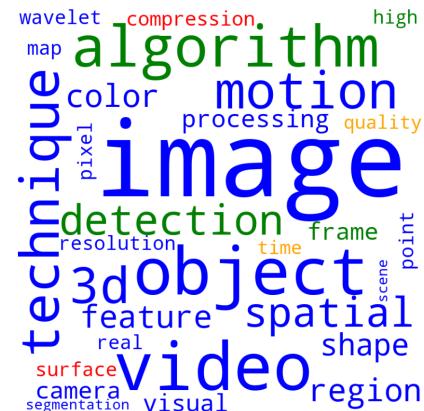
1994-1996 topic 20



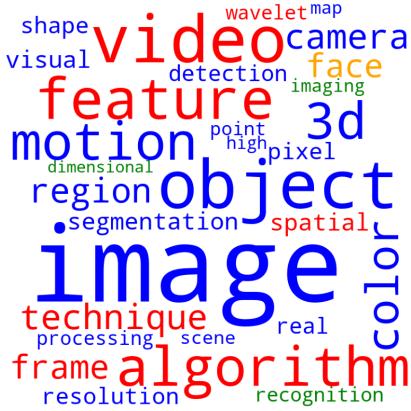
1997-1999 topic 10



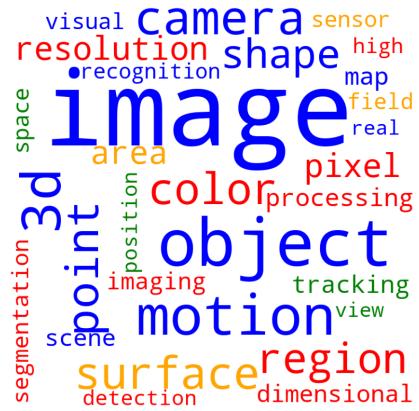
2000-2002 topic 1



2003-2005 topic 10



2009-2011 topic 6

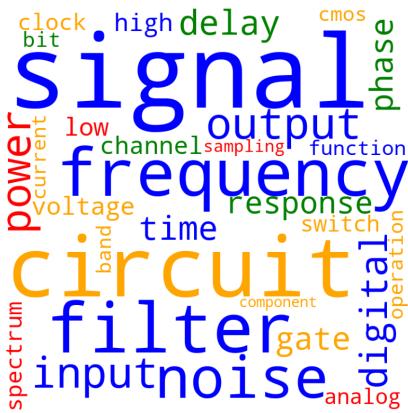


2015-2017 topic 1

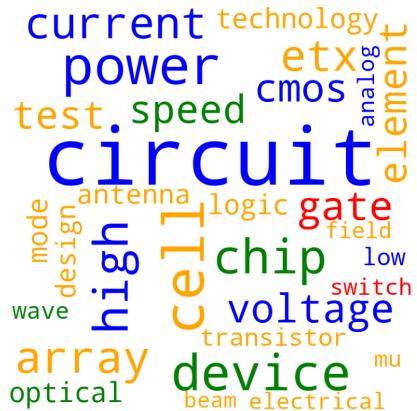


1985 - 2011

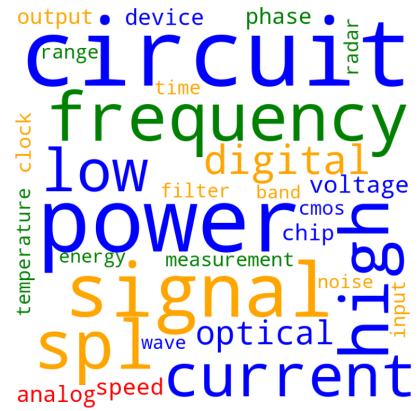
1985-1987 topic 18



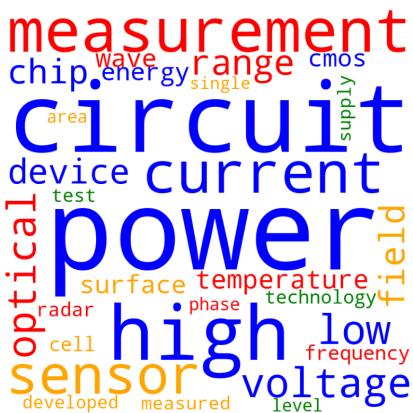
1988-1990 topic 5



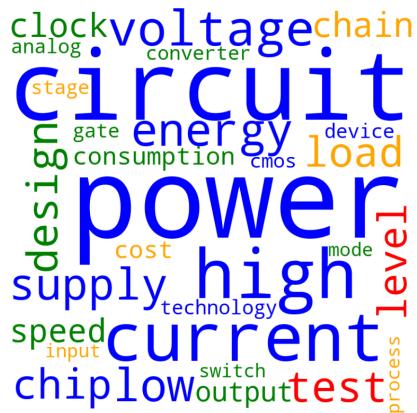
1994-1996 topic 15



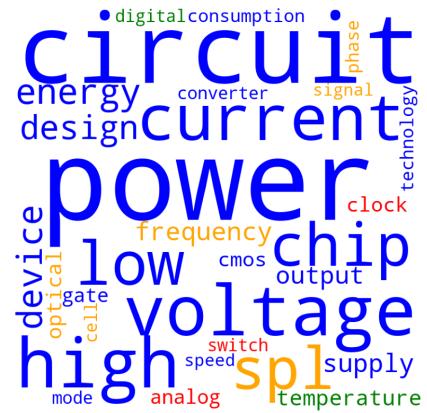
1997-1999 topic 7



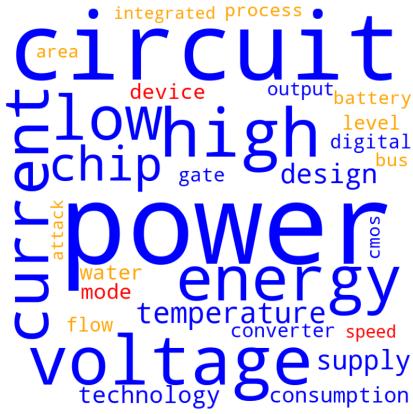
2000-2002 topic 2



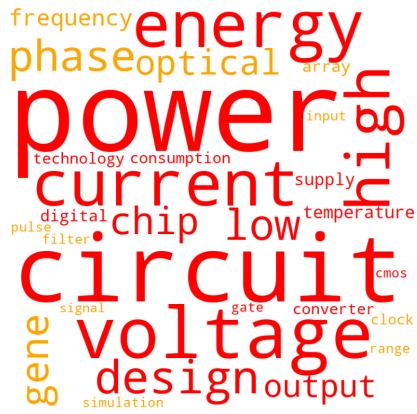
2003-2005 topic 20



2006-2008 topic 13



2009-2011 topic 8



1985 - 2008

1985-1987 topic 5

movement contact arm surface pulse mode
high force beam
motor power vehicle
control pressure detector head
device body laser position operation
element speed provided engine includes
drive side field reaction mounted
includes

1988-1990 topic 18

comprising connected inspection wheel
pressure element
material surface
provided temperature apparatus portion
defect movement side head comprises mechanism
vehicle utility group body safety profile frame
member reaction mounted

1994-1996 topic 12

joint mechanism hand human movement direction
body control provided portion
position surface motion vehicle trajectory assembly
robot ring velocity angle side member arm drive pressure material

1997-1999 topic 15

speed joint connected head side
mechanism vehicle surface
drive direction machine
device member hand air utility grid mobile
position movement element velocity
control provided motor arm
contact assembly

2000-2002 topic 3

provided pressure molecular
structure protein element
flow fluid mechanism support
ring layer assembly side compound
plate body device contact chemical
positions surface material cell
portion direction temperature utility head

2003-2005 topic 4

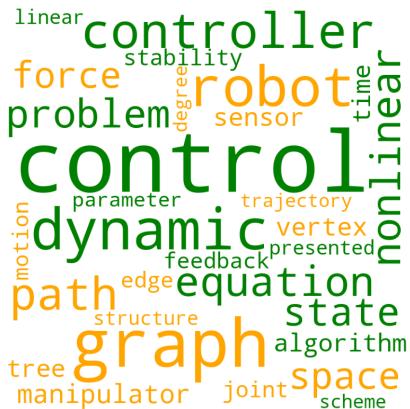
movement machine velocity
control element surface mechanism frame
body force mechanism frame
position portion drive speed motion assembly
motor device contact driving
vehicle satellite side member plate connected

2006-2008 topic 7

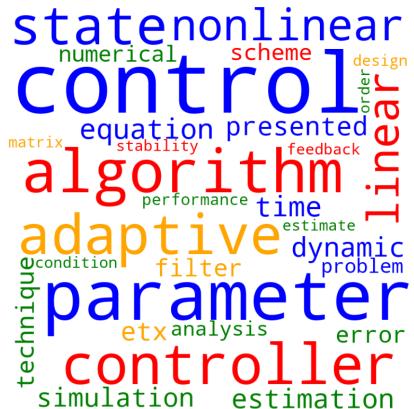
member pressure arranged support
mechanism position device provided
surface structure head frame portion
vehicle assembly direction utility connected
side body light
comprises contact material
plate positioning element

1988 - 2020

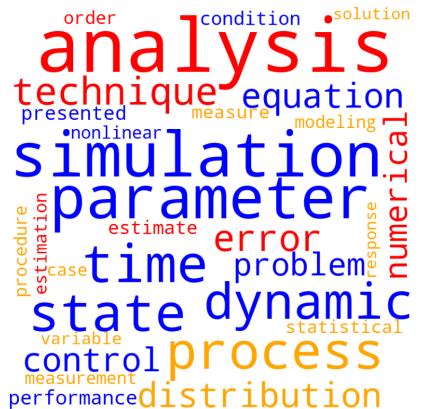
1988-1990 topic 4



1991-1993 topic 7



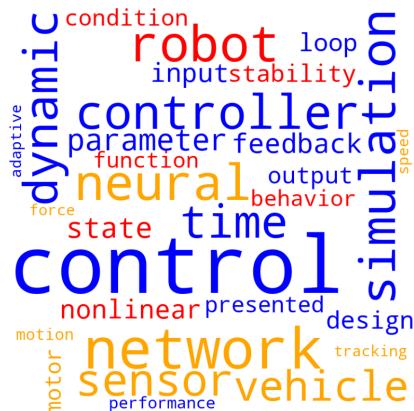
1994-1996 topic 7



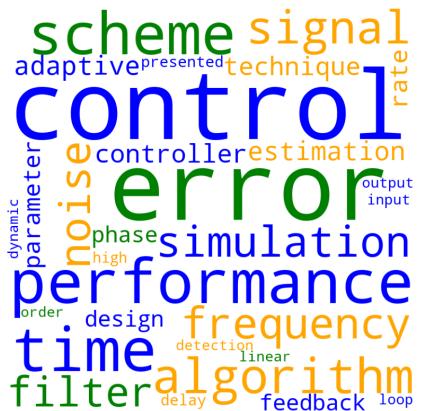
1997-1999 topic 20



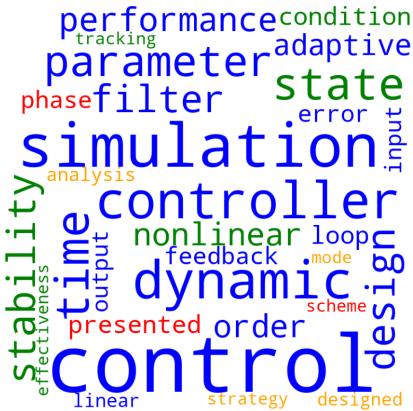
2000-2002 topic 9



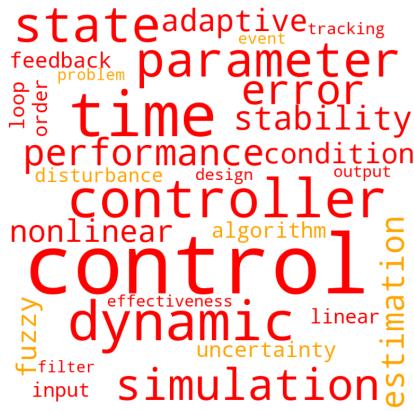
2003-2005 topic 19



2015-2017 topic 13



2018-2020 topic 1



1988 - 2014

1988-1990 topic 10

theory university work decision experience
Computer group process science knowledge
school skill problem education teaching strategy
learning student role teacher medical year issue
human training task

1991-1993 topic 13

writing school project report library
question program issue university year
document technical material computer
education problem subject technology
science test article teaching reading
student book teacher group learning development

1994-1996 topic 2

subject language author text topic experience
university year reading process education writing
student material book learning computer group teaching
school business work skill level

1997-1999 topic 9

introduction chapter teacher reader
work university basic teaching reference article
computer school english author topic writing
language year skill library
student education question program book
material technology educational

2000-2002 topic 13

education communication work
activity group program material
learning technology development year
social business organization computer
science university skill practice
student quality issue experience teacher community
teaching project process management

2003-2005 topic 16

project business teaching product online
science problem organization activity management
student work design library computer resource education
process management learning issue development
technology quality group year concept

2006-2008 topic 5

writing strategy computer school
problem author class educational practice
student reading education group
learning training article material science
teaching question skill game program
online university learner

2009-2011 topic 14

learner college skill educational
computer class ring science
learning university training practice
writing classroom course title music
student education school teacher
reading group ability atom compound

2012-2014 topic 1

university material educational library
learning year learner school online writing
education activity language computer technology
group teacher training class book design reading
science teaching english teacher training
student skill test article

1988 - 2020

1988-1990 topic 20

analysis sentence
translation speech
final pattern
input natural rule
recognition word
linguistic character
grammar context
text semantic clause
parser prolog
language english
parsing dictionary
feature speaker
unification

2000-2002 topic 11

sentence program form
character formal semantics natural
language theory pattern text
grammatical object class structure
structure type logic concept
diagram word semantic mining
code programming machine english chinese
translation

2003-2005 topic 7

concept structure
language checking knowledge
type translation context
logic grammar reasoning
fault character
english rule
chinese
form
theory term
semantics word

2006-2008 topic 12

lexical term uml road
text word city type
structure vocabulary linguistic
english category analysis
dictionary corpus
language form phrase
translation syntactic land
semantic natural
satellite grammar
meaning relation sentence

2009-2011 topic 19

character semantic
linguistic english
word grammar
context feature meaning
neuron lexical syntactic
speech recognition
language
fuzzy rule form term
text speaker corpus
translation vocabulary natural

2015-2017 topic 17

speaker context
linguistic analysis english
source character task
topic article
journal content ontology
language semantics
author de
type speech sentence
term corpus natural
sentiment text

2018-2020 topic 20

natural sentence
relation style semantics
word knowledge topic
type entity task
domain document sentiment
logic event analysis
character representation
semantic ontology
rule representation
language corpus
english question translation

1991 - 1999

1991-1993 topic 4

object query reasoning task concept level
representation language classification process
knowledge search pattern
domain expert text
problem feature document
rule set
semantic learning context
database retrieval processing

1994-1996 topic 18

process reasoning domain structure context expert
problem decision
knowledge agent program
rule theory semantics learning type
language representation
logic set framework constraint
programming formal

1997-1999 topic 16

structure representation semantics view
language programming description
object set knowledge application domain program
query constraint class
logic specification relation oriented

1994 - 2008

1994-1996 topic 4

multimedia wide user issue cost
medium organization development
communication computer technology
internet future service application
work support quality standard
problem library access management
network project web electronic area

1997-1999 topic 18

environment virtual service
management business mobile
resource interface distributed
user support access
internet multimedia security
application server provide
technology communication architecture

2000-2002 topic 16

database xml
commerce content
web library retrieval
server internet public
user site provide
service transaction key
document file multimedia
customer management electronic

2006-2008 topic 3

transaction database collection
peer online query
grid p2p internet
web search retrieval
xml user content engine
content workflow site
document application schema
resource server service
semantic interface management
access composition

1994 - 2020

1994-1996 topic 4

multimedia user issue cost
wide organization
medium communication computer
development computer
technology internet
internet future
work service quality support standard
application management provide
management network library access
network project area
electronic web

1997-1999 topic 18

environment virtual
service management business mobile
user interface distributed access
library computer multimedia support
internet standard security
application server
technology communication architecture

2003-2005 topic 6

control access authentication key
broadcast module internet
mobile communication application protocol
service message cache card
security secure request call
device wireless network computer
management content terminal client
server user interface

2006-2008 topic 8

service server request
mechanism packet device
node control station
access client transmission layer
ip traffic time
wireless qos user
mobile protocol internet management
message connection application
resource communication

2009-2011 topic 3

virtual mechanism server support
resource cloud management
peer control smart
distributed access
service mobile web
game user agent
technology architecture
platform computing device
network provide internet
framework environment

2015-2017 topic 15

solution cost consumption
architecture environment demand task
network application device
problem policy algorithm
cloud energy user
computing storage management
service time real performance
resource scheduling distributed

2018-2020 topic 11

technology platform access management
cloud user distributed smart
user environment
service performance
application network time framework processing
device architecture
internet solution edge
computing iot challenge server thing blockchain

1994 - 2014

1994-1996 topic 14

A word cloud representing the topics from 1994 to 1996, specifically topic 14. The most prominent words are 'memory' (green), 'video' (orange), 'device' (blue), 'program' (yellow), and 'user' (red). Other visible words include 'file', 'computer', 'time', 'color', 'copy', 'window', 'processor', 'command', 'interface', 'address', 'disk', 'display', 'access', 'card', 'read', and 'audio'. The words are colored in various shades of green, orange, blue, yellow, and red.

1997-1999 topic 11

A word cloud representing the topics from 1997 to 1999, specifically topic 11. The most prominent words are 'device' (blue), 'signal' (green), 'video' (red), 'unit' (orange), and 'display' (yellow). Other visible words include 'audio', 'transmission', 'recording', 'digital', 'processing', 'terminal', 'provided', 'station', 'frame', 'memory', 'mode', 'user', 'card', 'sound', 'storage', 'stream', 'control', 'output', 'apparatus', 'communication', 'time', 'mpeg', 'plurality', 'receiving', 'connected', 'game', 'provided', 'computer', 'mobile', and 'terminal'. The words are colored in various shades of blue, green, red, orange, and yellow.

2000-2002 topic 14

A word cloud representing the topics from 2000 to 2002, specifically topic 14. The most prominent words are 'unit' (blue), 'user' (red), 'communication' (green), 'device' (blue), 'control' (orange), 'input' (blue), 'signal' (blue), 'mobile' (blue), and 'terminal' (red). Other visible words include 'output', 'processing apparatus', 'station', 'card', 'number', 'message', 'operation', 'module', 'includes', 'plurality', 'receiving', 'connected', 'game', 'provided', 'computer', 'transmission', 'program', and 'interface'. The words are colored in various shades of blue, red, green, orange, and yellow.

2003-2005 topic 8

A word cloud representing the topics from 2003 to 2005, specifically topic 8. The most prominent words are 'unit' (blue), 'display' (red), 'signal' (blue), 'device' (blue), 'sensor' (orange), and 'control' (orange). Other visible words include 'processing', 'input', 'mode', 'target', 'plurality', 'includes', 'output', 'monitoring', 'screen', 'sensing', 'medium', 'area', 'detection', 'location', 'apparatus', 'provided', 'storage', 'time', 'window', 'detecting', 'measurement', and 'state'. The words are colored in various shades of blue, red, orange, and yellow.

2006-2008 topic 11

A word cloud representing the topics from 2006 to 2008, specifically topic 11. The most prominent words are 'unit' (blue), 'display' (red), 'user' (blue), 'terminal' (blue), 'device' (blue), 'module' (orange), and 'storage' (orange). Other visible words include 'processing', 'input', 'image', 'authentication', 'connected', 'time', 'memory', 'signal', 'card', 'comprises', 'storage', 'electronic', 'file', 'key', 'receiving', 'screen', 'comprising', 'provided', 'comprising', 'user', 'table', 'control', 'request', 'terminal', and 'includes'. The words are colored in various shades of blue, red, orange, and yellow.

2009-2011 topic 11

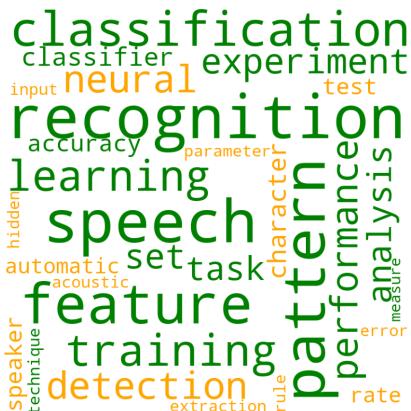
A word cloud representing the topics from 2009 to 2011, specifically topic 11. The most prominent words are 'memory' (red), 'cell' (blue), 'storage' (orange), 'unit' (blue), 'device' (blue), and 'communication' (green). Other visible words include 'processing equipment', 'receiving', 'mode', 'target', 'configuration', 'time', 'set', 'read', 'operation', 'window', 'state', 'apparatus', 'comprising', 'user', 'table', 'control', 'request', 'terminal', and 'includes'. The words are colored in various shades of red, blue, orange, green, and yellow.

2012-2014 topic 12

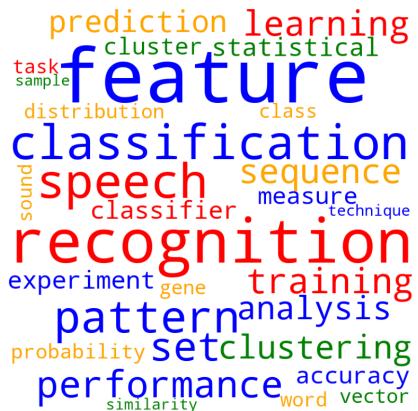
A word cloud representing the topics from 2012 to 2014, specifically topic 12. The most prominent words are 'terminal' (blue), 'image' (orange), 'user' (blue), 'display' (orange), 'device' (red), and 'video' (orange). Other visible words include 'file', 'signal', 'input', 'receiving', 'comprises', 'mobile', 'processing', 'includes', 'equipment', 'server', 'screen', 'object', 'camera', 'operation', '3d', 'frame', 'position', 'target', 'time', 'communication', and '3d'. The words are colored in various shades of blue, orange, red, and yellow.

1997 - 2020

1997-1999 topic 2



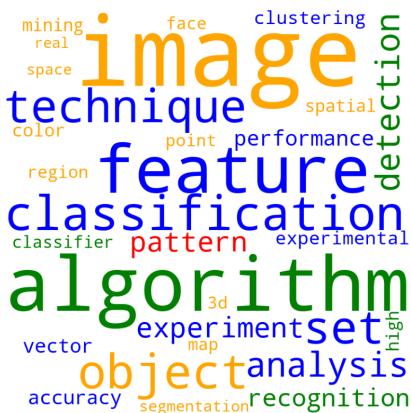
2000-2002 topic 8



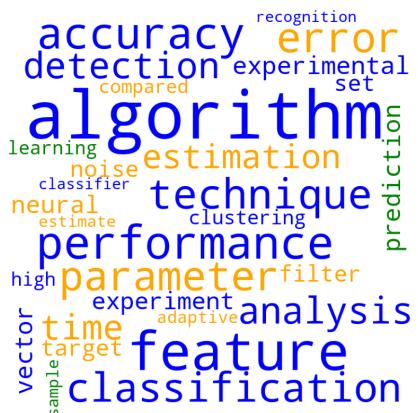
2003-2005 topic 12



2006-2008 topic 15



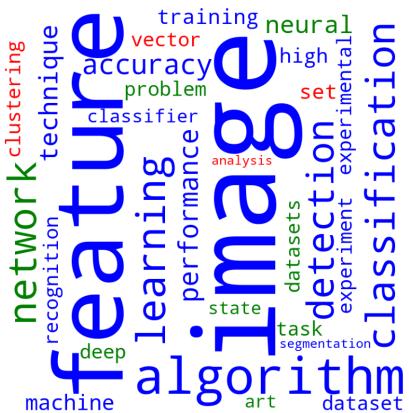
2009-2011 topic 10



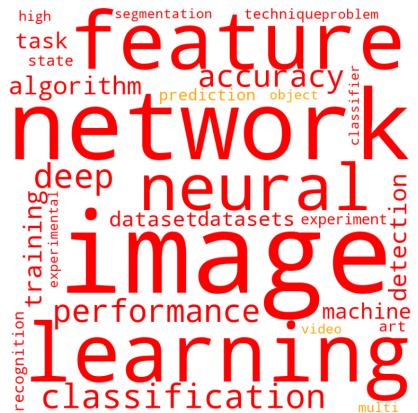
2012-2014 topic 10



2015-2017 topic 14



2018-2020 topic 12



2009 - 2020

2009-2011 topic 13

virtual
disease
hospital
medical
clinical
health
template
sign
patient
treatment drug ct

medicine
cell
record
age
blood
facial
diagnostic
heart
imaging
ecg
diagnosis
expression
adult
care
scan
emergency
healthcare

2015-2017 topic 11

disease
patient
health
clinical
medical
diagnosis
treatment

muscle
tissue
breast
tumor
human
body
registration
monitoring
drug
deformation
cancer
diagnostic
care
medicine
gait
gene
healthy
hospital

2018-2020 topic 10

protein
medical
diagnosis
patient
clinical
disease
brain

subject
eeg
tumor
human
functional
mri
treatment
gene
drug blood
high
analysis
potential ct
biological group
activity