

THE NET OF THE 21st CENTURY: *Concepts across the Interspace*

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CNI Spring Meeting
April 26, 1999 Washington, DC

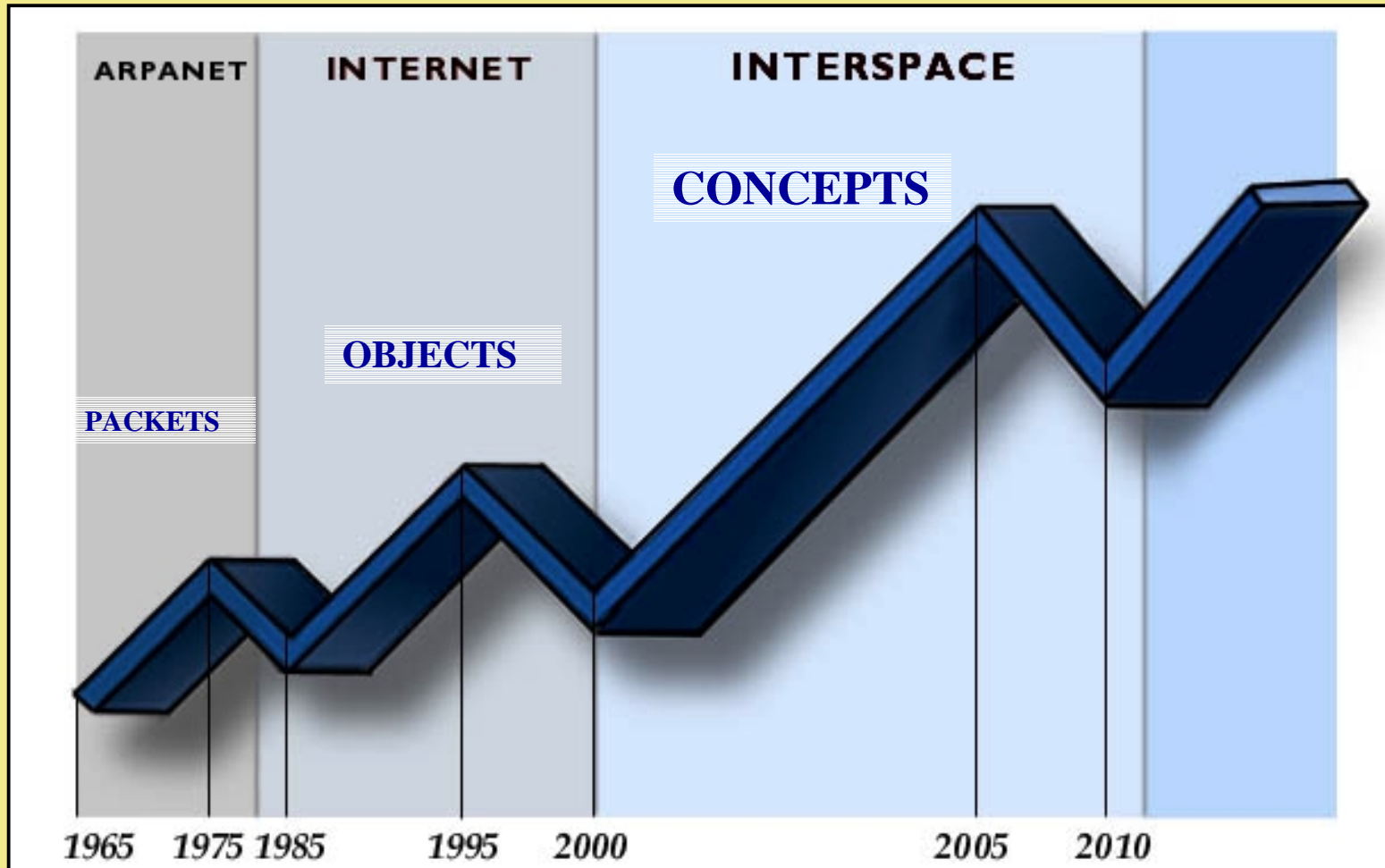
CANIS

Community Architectures for Network Information Systems

www.canis.uiuc.edu



THE THIRD WAVE OF NET EVOLUTION



CANIS

Community Architectures for Network Information Systems

www.canis.uiuc.edu



CONCEPT SPACES

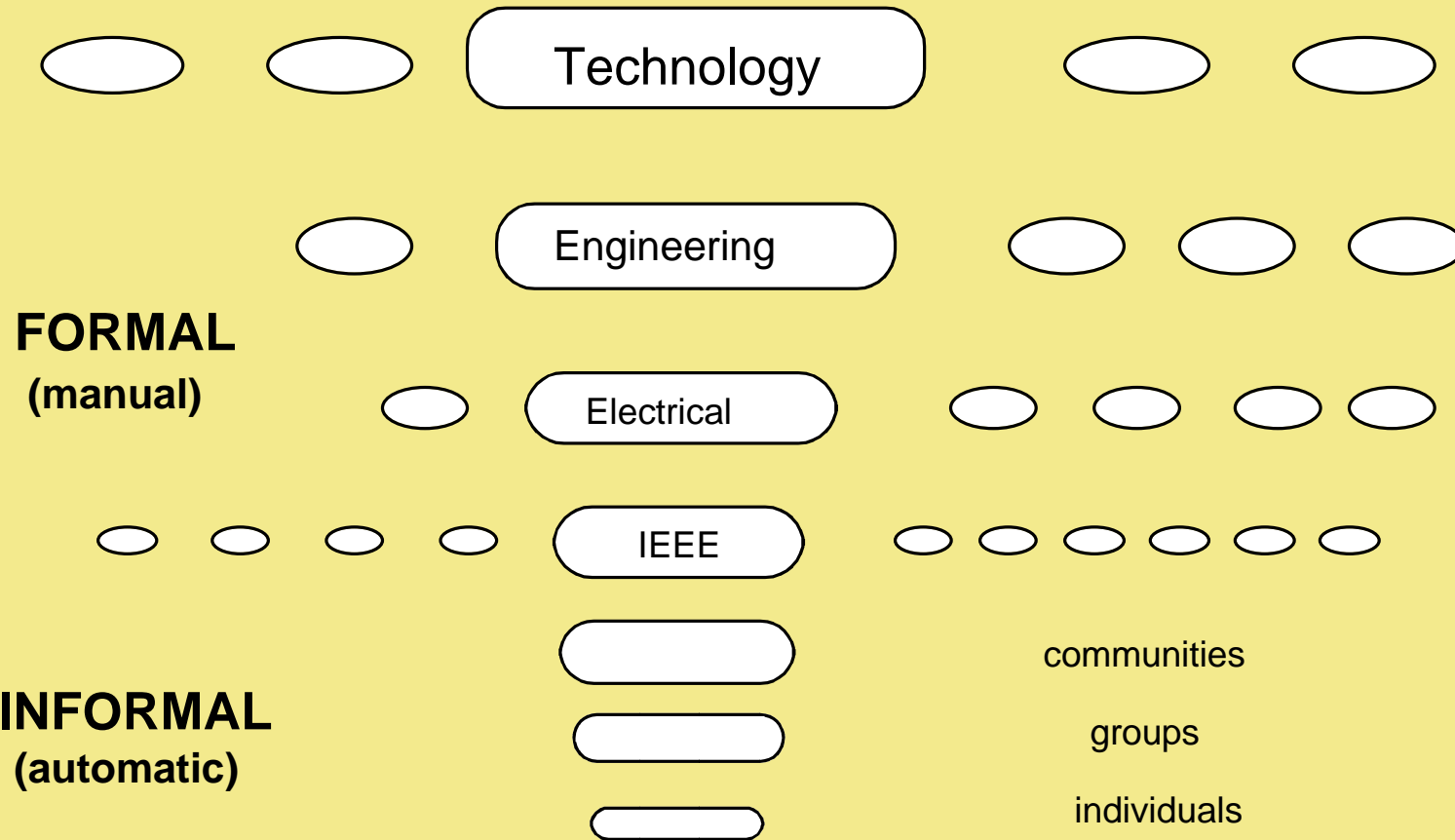
- *from Objects to Concepts*
- *from Syntax to Semantics*
- *Infrastructure is Interaction with Abstraction*

Internet is packet transmission *across computers*

Interspace is concept navigation *across repositories*



LEVELS OF INDEXES



THE DISTRIBUTED WORLD

- *Community Repositories in the Interspace*
- *Every Person performs Every Role*

USER

request

LIBRARIAN

reference

INDEXER

classify

PUBLISHER

quality

AUTHOR

generate



CONCEPTS ACROSS THE INTERSPACE

INDEXING



NAVIGATING



SWITCHING



FLYING

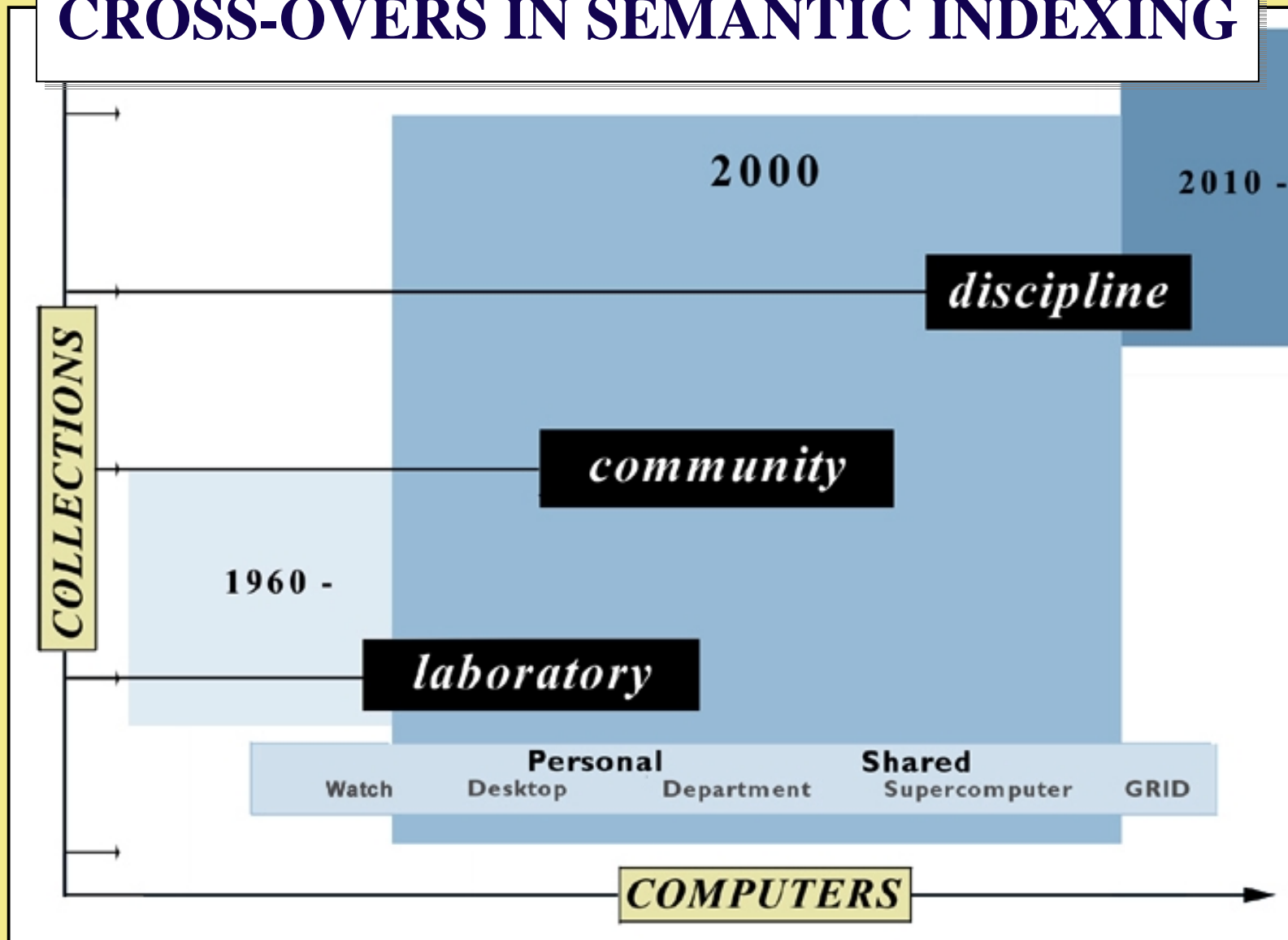


SCALABLE SEMANTICS

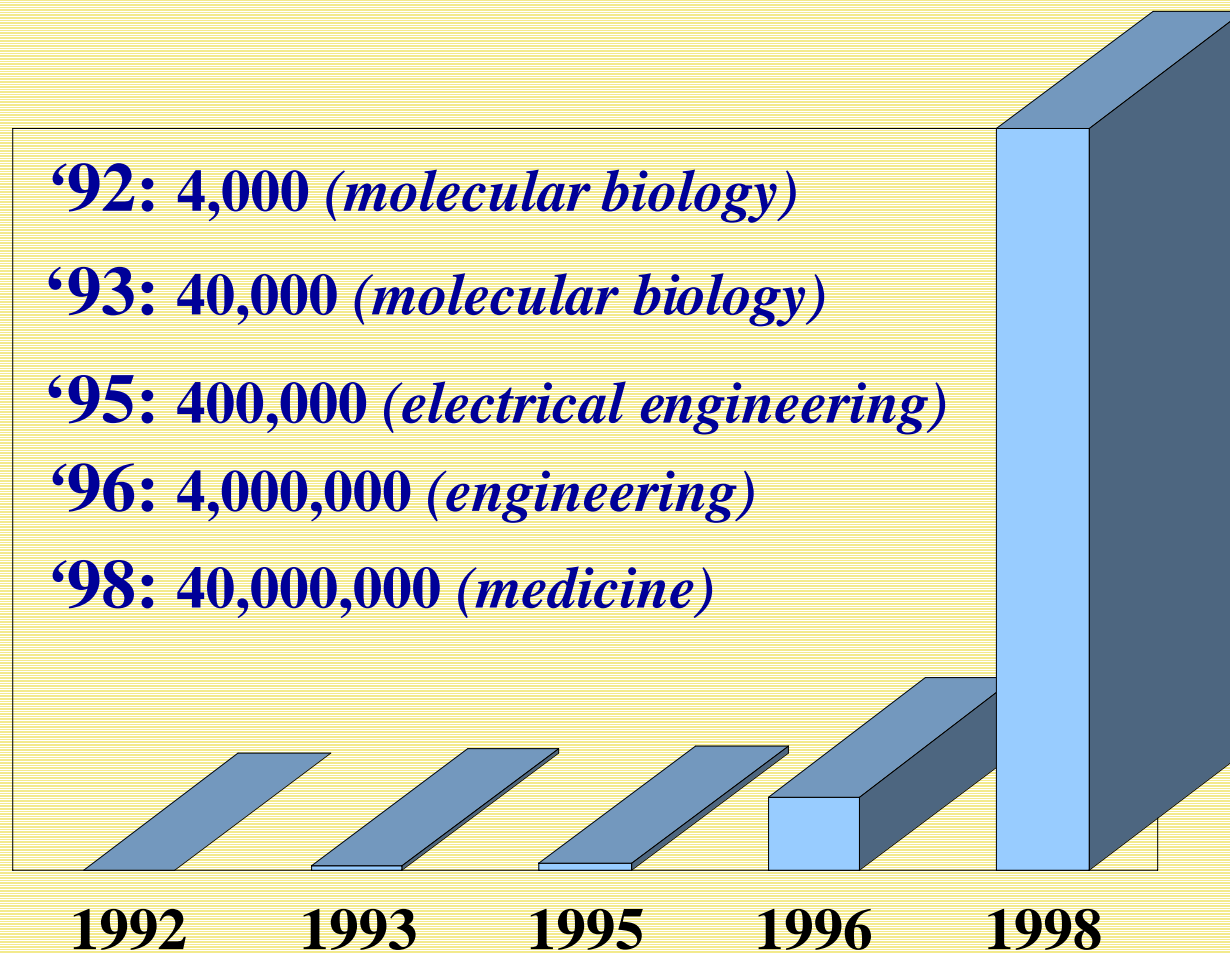
- *Automatic indexing*
- *Domain-Independent indexing*
- *Statistical clustering*
- *Compute Context of*
 - **concepts within documents**
 - **documents within repositories**



CROSS-OVERS IN SEMANTIC INDEXING



COMPUTING CONCEPTS

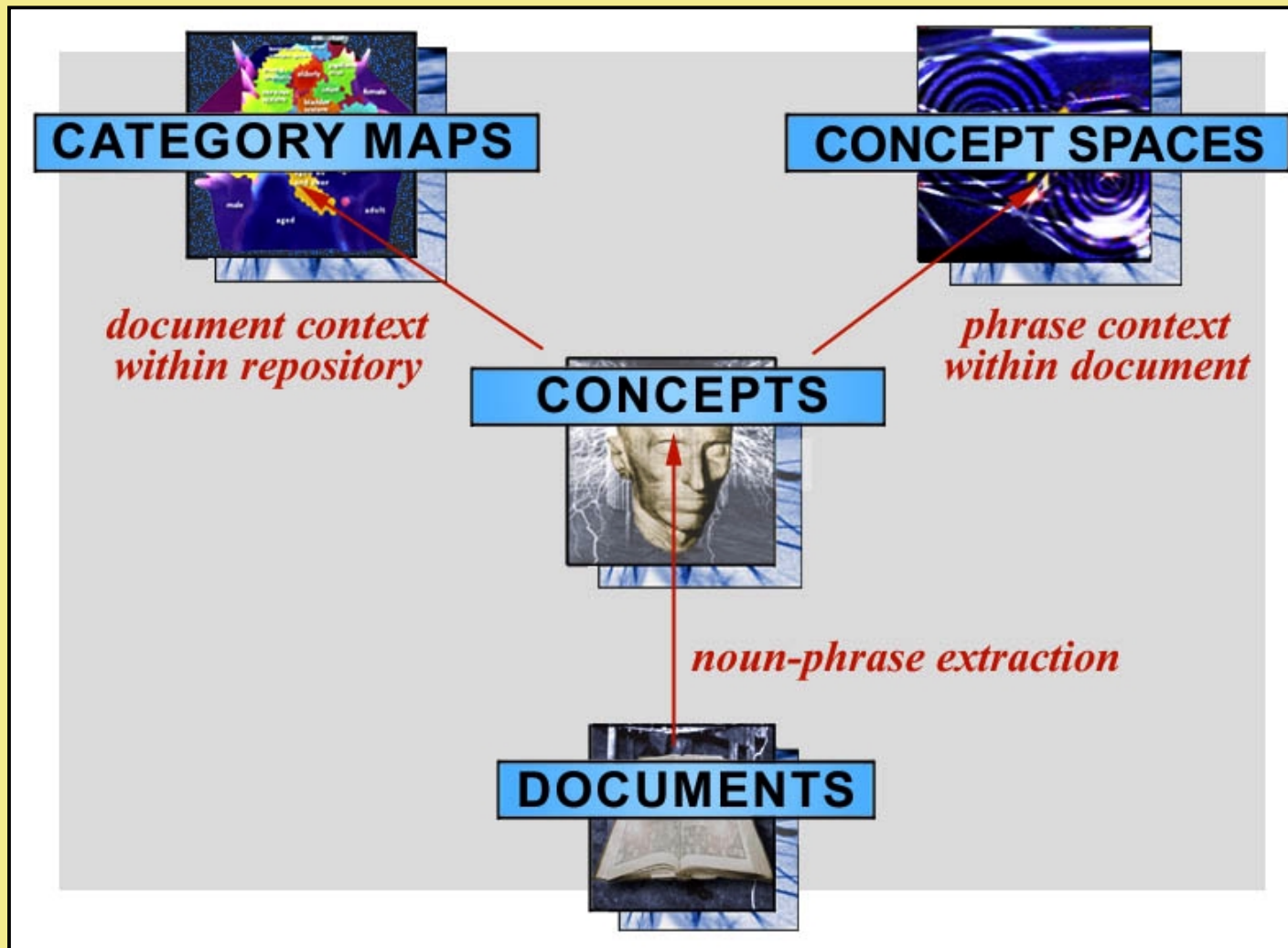


SIMULATING A NEW WORLD

- *Obtain discipline-scale collection*
 - MEDLINE from NLM, 10M bibliographic abstracts
 - human classification: Medical Subject Headings
- *Partition discipline into Community Repositories*
 - 4 core terms per abstract for MeSH classification
 - 32K nodes with core terms (classification tree)
- *Community is all abstracts classified by core term*
 - 40M abstracts containing 280M concepts
 - concept spaces took 2 days on NCSA Origin 2000
- *Simulating World of Medical Communities*
 - 10K repositories with > 1K abstracts (1K w/ > 10K)



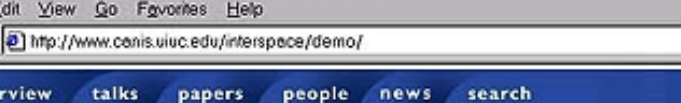
COMMUNITY PROCESSING



INTERSPACE NAVIGATION

- *Semantic Indexes for Community Repositories*
- *Navigating Abstractions within Repository*
 - concept space
 - category map
- *Interactive browsing by Community experts*





Internet Explorer window showing the Interspace Prototype Remote Access Client website. The address bar displays <http://www.canis.uiuc.edu/interspace/demo/>. The page header includes navigation links: overview, talks, papers, people, news, search. The main content area is titled "COMMUNITY ARCHITECTURES FOR NETWORK INFORMATION SYSTEMS".

The Interspace Prototype Remote Access Client:

The Interspace Prototype consists of semantic indexes for several subject domains and an analysis environment that enables concept navigation within and across these domains. The current domains are Colon Cancer, Osteo Arthritis and Rheumatoid Arthritis (30K, 10K and 30K abstracts respectively) clinical medicine from MEDLINE, Artificial Intelligence (20K abstracts in computer science from COMPENDEX), and Asian Economics (15K abstracts on business manufacturing from ABI/Inform).

Interspace Remote Access: Search and Navigation

C A N I S: Community Architectures for Network Information Systems

DOMAINS **SEARCH**

<ul style="list-style-type: none"> [+] (+) Artificial Intelligence [+] (+) Asian Economics [+] (+) Colon Cancer [+] (+) Osteo Arthritis [+] (+) Rheumatoid Arthritis 	<p>bleeding</p> <p>SUBMIT SEARCH</p> <p>bleeding salicylate bursal bleeding cerebral bleeding complication with spontaneous bleeding evidence of gastro-intestinal bleeding gastric bleeding gastro-intestinal bleeding in patient gastro-intestinal bleeding under treatment gastrointestinal bleeding I nonsteroidal anti-inflammatory drug I drug I kirchheiner b I ameliorating effect I trang l I simple analgesic I maintenance therapy [doc] Maintenance therapy of rheumatoid an [doc] Nonsteroidal anti-inflammatory drugs, s [doc] Selective in vivo removal of rheumatoid [doc] [Sulfasalazine in the treatment of rheur [doc] Innovative treatment approaches for the I clark b I antiinflammatory agent I mason di</p>
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- IntraSpace Remote Access: Document View	
DOCUMENT TEXT	NOUN PHRASES in DOCUMENT
<p>[Proglumetacine in rheumatoid arthritis]</p> <p>Montrone F., Fumagalli M., Boccassini I., Greco M., Caruso I</p> <p>Proglumetacin, 450 mg/day, was administered during 1 month to 32 rheumatoid arthritis patients in enatometical and functional stage II or III. Overall, more then 50% of pts responded to the treatment, in particular those in stage II, in whom Ritchie's articular index, nightly and daily pain significantly decreased. Those pts in stage III who did not respond to proglumetacin even when administered at high dose, did not respond to indomethacin, either. Tolerance resulted very good, as only 3 complaints of mild and transient epigastric pain and 1 of skin rash were observed, but no one related to the CNS. High efficacy and good tolerance set therefore proglumetacin aside from indomethacin, ASA, and most of the recent non steroidal anti-inflammatory agents.</p>	<p>I a.</p> <p>I articular index</p> <p>I boccassini I</p> <p>I caruso I</p> <p>I fumagalli m</p> <p>I greco m</p> <p>I high dose</p> <p>I indomethacin</p> <p>I mg/day</p> <p>I montrone f</p> <p>I proglumetacin</p> <p>I pt</p> <p>I rheumatoid arthritis patient</p> <p>I skin rash</p> <p>I steroidal anti-inflammatory agent</p> <p>I tolerance</p>

DOCUMENT TEXT

Maintenance therapy of rheumatoid arthritis and of osteoarthritis with proglumetacin.

Bozsaky S, Zehumenszky Z

Maintenance therapy with proglumetacin was studied in an open investigation in 25 patients with classical or definite rheumatoid arthritis and in 34 patients with osteoarthritis. Proglumetacin (150 mg) was administered twice daily, at meals, and therapy was continued without interruption for 12 months. Patients with rheumatoid arthritis showed a progressive improvement in objective parameters (erythrocyte sedimentation rate, haemoglobin) and in semi-objective parameters (pain, articular tenderness, number of painful joints, morning stiffness, grip strength, Ritchie articular index). Patients with osteoarthritis also showed a progressive improvement in objective parameters (movement angles of the affected joints) and in subjective parameters (pain, drop-outs were recorded in the rheumatoid arthritis group: 2

NOUN PHRASES in DOCUMENT

I affected joint
I articular index
I bozsaky s
I definite rheumatoid arthritis
I drop-out
I intolerance
I maintenance therapy
I mg
I objective parameter
I orthopaedic surgery
I osteoarthritis
I osteoarthritis group
I patient with osteoarthritis
I patient with rheumatoid arthritis
I proglumetacin
[doc] Maintenance therapy of rheumatoid
[doc] Proglumetacine in rheumatoid ar
[doc] Proglumetacin for a wide spectru
[doc] Therapy of rheumatoid polyarthritis
[doc] Tolerance and efficacy of proglum
[doc] Proglumetacin for the treatment o

Interspace Remote Access

Interspace Remote Access Client

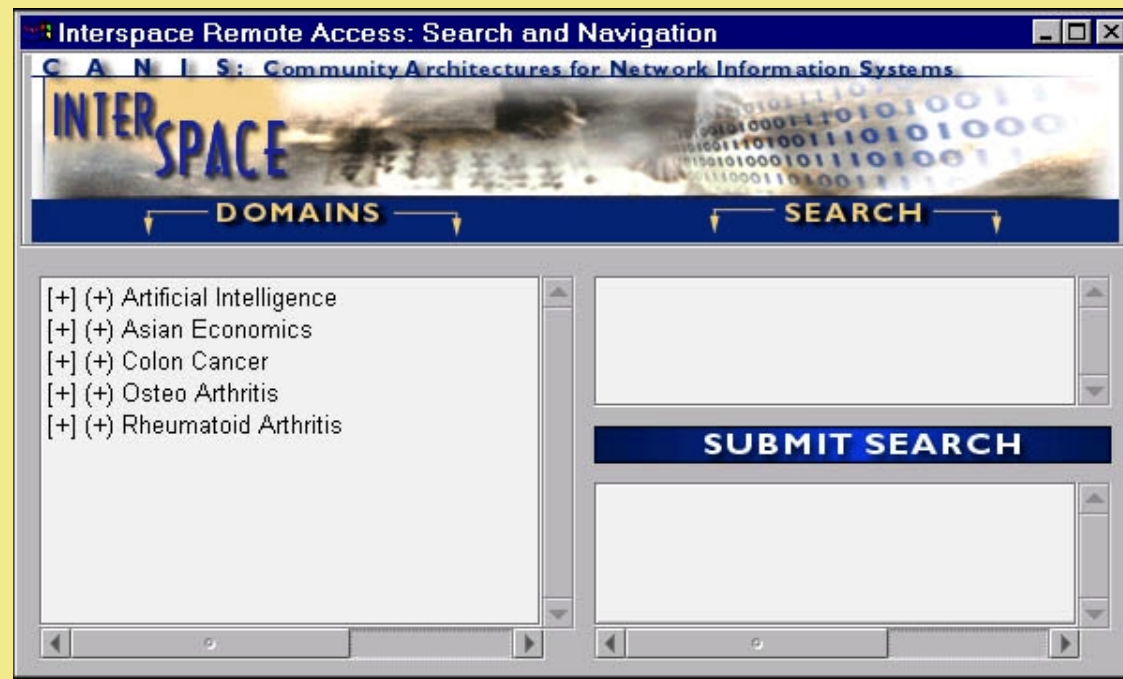


Navigation in MEDSPACE

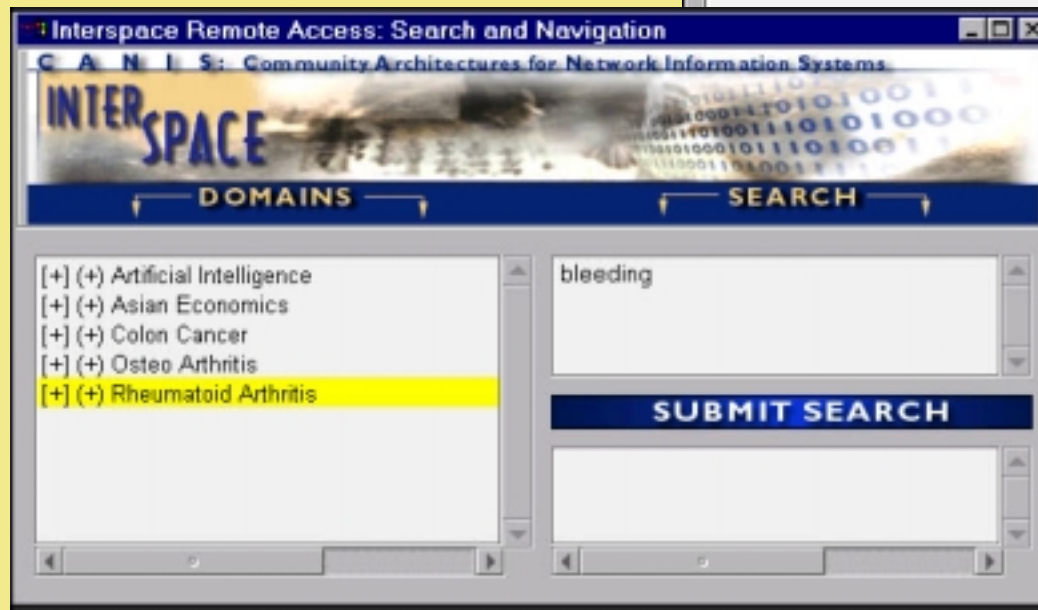
For a patient with Rheumatoid Arthritis

- *Find a drug that reduces the pain (analgesic)*
- *but does not cause stomach (gastrointestinal) bleeding*

*Choose
Domain*



Concept Search



Concept Navigation

SUBMIT SEARCH

51-cr gastrointestinal bleeding on
anal bleeding
bleeding diathesis
bleeding disorder
bleeding incidence
bleeding process
bleeding salicylate
bursal bleeding
cerebral bleeding
complication with spontaneous bl
evidence of gastro-intestinal bleed
gastric bleeding
gastro-intestinal bleeding in patier
gastro-intestinal bleeding under tr
! gastrointestinal bleeding
! nonsteroidal anti-inflammatory
! drug
! kirchheiner b
! ameliorating effect
! trang l
! simple analgesic
! prognosis of patient
! tezuka h
! origuchi t
! tekechima m

SUBMIT SEARCH

51-cr gastrointestinal bleed
anal bleeding
bleeding diathesis
bleeding disorder
bleeding incidence
bleeding process
bleeding salicylate
bursal bleeding
cerebral bleeding
complication with spontane
evidence of gastro-intestina
gastric bleeding
gastro-intestinal bleeding in
gastro-intestinal bleeding u
! gastrointestinal bleeding
! nonsteroidal anti-inflamm
! drug
! kirchheiner b
! ameliorating effect
! trang l
! simple analgesic
! maintenance therapy
! clark b
! antiinflammatory ager
! mason di

SUBMIT SEARCH

bursal bleeding
cerebral bleeding
complication with spontaneous bleeding
evidence of gastro-intestinal bleeding
gastric bleeding
gastro-intestinal bleeding in patient
gastro-intestinal bleeding under treatment
! gastrointestinal bleeding
! nonsteroidal anti-inflammatory drug
! drug
! kirchheiner b
! ameliorating effect
! trang l
! simple analgesic
! maintenance therapy
[doc] Maintenance therapy of rheumatoid arthritis and of oste
[doc] Nonsteroidal anti-inflammatory drugs, arthritis, and gast
[doc] Selective in vivo removal of rheumatoid factor by an extr
[doc] [Sulfasalazine in the treatment of rheumatoid arthritis. A
[doc] Innovative treatment approaches for rheumatoid arthritis
! clark b
! antiinflammatory agent
! mason di
! gastrointestinal bleeding
! polisson rp
! rennie ja
! random sample
! tenidap
! paracetamol



Retrieve Document

Interspace Remote Access: Document View

DOCUMENT TEXT	NOUN PHRASES in DOCUMENT
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	! definite rheumatoid arthritis drop-out
	! intolerance
	! maintenance therapy
	! mg
	! objective parameter
	! orthopaedic surgery
	! osteoarthritis
	! osteoarthritis group
	! patient with osteoarthritis
	! patient with rheumatoid arthritis
	! proglumetacin
	! required
	! rheumatoid arthritis
	! rheumatoid arthritis group
	! subjective parameter
	! symptom
	! therapy
	! urinalysis
	! zahumenszky z



Navigate Document

Remote Access: Document View

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	! mg
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	! orthopaedic surgery
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	! patient with osteoarthritis
	! patient with rheumatoid arthritis
	! proglumetacin
	[doc] Maintenance therapy of rheumatoid
	[doc] [Proglumetacine in rheumatoid arthr
	[doc] [Proglumetacin for a wide spectrum
	[doc] [Therapy of rheumatoid polyarthritis.
	[doc] [Tolerance and efficacy of proglumet
	[doc] [Proglumetacin for the treatment of i
	[doc] [Clinical study of patients with prima
	[doc] Double-blind evaluation of low-dose
	[doc] [Proglumetacin in the treatment of r
	[doc] [Proglumetacin in the treatment of r
	! required
	! rheumatoid arthritis



Retrieve Document

Remote Access: Document View

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A Morphic World

Domain named:
Rheumatoid Arthritis
is root domain: true
nesting level: 0
document count: 29334

Search Domain's ConceptSpace
Search Domain's Documents

Choose a Domain:

- Colon Cancer
- Artificial Intelligence
- Osteo Arthritis
- Asian Economics
- Rheumatoid Arthritis**
- BREASTCANCER

SubDomains:

- MANAGEMENT OF RHEUMATOID
- MARKER
- MEDICATION
- MM
- MOLECULE
- NAPROXEN
- NATVIG JB
- NEUTROPHIL
- NGML
- NON-STEROIDAL ANTI-INFLA
- NONSTEROIDAL ANTI-INFLAM**
- NONSTEROIDAL ANTIINFLAM
- NORMAL INDIVIDUAL
- NSAID
- OA PATIENT
- OBJECTIVE
- OCCURRENCE
- ONSET
- OUTCOME
- PANAVI GS
- PATHOGENESIS OF RA
- PATIENT WITH ACTIVE RA
- PATIENT WITH OSTEOARTHRIT

Domain named:
NONSTEROIDAL ANTI-INFLAMMATORY DRUG
is root domain: false
nesting level: 1
document count: 76

Search Domain's Documents
Show 3D map
Show labels on map

on context: RHEUMATOID

Inhibition of 5-lipoxygenase product formation and polymorphonuclear cell degranulation by tenidap, a novel cytokine-modulating antirheumatic drug for the treatment of rheumatoid arthritis treated with tenidap and piroxicam. Clinical associations with cy...
A comparative study of tenidap, a cytokine-modulating anti-rheumatic drug, and diclofenac, but not nonsteroidal anti-inflammatory drugs, inhibits T-cell proliferation and...
Management of osteoarthritis and rheumatoid arthritis: prospects and possibilities.
Investigational agents for rheumatoid arthritis.
Tenidap versus diclofenac in rheumatoid arthritis [letter; comment]
Tenidap: not just another NSAID?
In vitro effects of 2 antirheumatic drugs on the synthesis and expression of proinflammatory cytokines in human chondrocytes.
Tenidap reduces the level of interleukin 1 receptors and collagenase expression in human chondrocytes.
Effects of tenidap and nonsteroidal anti-inflammatory drugs on the response of cultured chondrocytes to interleukin-1.
Tenidap in patients with rheumatoid arthritis. A 4-week, placebo-controlled study.

on context: NONSTEROIDAL ANTI-INFLAMMATORY DRUG

The synovial prostaglandin system in chronic inflammatory arthritis: differential effects of steroidal and nonsteroidal anti-inflammatory drugs.
Sodium naproxen: concentration and effect on inflammatory response mediators in human rheumatoid synovial fluid.
Methotrexate-associated, early-onset pancytopenia in rheumatoid arthritis.
Nonsteroidal anti-inflammatory drugs [letter].
Etodolac. A reappraisal of its pharmacology and therapeutic use in rheumatic diseases and pain states.
[Recurrent hyperkalemia in the course of rheumatoid arthritis--a case report].
Variability in individual responses of 532 patients with rheumatoid arthritis to first-line and second-line drugs.
Nonsteroidal anti-inflammatory drugs, arthritis and gastrointestinal bleeding in elderly in-patients.
Naproxen: a new NSAID for rheumatoid arthritis and osteoarthritis.
Reporting of age data in clinical trials of arthritis. Deficiencies and solutions.
[Anesthetic management of a patient with hyperkalemic tubular acidosis].
Upper gastrointestinal manifestations in rheumatoid arthritis patients: intrinsic or extrinsic pathogenesis?
Bone loss in rheumatoid arthritis and primary generalized osteoarthritis: effects of corticosteroids, suppressive antirheumatic drugs and calcium

Related Terms:

MICROGRAMS/MIL
EFFECT OF TENIDAP
DICLOFENAC
MG/DAV
NAPROXEN
PIROXICAM
THERAPEUTIC CONCENTRATION
IL-1 BETA
CRP
SYNTHESIS
IL-6 LEVEL
RA

ConceptCS named:
TENIDAP
weight: 122
collection freq.: 37
document count: 14
Show Documents...

Related Terms:

MAINTENANCE THERAPY
CLARK B
ANTIINFLAMMATORY AGENT
MASON DI
GASTROINTESTINAL BLEEDING
POLISSON RP
RENNIE JA
RANDOM SAMPLE
TENIDAP
PARACETAMOL
SELECTED PATIENT
GIBSON T
IMMUNOSUPPRESSIVE AGENT
DISEASE MODIFYING
SURVEY
PAIN RELIEF
CAPELL HA
RHEUMATOLOGIST

ConceptCS named:
SIMPLE ANALGESIC
weight: 17
collection freq.: 4
document count: 4
Show Documents...

85043350
Aged , Anti-Inflammatory Agents , Arthritis, Rheumatoid , Gastrointestinal Hemorrhage , Human , Osteoarthritis , Phenylbutazone , Thrombophlebitis

Nonsteroidal anti-inflammatory drugs, arthritis, and gastrointestinal bleeding in elderly in-patients.

In a study of 531 consecutive admissions to an acute geriatric admitting unit in England in a four-month period, 33 cases of upper gastro-intestinal (UGI) bleeding were diagnosed. There was a close relationship between UGI bleeding and the use of nonsteroidal anti-inflammatory drugs (NSAIDs), and it is argued that this is a causal link. In view of the dangers of NSAID ingestion by elderly patients, many of whom are using them for analgesic rather than anti-inflammatory reasons, it is suggested that simple analgesics such as paracetamol should be used for maintenance therapy of osteoarthritis in the elderly with mild to moderate pain. Tenidap is suggested for treatment of true arthritis in selected patients.

[Click here to see concept for: simple analgesics](#)



Category Map

Domain named:
Rheumatoid Arthritis

is root domain: true

nesting level: 0

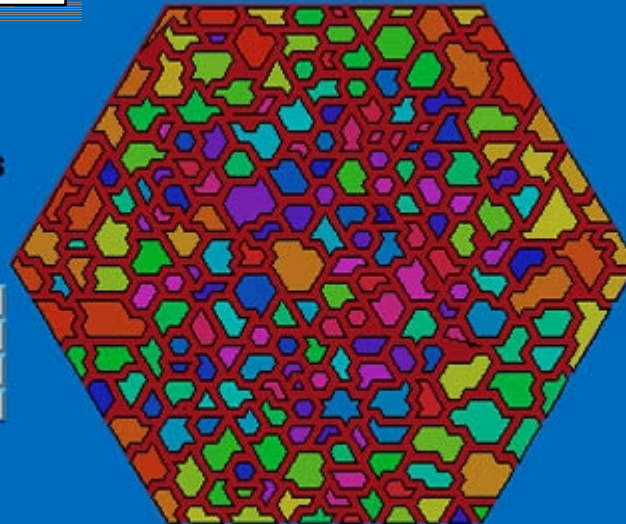
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Search Domain's ConceptSpace...

Search Domain's Documents...

Choose a Domain:

Colon Cancer
Artificial Intelligence
Osteo Arthritis
Asian Economics
Rheumatoid Arthritis
BREASTCANCER



SubDomains:

MANAGEMENT OF RHEUMATO
MARKER
MEDICATION
MM
MOLECULE
NAPROXEN
NATVIG JB
NEUTROPHIL
NG/ML
NON-STEROIDAL ANTI-INFLA
NONSTEROIDAL ANTI-INFLAN
NONSTEROIDAL ANTIINFLAMP
NORMAL INDIVIDUAL
NSAID
OA PATIENT
OBJECTIVE
OCCURRENCE
ONSET
OUTCOME
PANAYI GS
PATHOGENESIS OF RA
PATIENT WITH ACTIVE RA
PATIENT WITH OSTEOARTHRI

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NONSTEROIDAL ANTI-INFLAMMATORY DRUG

is root domain: false

nesting level: 1

document count: 76

Search Domain's Documents...

Show 3D map...

Show labels on map



on context: NONSTEROIDAL ANTI-INFLAMMATORY DRUG

The synovial prostaglandin system in chronic inflammatory arthritis: differential effects of steroidal and nonsteroidal anti-inflammatory drugs.

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[Click here to see concept for: simple analgesics](#)

**Category
Navigation**



Concept Navigation

ConceptInCS named:

TENIDAP

weight: 122

collection freq.: 37

document count: 14

Show Documents...

Related Terms:

MICROGRAMS/ML
EFFECT OF TENIDAP
DICLOFENAC
MG/DAY
NAPROXEN
PIROXICAM
THERAPEUTIC CONCENTRATION
IL-1 BETA
CRP
SYNTHESIS
IL-6 LEVEL
NA

on context: RHEUMATOID

Inhibition of 5-lipoxygenase product formation and polymorphonuclear cell degranulation
Tenidap: a novel cytokine-modulating antirheumatic drug for the treatment of rheumatoid arthritis treated with tenidap and piroxicam. Clinical associations with cytokines
A comparative study of tenidap, a cytokine-modulating anti-rheumatic drug, and diclofenac
Tenidap, but not nonsteroidal anti-inflammatory drugs, inhibits T-cell proliferation and cytokine production
Management of osteoarthritis and rheumatoid arthritis: prospects and possibilities.
Investigational agents for rheumatoid arthritis.
Tenidap versus diclofenac in rheumatoid arthritis [letter; comment]
Tenidap: not just another NSAID?
In vitro effects of 2 antirheumatic drugs on the synthesis and expression of proinflammatory cytokines
Tenidap reduces the level of interleukin 1 receptors and collagenase expression in human chondrocytes
Effects of tenidap and nonsteroidal antiinflammatory drugs on the response of cultured chondrocytes
Tenidap in rheumatoid arthritis. A 24-week double-blind comparison with hydroxychloroquine
Tenidap in patients with rheumatoid arthritis. A 4-week, placebo-controlled study.

Related Terms:

MAINTENANCE THERAPY
CLARK B
ANTIINFLAMMATORY DRUGS
MASON DI
GASTROINTESTINAL BLEEDING
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TENIDAP
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PAIN RELIEF
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RHEUMATOLOGIST

ConceptInCS named:

SIMPLE ANALGESIC

weight: 17

collection freq.: 4

document count: 4

Show Documents...



SWITCHING

In the Interspace...

- each Community maintains its own repository
- Switching is navigating Across repositories
- use your vocabulary to search another specialty



ENGINEERING SESSION

SWITCHING

The image displays four screenshots of the CANIS Engineering Session interface, illustrating the navigation and search capabilities.

CATEGORIES: A list of engineering categories is shown, including Automotive Engineering, Naval Architecture and Marine Engineering, Railroad Engineering, Materials Handling, Electrical Engineering, Electronics and Communication Engineering, Computers and Data Processing, Computer Circuits and Logic Elements, Computer Hardware, Data Storage, Computer Peripheral Equipment, Data Communication, Digital Computers and Systems, Analog and Hybrid Computers, Computer Software, Data Handling and Applications, Computer Programming, Software engineering techniques, Design Patterns, Computer Programming Languages, Object-oriented programming, Data Processing, Database Systems, and Artificial Intelligence. The "Software engineering techniques" category is highlighted.

CONCEPT SPACES: Two panels show concept spaces for "C6110B SOFTWARE ENGINEERING TECHNIQUES". The left panel lists concepts like "object database", "software object database", "software environment database", "environment database", "object-oriented database", "yang, y.", "specify software", "knowledge-based software engineering", "complex object", "software configuration management", "object model", "configuration management", "software engineering environment", "constraint maintenance", "specifying complex", and "handling change". The right panel shows a more detailed view of "software configuration management", including "software configuration", "configuration management system", "configuration management plan", "configuration management discipline", "ieee standard dictionary", "software engineering standard", "ieee guide", "produce reliable software", "configuration management issues", "std", "ansi/ieee std", "ieee std", "management plan", and "revision control system". The "revision control system" is circled in red.

Full Text Search: A search window shows the search term "revision control system" entered. The search results list several documents, including "Software configuration management", "Complex objects in the Doris system", "Development of a distributed version control system", and "A distributed version control system". The "Complex objects in the Doris system" document is highlighted.

Concept Spaces (Detailed View): Two panels show detailed concept spaces for "C6110B SOFTWARE ENGINEERING TECHNIQUES" and "C6110J OBJECT-ORIENTED PROGRAMMING". The left panel lists concepts like "complex object", "database management system", "object version", "configuration management", "saake, g.", "multiple view", "object-oriented paradigm", "information system", "office information system", "object database", "object aggregation", "relational data model", "erich, h.", and "design application". The right panel lists concepts like "query language", "multidatabase system", "heterogeneous database system", "component objects", "deductive database", "system supporting abstract data types", "data structure", "multimedia database", "specification language", "object model", "database system", and "formal specification language".

CANIS Community Architectures for Network Information Systems

www.canis.uiuc.edu



Engineering Categories & Concepts

CATEGORIES

- 660 Automotive Engineering
- 670 Naval Architecture and Marine Engineering
- 680 Railroad Engineering
- 690 Materials Handling
- 700 Electrical Engineering, General
- 710 Electronics and Communication Engineering
- 720 Computers and Data Processing
 - 721 Computer Circuits and Logic Elements
 - 721.1 Computer Theory (Includes Formal Logic, Automata)
 - 721.2 Logic Elements
 - 721.3 Computer Circuits
 - 722 Computer Hardware
 - 722.1 Data Storage (Equipment and Techniques)
 - 722.2 Computer Peripheral Equipment
 - 722.3 Data Communication (Equipment and Techniques)
 - 722.4 Digital Computers and Systems
 - 722.5 Analog and Hybrid Computers
 - 723 Computer Software, Data Handling and Applications
 - 723.1 Computer Programming
 - C6110B Software engineering techniques
 - COM-1 Design Patterns
 - 723.1.1 Computer Programming Languages
 - C6110J Object-oriented programming
 - COM-1 Design Patterns
 - 723.2 Data Processing
 - 723.3 Database Systems
 - 723.4 Artificial Intelligence

CONCEPT SPACES

- C6110B SOFTWARE ENGINEERING TECHNIQUES
 - object database
 - software object database
 - software environment database
 - environment database
 - object-oriented database
 - yang, y.
 - specify software
 - knowledge-based software engineering
 - complex object
 - software configuration management
 - object model
 - configuration management
 - software engineering environment
 - constraint maintenance
 - specifying complex
 - handling change

Switch Using:

- ☒ Term only
- ☒ With Related Terms

Search: object database

Word Order:

- ☒ As Given
- ☒ Any

Interspace Navigator



Further Concept Navigation

CONCEPT SPACES

C6110B SOFTWARE ENGINEERING TECHNIQUES

- object database
- software object database
- software environment database
- environment database
- object-oriented database
- yang, y.
- specify software
- knowledge-based software engineering
- complex object
- software configuration management
- object model
- configuration management
- software engineering environment
- constraint maintenance
- specifying complex
- handling change

Switch Using: ☒ Term only
☒ With Related Terms

Search: object database

Word Order: ☒ As Given
☒ Any

C6110B SOFTWARE ENGINEERING TECHNIQUES

- software configuration management
- software configuration
- configuration management system
- configuration management plan
- configuration management discipline
- ieee standard dictionary
- software engineering standard
- ieee guide
- produce reliable software
- configuration management issues
- std
- ansi/ieee std
- ieee std
- management plan
- revision control system

Switch Using: ☒ Term only
☒ With Related Terms

Search: object database

Word Order: ☒ As Given
☒ Any

Interspace Navigator

Concept Spaces



Searching via Concept Suggestion

Full Text Search

Search For: revision control system

C6110B All Fields

Matsuodani, T.	Software configuration management
Rossi, K. Yairi, R.	<u>Complex objects in the Doris system</u>
O'Donovan, B. Grimson, J.	Development of a distributed revisor
O'Donovan, B. Grimson, J.B.	A distributed version control system
Reck, W. Hartig, H.	Software configuration management

Complex objects in the Doris system

Rossi, K. | Yairi, R.

The Doris system provides methods and tools for software configuration management on top of the RCS (revision control system) version control system. The Doris system supports hierarchical and complex software objects called configurations, and the concept is applicable for both software development and documentation. Some of the conceptual and technical features of the Doris system are discussed and implementation on the Unix file system is presented [configuration management software engineering]



Switching Across Repositories

Interspace Navigator

Concept Spaces

C6110B SOFTWARE ENGINEERING TECHNIQUES

complex object

- database management system
- object version
- configuration management
- saake, g.
- multiple view
- object-oriented paradigm
- information system
- office information system
- object database
- object aggregation
- relational data model
- ehrich, h.
- design application

C6110J OBJECT-ORIENTED PROGRAMMING

complex object

- query language
- multidatabase system
- heterogeneous database system
- component objects
- deductive database
- system supporting
- abstract data types
- data structure
- multimedia database
- specification language
- object model
- database system
- formal specification language

Switch Using: ☒ Term only
☒ With Related Terms

Search: **object database**

Word Order: ☒ As Given
☒ Any

Switch Using: ☒ Term only
☒ With Related Terms

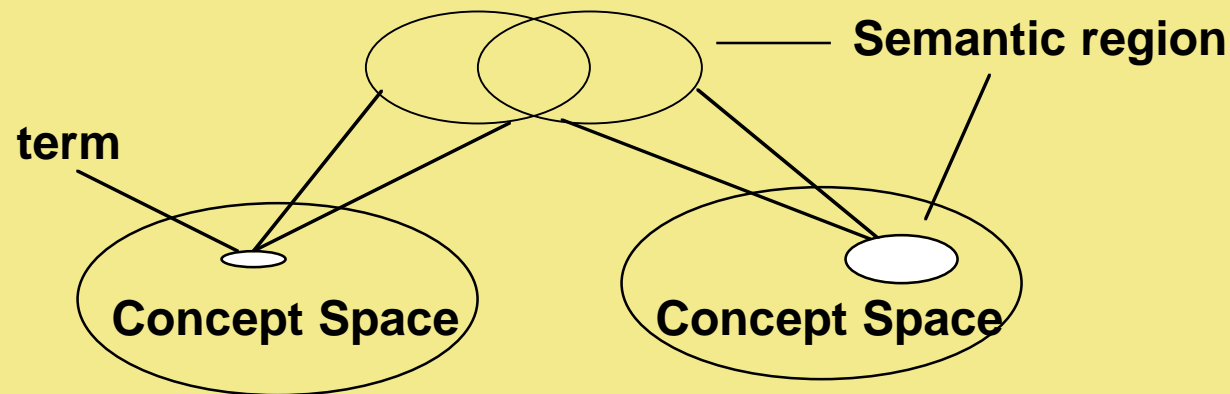
Search:

Word Order: ☒ As Given
☒ Any



CONCEPT SWITCHING

- “*Concept*” versus “*Term*”
 - set of “semantically” equivalent terms
- *Concept switching*
 - region to region (set to set) match



The screenshot displays the CANIS database interface with three main windows:

- Domains:** A list of domains including Colonic Neoplasms, Colonic Polyps, Adenomatous Polyposis Coli, Colorectal Neoplasms, Colorectal Neoplasms, Hereditary Nonpolyposis, Sigmoid Neoplasms, Genes, Regulator (selected), Genes, araC, Genes, nef, Genes, Nitrogen Fixation, Genes, pX, Genes, rev, Genes, Switch, Genes, tat, Genes, vif, Genes, vpr, Genes, vpu, and Regulatory Sequences, Nucleic Acid.
- Search: Colorectal Neoplasms, Hereditary:** Search results for 'hereditary cancer' showing a list of entries including 'Colorectal Neoplasms, Hereditary Nonpolyposis' and 'mismatch repair genes'.
- Search: Genes, Regulator:** Search results for 'hereditary cancer' showing a list of entries including 'mismatch repair genes' and 'Regulation by CDF/LIF and retinoic acid of multiple'.

A detailed view of the 'Regulation by CDF/LIF and retinoic acid of multiple' entry is shown in a separate window:

Regulation by CDF/LIF and retinoic acid of multiple

Regulation by CDF/LIF and retinoic acid of multiple ChAT mRNAs produced from distinct promoters.

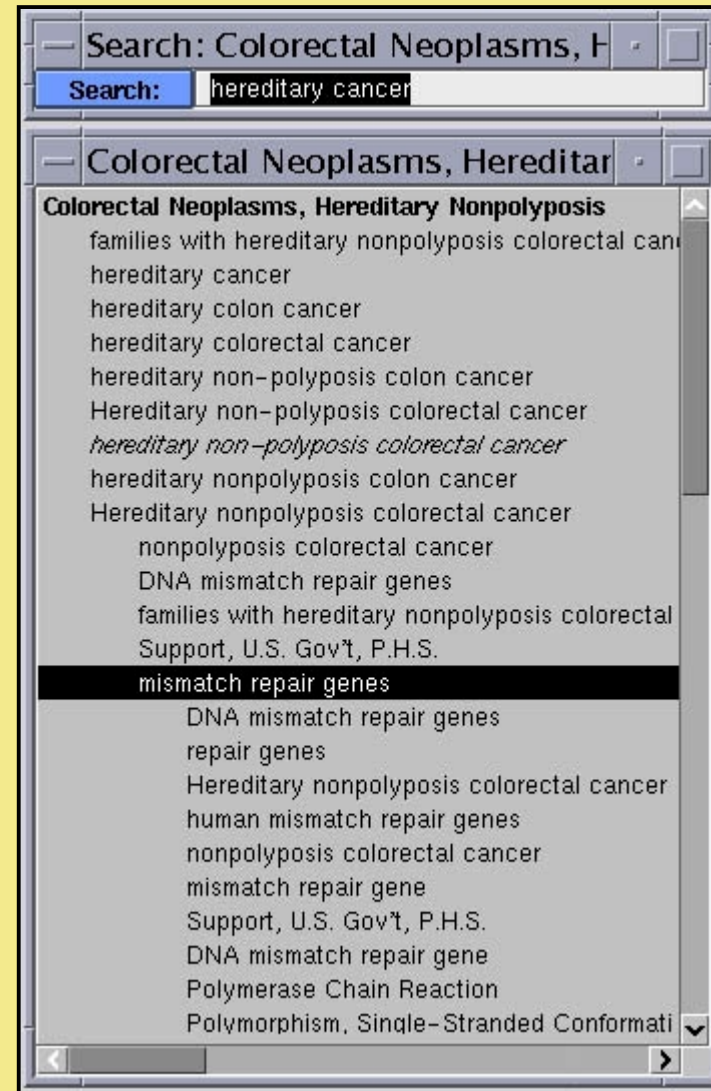
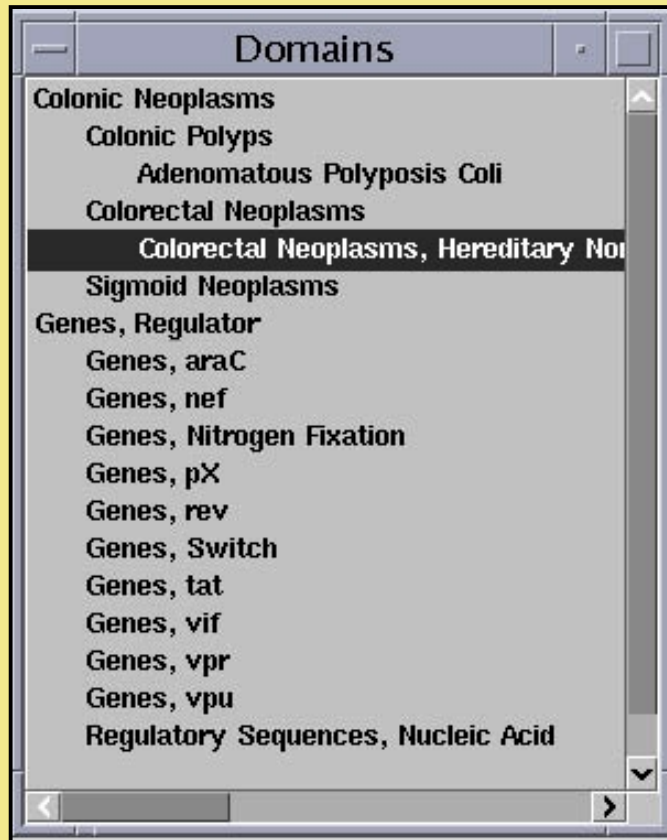
Cervini R Berrard S Bejanin S Mallet J

The cholinergic differentiation factor/leukaemia inhibitory factor (CDF/LIF) and retinoic acid (RA) induce in sympathetic neurones, a switch from the noradrenergic to the cholinergic neurotransmitter phenotype. In particular, these molecules alter the activities of the biosynthetic enzymes choline acetyltransferase (ChAT), tyrosine hydroxylase (TH) and dopamine beta-hydroxylase (DBH). Recently, five rat ChAT mRNA species have been identified although no data have yet been reported concerning their production and regulation in sympathetic neurones. By use of the reverse transcription polymerase chain reaction technique we analysed the effects of CDF/LIF and RA on the levels of ChAT, TH and DBH mRNAs.

Medicine Session



Categories and Concepts



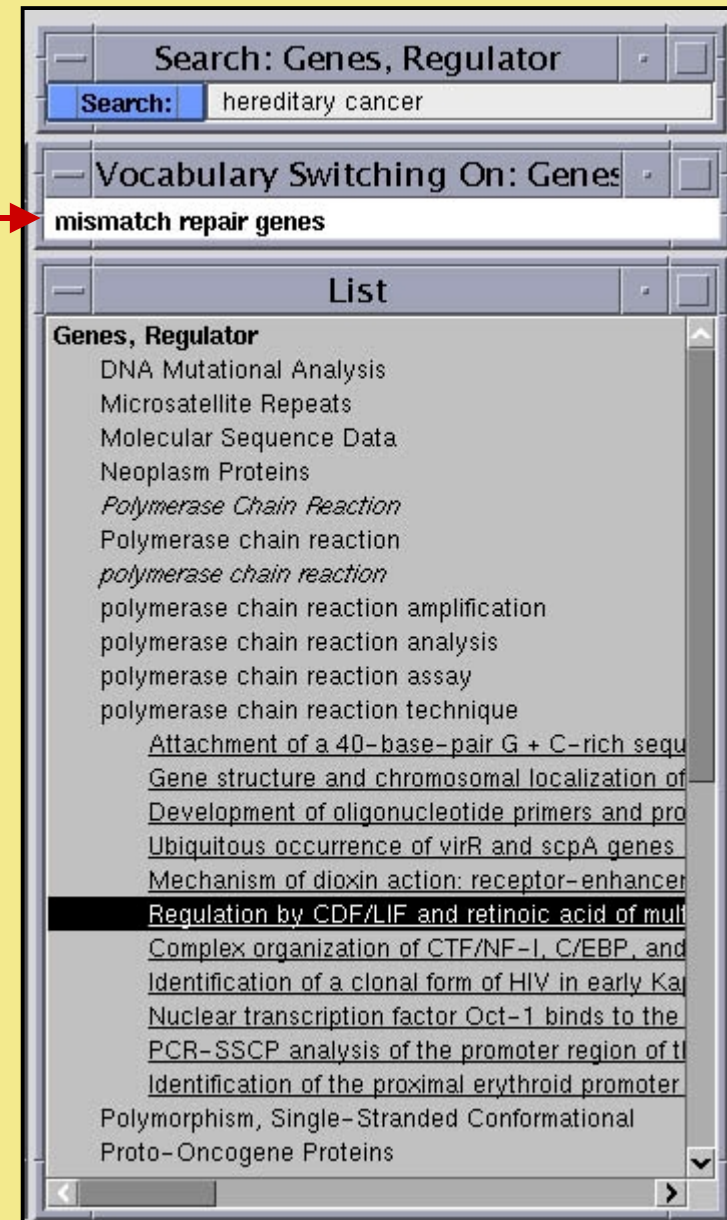
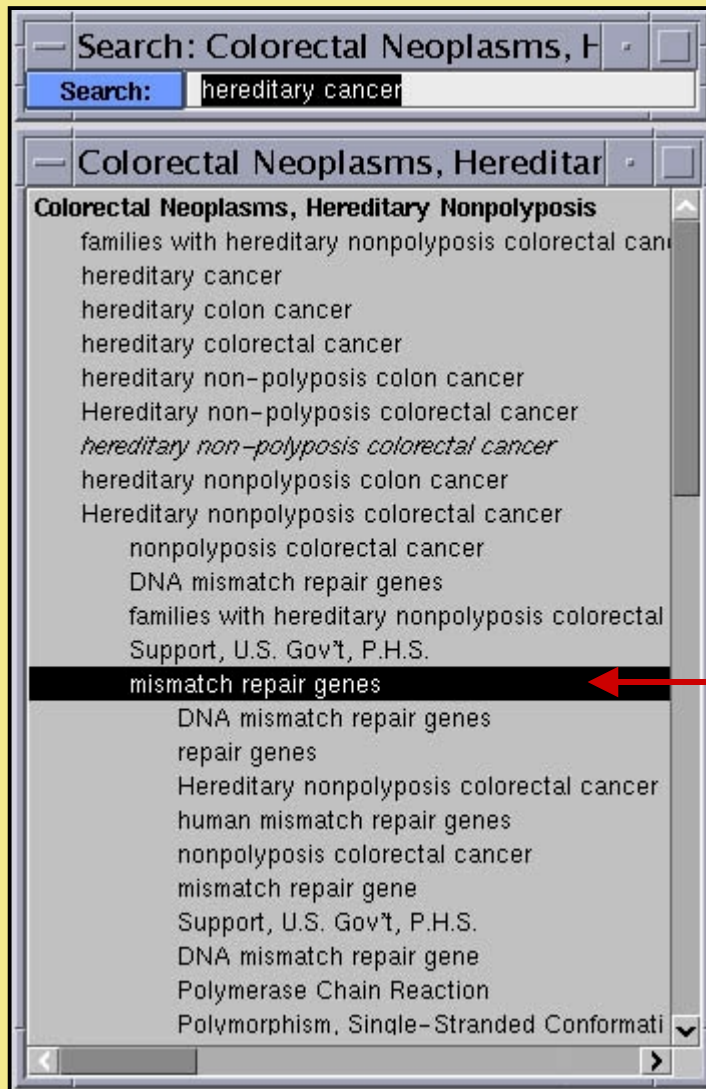
SWITCHING

CANIS

Community Architectures for Network Information Systems

www.canis.uiuc.edu





Concept Switching



Document Retrieval

Search: Genes, Regulator

Search: hereditary cancer

Vocabulary Switching On: Genes

mismatch repair genes

List

Genes, Regulator

- DNA Mutational Analysis
- Microsatellite Repeats
- Molecular Sequence Data
- Neoplasm Proteins
- Polymerase Chain Reaction*
- Polymerase chain reaction
- polymerase chain reaction*
- polymerase chain reaction amplification
- polymerase chain reaction analysis
- polymerase chain reaction assay
- polymerase chain reaction technique
- Attachment of a 40-base-pair G + C-rich sequence to a plasmid vector
- Gene structure and chromosomal localization of the human DNA mismatch repair gene hMLH1
- Development of oligonucleotide primers and probes for the detection of mutations in the hMLH1 gene
- Ubiquitous occurrence of virR and scpA genes in enterobacterial strains
- Mechanism of dioxin action: receptor-enhancer model
- Regulation by CDF/LIF and retinoic acid of multiple ChAT mRNAs produced from distinct promoters.**
- Complex organization of CTF/NF-1, C/EBP, and NF-1
- Identification of a clonal form of HIV in early Kaposi's sarcoma
- Nuclear transcription factor Oct-1 binds to the octamer site in the promoter region of the human DNA mismatch repair gene hMLH1
- PCR-SSCP analysis of the promoter region of the human DNA mismatch repair gene hMLH1
- Identification of the proximal erythroid promoter in the human DNA mismatch repair gene hMLH1
- Polymorphism, Single-Stranded Conformational Analysis
- Proto-Oncogene Proteins

Regulation by CDF/LIF and retinoic acid of multiple ChAT mRNAs produced from distinct promoters.

Cervini R	Berrard S	Bejanin S	Mallet J
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The cholinergic differentiation factor/leukaemia inhibitory factor (CDF/LIF) and retinoic acid (RA) induce in sympathetic neurones, a switch from the noradrenergic to the cholinergic neurotransmitter phenotype. In particular, these molecules alter the activities of the biosynthetic enzymes choline acetyltransferase (ChAT), tyrosine hydroxylase (TH) and dopamine beta-hydroxylase (DBH). Recently, five rat ChAT mRNA species have been identified although no data have yet been reported concerning their production and regulation in sympathetic neurones. By use of the reverse transcription polymerase chain reaction technique we analysed the effects of CDF/LIF and RA on the levels of ChAT, TH and DBH mRNAs.

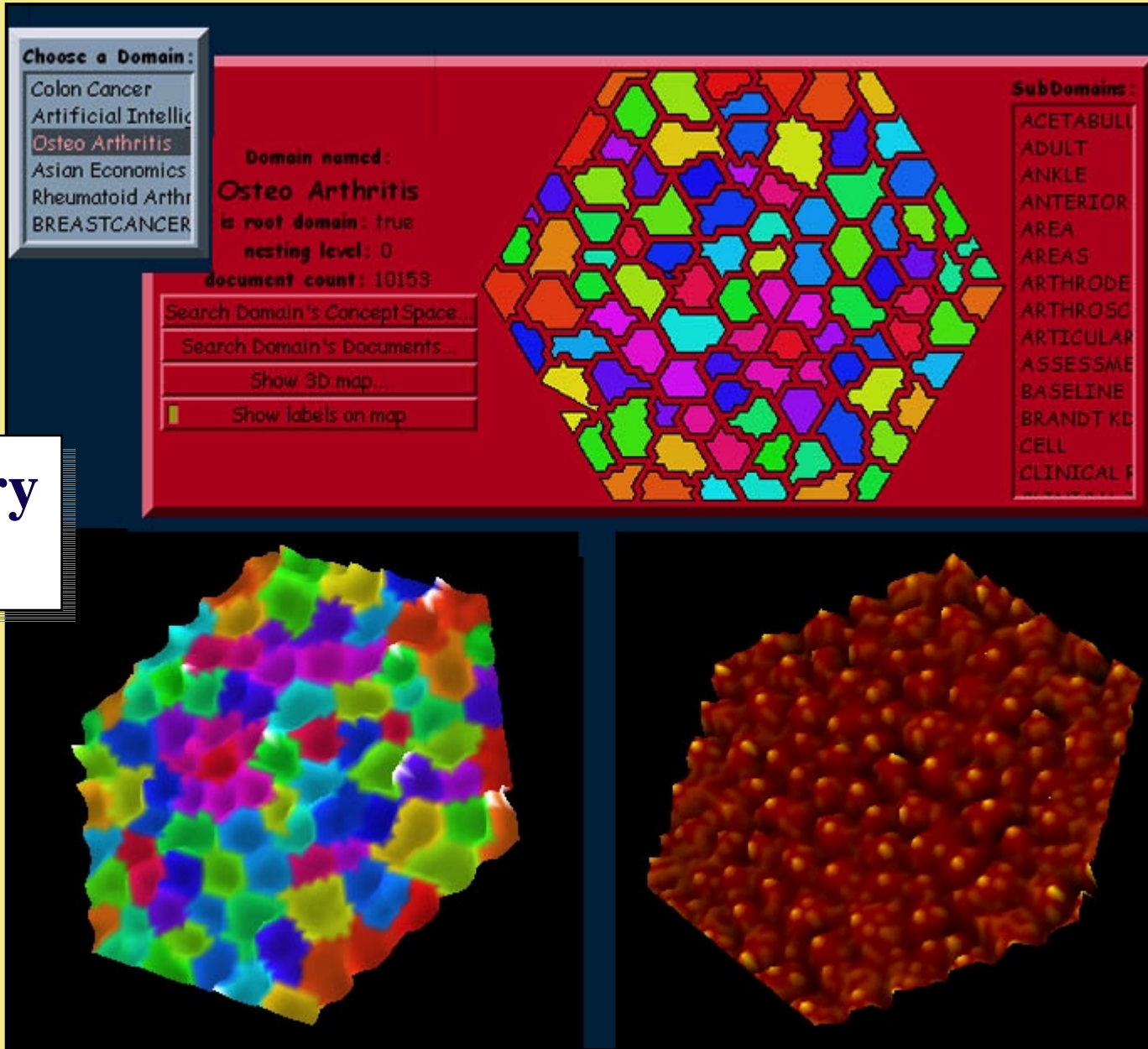


INFORMATION SPACEFLIGHT

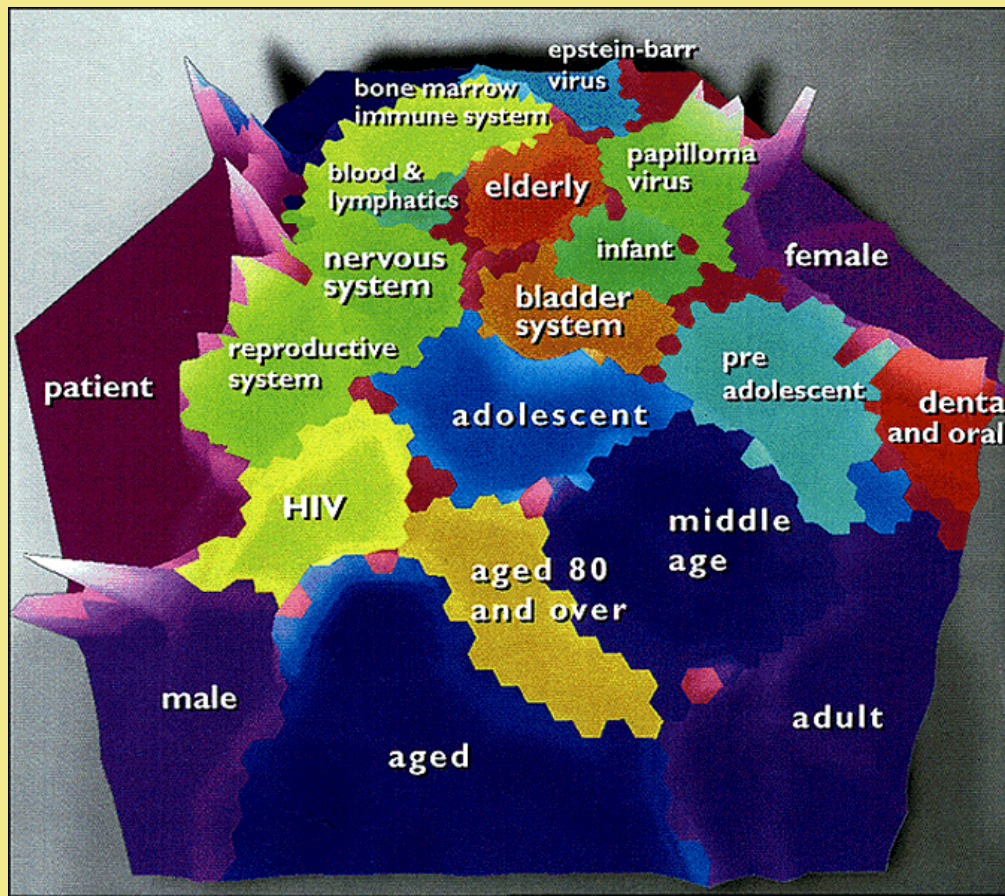
- *Landscape as category map visualization*
- *Valleys are semantic clusters*
- *Hills are semantic distances*
- *Traversal across multiple levels of abstraction*



Category Maps

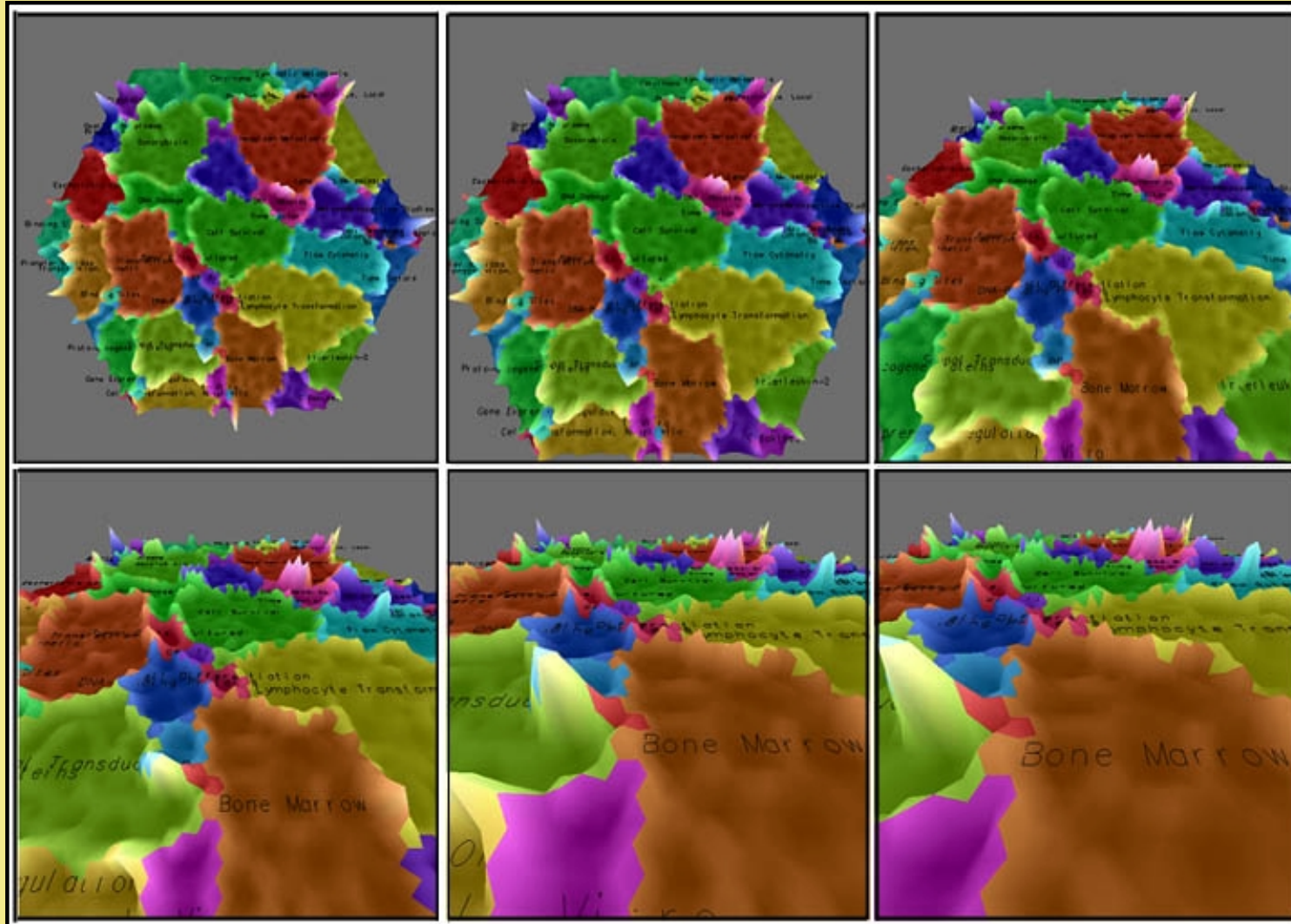


SELF-ORGANIZING MAPS (SOMs)



INFORMATION SPACEFLIGHT

FLYING

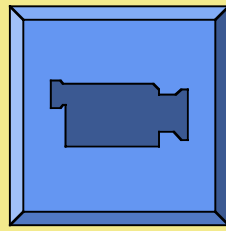


THE NET OF THE 21st CENTURY

- *Beyond Objects to Concepts*
 - *Beyond Search to Analysis*
 - *Problem Solving via Cross-Correlating Multimedia Information across the Net*
-
- *Every community has its own special library*
 - *Every community does semantic indexing*
 - *The Interspace is true Cyberspace*



INFORMATION SPACEFLIGHT



The Zen of the Net

CANIS

Community Architectures for Network Information Systems

www.canis.uiuc.edu



FLYING