

Presentación Final “substring matching”

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Carrera: Ciencia de la Computación

Agenda

- › Implementaciones
- › Resultados
- › Referencias

Implementaciones

- ❏ SUFFIX_NODE
- ❏ buildSTree
 - ❏ update
 - ❏ canonize
 - ❏ test_and_split
- ❏ string_match
 - ❏ get_results

SUFFIX_NODE

```
class SUFFIX_NODE
{
public:
    SUFFIX_NODE();
    bool checkTransition(char letter);
    map<char, pair<pair<int, int>, shared_ptr<SUFFIX_NODE>>> getAllTransitions();
    shared_ptr<SUFFIX_NODE> setTransition(char letter, int k, int p, shared_ptr<SUFFIX_NODE> node = nullptr);
    shared_ptr<SUFFIX_NODE> getTransition(char letter, int& k, int& p);
    shared_ptr<SUFFIX_NODE> getSuffixLink();
    void setSuffixLink(shared_ptr<SUFFIX_NODE> _suffix_link);
    ~SUFFIX_NODE();

private:
    // transición con un carácter como llave, dos índices y el puntero al nodo hijo
    map<char, pair< pair<int, int>, shared_ptr<SUFFIX_NODE> >> trans;
    weak_ptr<SUFFIX_NODE> suffix_link;
};
```

BuildSTree

```
void SUFFIX_TREE::buildSTree(string& T) {  
    int k = 0, size_T = T.size();  
    shared_ptr<SUFFIX_NODE> s = root_state;  
    for (int i = 0; i < size_T; ++i) {  
        update(s, k, i, T); // (s,k) <- update(s, (k,i))  
        s = canonize(s, k, i, T); // (s,k) <- canonize(s, (k,i))  
    }  
}
```

update

```
void SUFFIX_TREE::update(shared_ptr<SUFFIX_NODE>& s, int& k, int i, string& T)
{
    shared_ptr<SUFFIX_NODE> oldr = root_state; // oldr <- root; r <- nullptr
    // la variable testPair es lo equivalente a (end-point, r)
    pair<bool, shared_ptr<SUFFIX_NODE>> testPair = testAndSplit(s, k, i - 1, T[i], T);
    // while not end-point
    while (!testPair.first)
    {
        // set transition to r: g'(r, (i, infinity)) = r' donde r' es un nuevo estado
        // un estado nulo para las hojas basta, sobre todo para no ocupar espacio innecesariamente
        testPair.second->setTransition(T[i], i, INT_MAX, nullptr); // make_shared<SUFFIXNODE>()
        // f'(oldr) = r
        if (oldr != root_state) oldr->setSuffixLink(testPair.second);
        // oldr <- r
        oldr = testPair.second;
        // (s, k) = canonize(f'(s), (k, i-1))
        s = canonize(s->getSuffixLink(), k, i - 1, T); // k es pasado por referencia
        // (end-point, r) = test-and-split(s, (k, p), t_i)
        testPair = testAndSplit(s, k, i - 1, T[i], T);
    }
    if (oldr != root_state) oldr->setSuffixLink(s);
    return; // return (s, k)
}
```

canonize

```
shared_ptr<SUFFIX_NODE> SUFFIX_TREE::canonize(shared_ptr<SUFFIX_NODE> s, int& k, int p, string& T)
{
    if (p < k) return s; // lo mismo que return(s, k)
    // encuentra la t_k-transición g'(s, (k',p')) = s'
    int kp, pp;
    shared_ptr<SUFFIX_NODE> sp = s->getTransition(T[k], kp, pp);
    while (pp - kp <= p - k)
    {
        // k <- k + p' - k' + 1
        k = k + pp - kp + 1;
        // s <- s'
        s = sp;
        // if k <= p encuentra la t_k transición g'(s, (k',p')) = s' desde s
        if (k <= p) sp = s->getTransition(T[k], kp, pp);
    }
    return s; // return (s, k)
}
```

test_and_split

```
pair<bool, shared_ptr<SUFFIX_NODE>> SUFFIX_TREE::testAndSplit(shared_ptr<SUFFIX_NODE>& s, int k, int p, char t,
                                                                string& T)
{
    if (k <= p)
    {
        // la t_k-transición (s, (k', p')) = s'
        int kp, pp;
        shared_ptr<SUFFIX_NODE> sp = s->getTransition(T[k], kp, pp);
        // if t = T[k' + p - k + 1] entonces return(true, s)
        if (t == T[(size_t)kp + (size_t)p - (size_t)k + (size_t)1]) return make_pair(true, s);
        // replace t_k transition above by transitions
        // g'(s, (k', k' + p - k)) = r and g'(r, (k' + p - k + 1, p')) = s'
        // where r is a new state
        // g'(s, (k', k' + p - k)) = r
        shared_ptr<SUFFIX_NODE> r = s->setTransition(T[kp], kp, kp + p - k, make_shared<SUFFIX_NODE>());
        // g'(r, (k' + p - k + 1, p')) = s'
        r->setTransition(T[(size_t)kp + (size_t)p - (size_t)k + (size_t)1], kp + p - k + 1, pp, sp);
        return make_pair(false, r); // return (false, r)
    }
    // si no hay una t-transición desde s: return (false, s)
    if (!s->checkTransition(t)) return make_pair(false, s);
    // sino return(true, s)
    return make_pair(true, s);
}
```


string match

Preferiblemente ver el código

getResults

Preferiblemente ver el código

Resultados

Algunas pruebas realizadas en 20000 documentos
(términos usados en ciencia de la computación)

- Algorithms and complexity

- a. computational complexity
- b. analysis of algorithms
- c. data structures

- Graphics and visual computing

- a. computer graphics
- b. computational geometry

- Information management

- a. big data
- b. data analysis
- c. data visualization

- Intelligent systems

- a. machine learning
- b. deep learning
- c. neural networks

- Networking and communication

- a. network protocols

- Operating systems

- operating systems
- multicore

- Parallel and distributed computing

- parallel algorithm
- parallelism

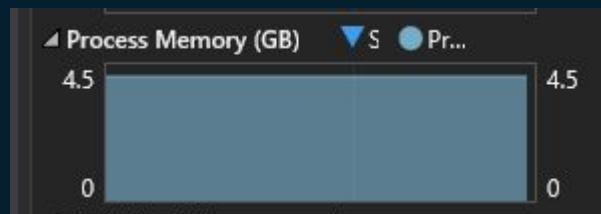
- Software engineering

- software development
- UML
- agile software development

Tiempo y espacio en memoria

```
C:\> B:\UCSP\EDA\FinalProject\build\Debug\string_matching.exe  
Primero ingrese la cantidad de documentos que desea cargar: 20000  
Tiempo de lectura de los documentos: 1025 ms  
Construccion del Arbol de Sufijos, espere...  
Tiempo de construccion de la estructura en: 78067 ms  
Ingrese una palabra de busqueda o la palabra "EXIT" para salir del programa...  
Ingrese la palabra:
```

Name	Status	22% CPU	92% Memory	6% Disk	0% Network	1% GPU	GPU engine
> C:\ Visual Studio Debugger Console...		0%	<u>4,043.1 MB</u>	0 MB/s	0 Mbps	0%	



Ingrese la palabra: computational complexity

busqueda realizada en 1650381 usec

Cantidad de resultados: 19

	Score	Link	PDF
1:	20.8771	https://arxiv.org/abs/0704.2167	https://arxiv.org/pdf/0704.2167
2:	13.9181	https://arxiv.org/abs/0707.0823	https://arxiv.org/pdf/0707.0823
3:	6.95905	https://arxiv.org/abs/0708.1414	https://arxiv.org/pdf/0708.1414
4:	6.95905	https://arxiv.org/abs/0707.4565	https://arxiv.org/pdf/0707.4565
5:	6.95905	https://arxiv.org/abs/0707.2569	https://arxiv.org/pdf/0707.2569
6:	6.95905	https://arxiv.org/abs/0707.2115	https://arxiv.org/pdf/0707.2115
7:	6.95905	https://arxiv.org/abs/0707.1362	https://arxiv.org/pdf/0707.1362
8:	6.95905	https://arxiv.org/abs/0707.0878	https://arxiv.org/pdf/0707.0878
9:	6.95905	https://arxiv.org/abs/0707.0828	https://arxiv.org/pdf/0707.0828
10:	6.95905	https://arxiv.org/abs/0706.1080	https://arxiv.org/pdf/0706.1080
11:	6.95905	https://arxiv.org/abs/0706.0669	https://arxiv.org/pdf/0706.0669
12:	6.95905	https://arxiv.org/abs/0706.0073	https://arxiv.org/pdf/0706.0073
13:	6.95905	https://arxiv.org/abs/0705.3766	https://arxiv.org/pdf/0705.3766
14:	6.95905	https://arxiv.org/abs/0705.3748	https://arxiv.org/pdf/0705.3748
15:	6.95905	https://arxiv.org/abs/0705.2633	https://arxiv.org/pdf/0705.2633
16:	6.95905	https://arxiv.org/abs/0705.0781	https://arxiv.org/pdf/0705.0781
17:	6.95905	https://arxiv.org/abs/0704.3142	https://arxiv.org/pdf/0704.3142
18:	6.95905	https://arxiv.org/abs/0704.1524	https://arxiv.org/pdf/0704.1524
19:	6.95905	https://arxiv.org/abs/0704.1412	https://arxiv.org/pdf/0704.1412



Mathematics > Statistics Theory

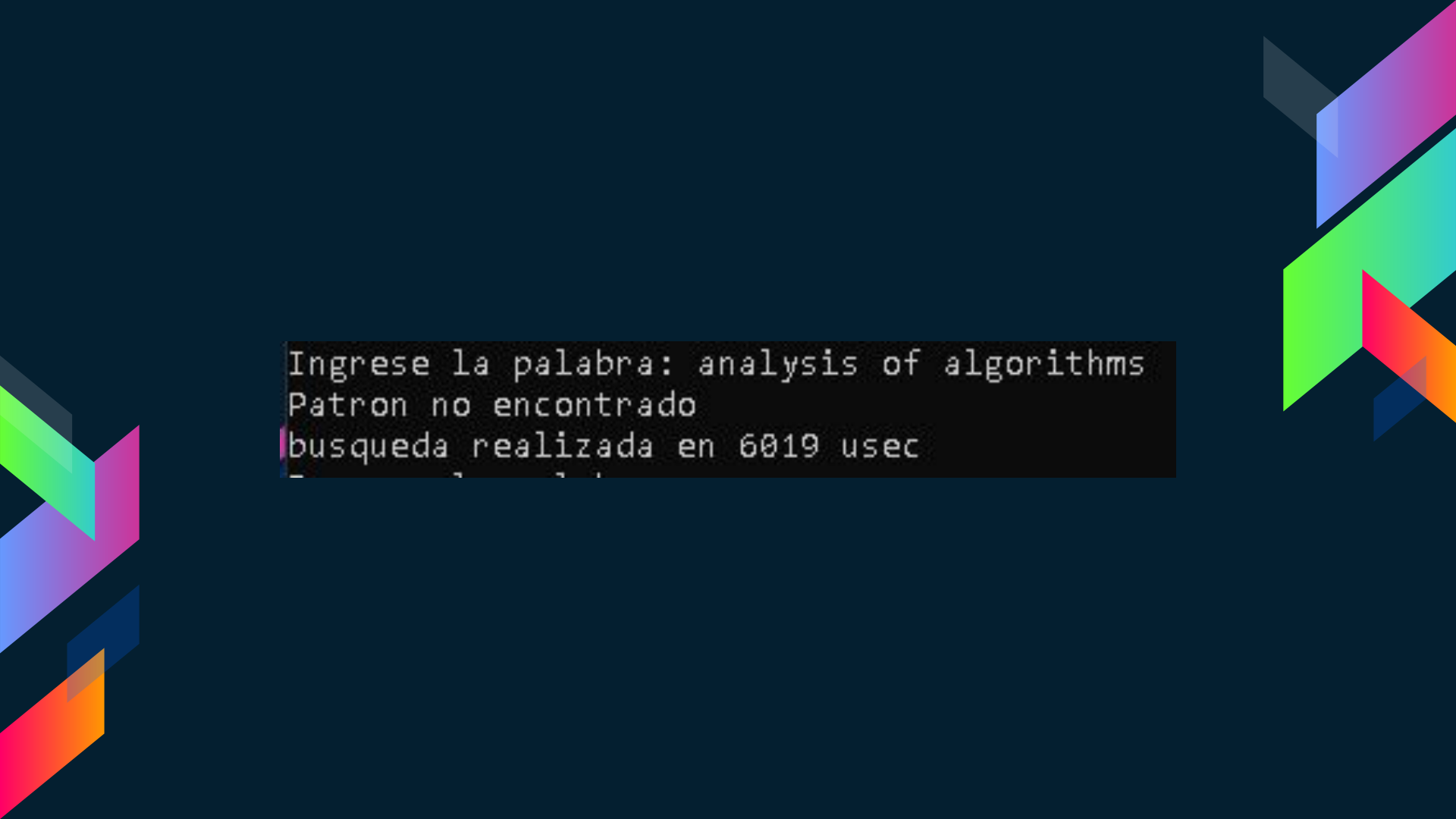
[Submitted on 17 Apr 2007 (v1), last revised 25 Jan 2012 (this version, v3)]

On the Computational Complexity of MCMC-based Estimators in Large Samples

Alexandre Belloni, Victor Chernozhukov

In this paper we examine the implications of the statistical large sample theory for the computational complexity of Bayesian and quasi-Bayesian estimation carried out using Metropolis random walks. Our analysis is motivated by the Laplace-Bernstein-Von Mises central limit theorem, which states that in large samples the posterior or quasi-posterior approaches a normal density. Using the conditions required for the central limit theorem to hold, we establish polynomial bounds on the computational complexity of general Metropolis random walks methods in large samples. Our analysis covers cases where the underlying log-likelihood or extremum criterion function is possibly non-concave, discontinuous, and with increasing parameter dimension. However, the central limit theorem restricts the deviations from continuity and log-concavity of the log-likelihood or extremum criterion function in a very specific manner.





Under minimal assumptions required for the central limit theorem to hold under the increasing parameter dimension, we show that the Metropolis algorithm is theoretically efficient even for the canonical Gaussian walk which is studied in detail. Specifically, we show that the running time of the algorithm in large samples is bounded in probability by a polynomial in the parameter dimension d , and, in particular, is of stochastic order d^2 in the leading cases after the burn-in period. We then give applications to exponential families, curved exponential families, and Z-estimation of increasing dimension.







```
Ingrese la palabra: analysis of algorithms
Patron no encontrado
busqueda realizada en 6019 usec
```

Ingrese la palabra: data structures
busqueda realizada en 3346 usec
Cantidad de resultados: 6

	Score	Link	PDF
1:	8.11173	https://arxiv.org/abs/0707.1548	https://arxiv.org/pdf/0707.1548
2:	8.11173	https://arxiv.org/abs/0707.1306	https://arxiv.org/pdf/0707.1306
3:	8.11173	https://arxiv.org/abs/0706.2864	https://arxiv.org/pdf/0706.2864
4:	8.11173	https://arxiv.org/abs/0705.3888	https://arxiv.org/pdf/0705.3888
5:	8.11173	https://arxiv.org/abs/0705.0552	https://arxiv.org/pdf/0705.0552
6:	8.11173	https://arxiv.org/abs/0704.1196	https://arxiv.org/pdf/0704.1196

arxiv.org/abs/0707.1548

 Cornell University

data structures 1/1   

arXiv.org > cs > arXiv:0707.1548 Search... Help | Advan

Computer Science > Databases

[Submitted on 11 Jul 2007]

Data Mining-based Materialized View and Index Selection in Data Warehouses

Kamel Aouiche, Jérôme Darmont

Materialized views and indexes are physical structures for accelerating data access that are casually used in data warehouses. However, these **data structures** generate some maintenance overhead. They also share the same storage space. Most existing studies about materialized view and index selection consider these structures separately. In this paper, we adopt the opposite stance and couple materialized view and index selection to take view-index interactions into account and achieve efficient storage space sharing. Candidate materialized views and indexes are selected through a data mining process. We also exploit cost models that evaluate the respective benefit of indexing and view materialization, and help select a relevant configuration of indexes and materialized views among the candidates. Experimental results show that our strategy performs better than an independent selection of materialized views and indexes.


```
Ingrese la palabra: computer graphics
busqueda realizada en 2880 usec
Cantidad de resultados: 2
```

	Score	Link	PDF
1:	18.4207	https://arxiv.org/abs/0708.0979	https://arxiv.org/pdf/0708.0979
2:	9.21034	https://arxiv.org/abs/0707.3562	https://arxiv.org/pdf/0707.3562

 Cornell University

computer graphics 1/2

arXiv.org > nlin > arXiv:0708.0979

Search... Help | Advan

Nonlinear Sciences > Exactly Solvable and Integrable Systems

[Submitted on 7 Aug 2007]

A new doubly discrete analogue of smoke ring flow and the real time simulation of fluid flow

Ulrich Pinkall, Boris Springborn, Steffen Weissmann

Modelling incompressible ideal fluids as a finite collection of vortex filaments is important in physics (super-fluidity, models for the onset of turbulence) as well as for numerical algorithms used in **computer graphics** for the real time simulation of smoke. Here we introduce a time-discrete evolution equation for arbitrary closed polygons in 3-space that is a discretisation of the localised induction approximation of filament motion. This discretisation shares with its continuum limit the property that it is a completely integrable system. We apply this polygon evolution to a significant improvement of the numerical algorithms used in **Computer Graphics**.

Ingrese la palabra: computational geometry

busqueda realizada en 1941 usec

Cantidad de resultados: 3

	Score	Link	PDF
1:	17.6098	https://arxiv.org/abs/0705.4185	https://arxiv.org/pdf/0705.4185
2:	8.80488	https://arxiv.org/abs/0707.4298	https://arxiv.org/pdf/0707.4298
3:	8.80488	https://arxiv.org/abs/0707.3619	https://arxiv.org/pdf/0707.3619

arxiv.org/abs/0705.4185



Cornell University

computational geometry

1/2



arXiv.org > cs > arXiv:0705.4185

Search...

Help | Advan

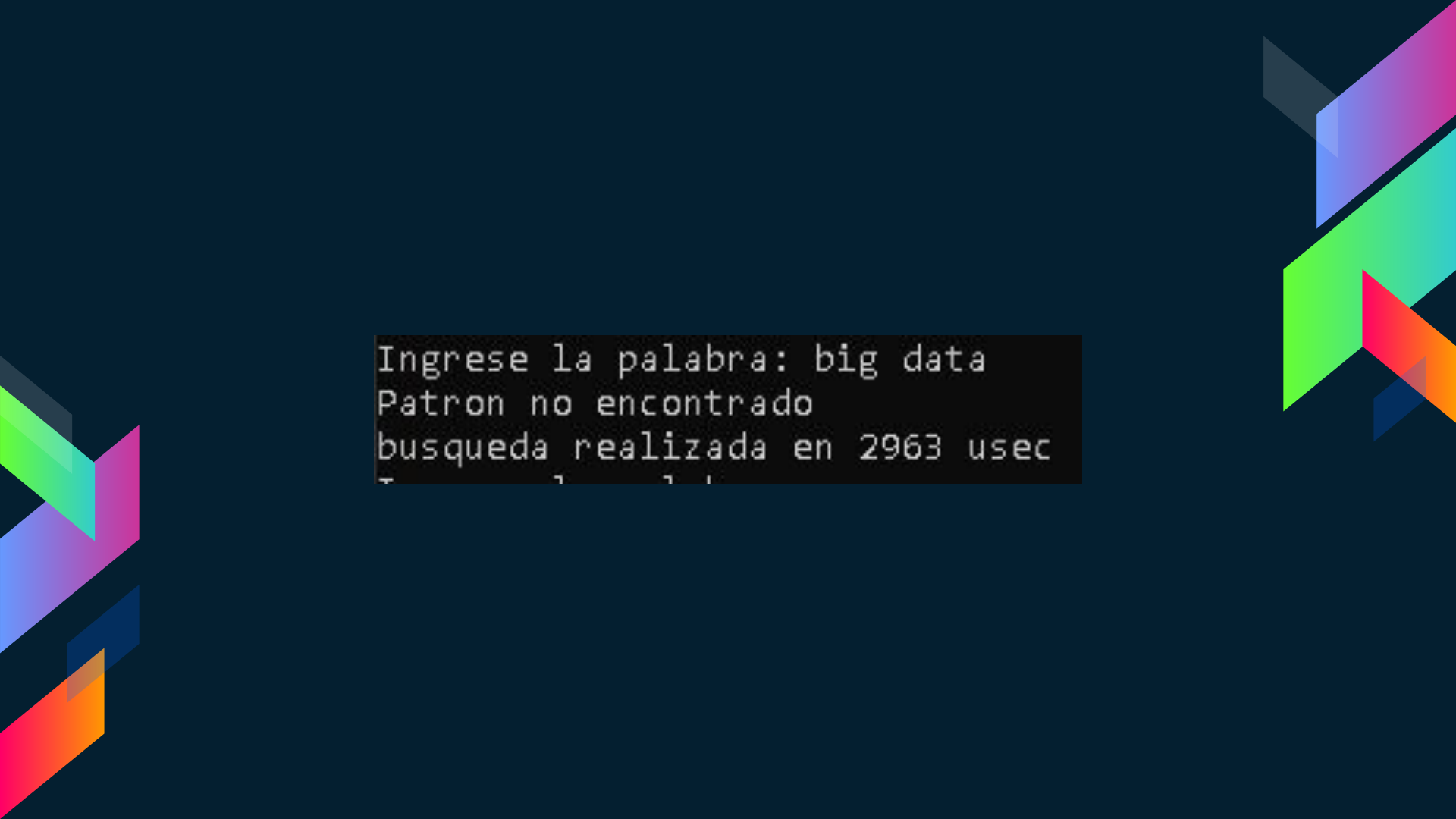
Computer Science > Cryptography and Security

[Submitted on 29 May 2007]

Secure Two-party Protocols for Point Inclusion Problem

Tony Thomas

It is well known that, in theory, the general secure multi-party computation problem is solvable using circuit evaluation protocols. However, the communication complexity of the resulting protocols depend on the size of the circuit that expresses the functionality to be computed and hence can be impractical. Hence special solutions are needed for specific problems for efficiency reasons. The point inclusion problem in **computational geometry** is a special multiparty computation and has got many applications. Previous protocols for the secure point inclusion problem are not adequate. In this paper we modify some known solutions to the point inclusion problem in **computational geometry** to the frame work of secure two-party computation.



```
Ingrese la palabra: big data
Patron no encontrado
busqueda realizada en 2963 usec
```

Ingrese la palabra: data analysis
busqueda realizada en 5593 usec
Cantidad de resultados: 45

	Score	Link	PDF
1:	24.3873	https://arxiv.org/abs/0705.0209	https://arxiv.org/pdf/0705.0209
2:	18.2905	https://arxiv.org/abs/0707.1503	https://arxiv.org/pdf/0707.1503
3:	12.1937	https://arxiv.org/abs/0708.1429	https://arxiv.org/pdf/0708.1429
4:	12.1937	https://arxiv.org/abs/0707.2438	https://arxiv.org/pdf/0707.2438
5:	12.1937	https://arxiv.org/abs/0707.0844	https://arxiv.org/pdf/0707.0844
6:	12.1937	https://arxiv.org/abs/0706.2024	https://arxiv.org/pdf/0706.2024
7:	12.1937	https://arxiv.org/abs/0705.0688	https://arxiv.org/pdf/0705.0688
8:	12.1937	https://arxiv.org/abs/0704.2093	https://arxiv.org/pdf/0704.2093
9:	6.09683	https://arxiv.org/abs/0708.1495	https://arxiv.org/pdf/0708.1495
10:	6.09683	https://arxiv.org/abs/0708.0950	https://arxiv.org/pdf/0708.0950
11:	6.09683	https://arxiv.org/abs/0708.0474	https://arxiv.org/pdf/0708.0474
12:	6.09683	https://arxiv.org/abs/0708.0450	https://arxiv.org/pdf/0708.0450
13:	6.09683	https://arxiv.org/abs/0707.3536	https://arxiv.org/pdf/0707.3536
14:	6.09683	https://arxiv.org/abs/0707.2474	https://arxiv.org/pdf/0707.2474
15:	6.09683	https://arxiv.org/abs/0707.2429	https://arxiv.org/pdf/0707.2429
16:	6.09683	https://arxiv.org/abs/0707.2105	https://arxiv.org/pdf/0707.2105
17:	6.09683	https://arxiv.org/abs/0707.1861	https://arxiv.org/pdf/0707.1861
18:	6.09683	https://arxiv.org/abs/0707.0225	https://arxiv.org/pdf/0707.0225
19:	6.09683	https://arxiv.org/abs/0706.4130	https://arxiv.org/pdf/0706.4130
20:	6.09683	https://arxiv.org/abs/0706.4128	https://arxiv.org/pdf/0706.4128
21:	6.09683	https://arxiv.org/abs/0706.3074	https://arxiv.org/pdf/0706.3074
22:	6.09683	https://arxiv.org/abs/0706.2851	https://arxiv.org/pdf/0706.2851
23:	6.09683	https://arxiv.org/abs/0706.2443	https://arxiv.org/pdf/0706.2443
24:	6.09683	https://arxiv.org/abs/0706.2334	https://arxiv.org/pdf/0706.2334



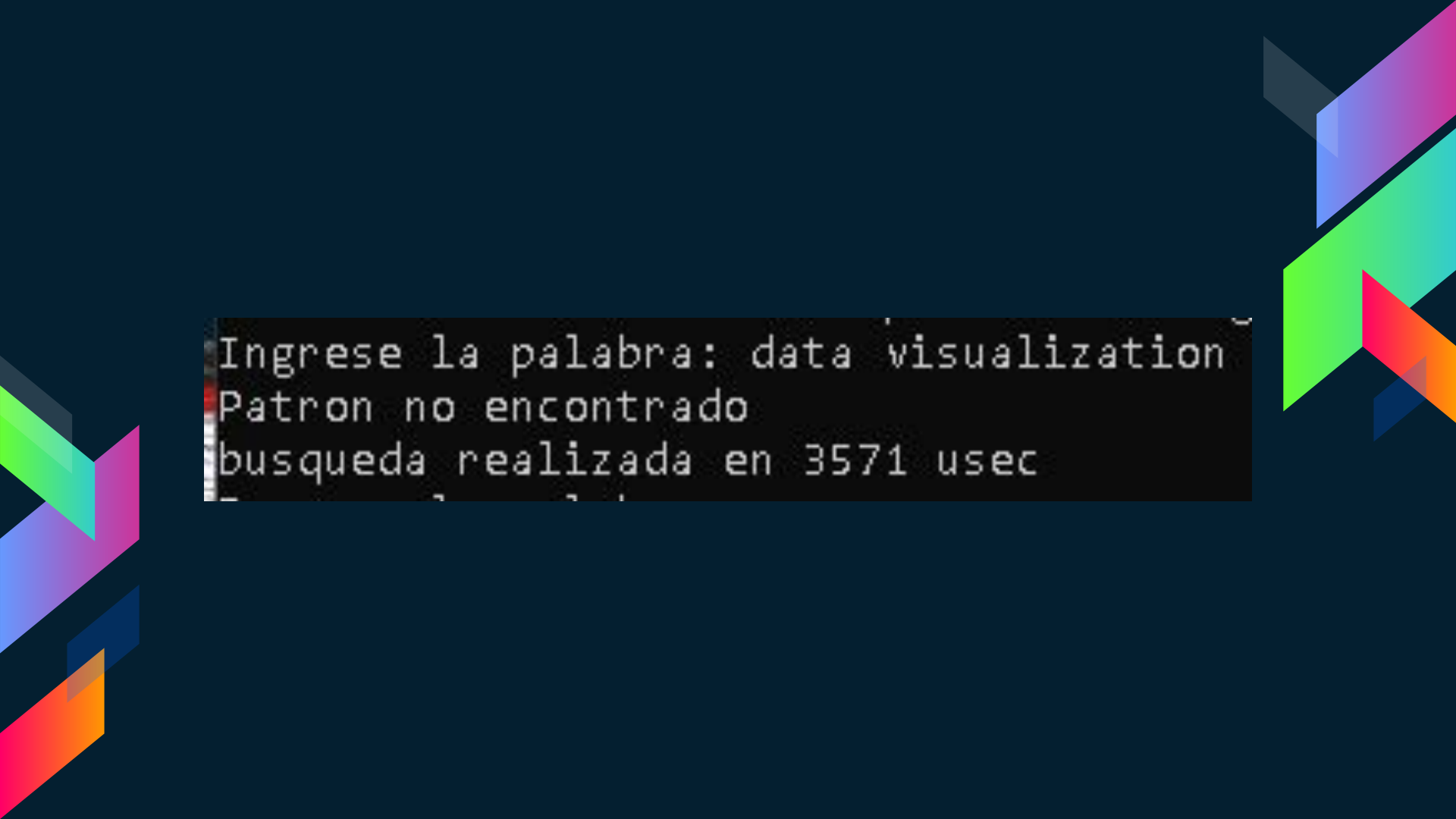
Mathematics > Statistics Theory

[Submitted on 2 May 2007]

Support vector machine for functional data classification

Fabrice Rossi (INRIA Rocquencourt / INRIA Sophia Antipolis), Nathalie Villa (GRIMM)

In many applications, input data are sampled functions taking their values in infinite dimensional spaces rather than standard vectors. This fact has complex consequences on **data analysis** algorithms that motivate modifications of them. In fact most of the traditional **data analysis** tools for regression, classification and clustering have been adapted to functional inputs under the general name of functional **Data Analysis** (FDA). In this paper, we investigate the use of Support Vector Machines (SVMs) for functional **data analysis** and we focus on the problem of curves discrimination. SVMs are large margin classifier tools based on implicit non linear mappings of the considered data into high dimensional spaces thanks to kernels. We show how to define simple kernels that take into account the functional nature of the data and lead to consistent classification. Experiments conducted on real world data emphasize the benefit of taking into account some functional aspects of the problems.



```
Ingrese la palabra: data visualization  
Patron no encontrado  
busqueda realizada en 3571 usec
```

Ingrese la palabra: machine learning

busqueda realizada en 6071 usec

Cantidad de resultados: 7

	Score	Link	PDF
1:	31.8303	https://arxiv.org/abs/0704.3453	https://arxiv.org/pdf/0704.3453
2:	7.95758	https://arxiv.org/abs/0708.1564	https://arxiv.org/pdf/0708.1564
3:	7.95758	https://arxiv.org/abs/0708.1175	https://arxiv.org/pdf/0708.1175
4:	7.95758	https://arxiv.org/abs/0707.0705	https://arxiv.org/pdf/0707.0705
5:	7.95758	https://arxiv.org/abs/0706.1061	https://arxiv.org/pdf/0706.1061
6:	7.95758	https://arxiv.org/abs/0704.3905	https://arxiv.org/pdf/0704.3905
7:	7.95758	https://arxiv.org/abs/0704.0468	https://arxiv.org/pdf/0704.0468



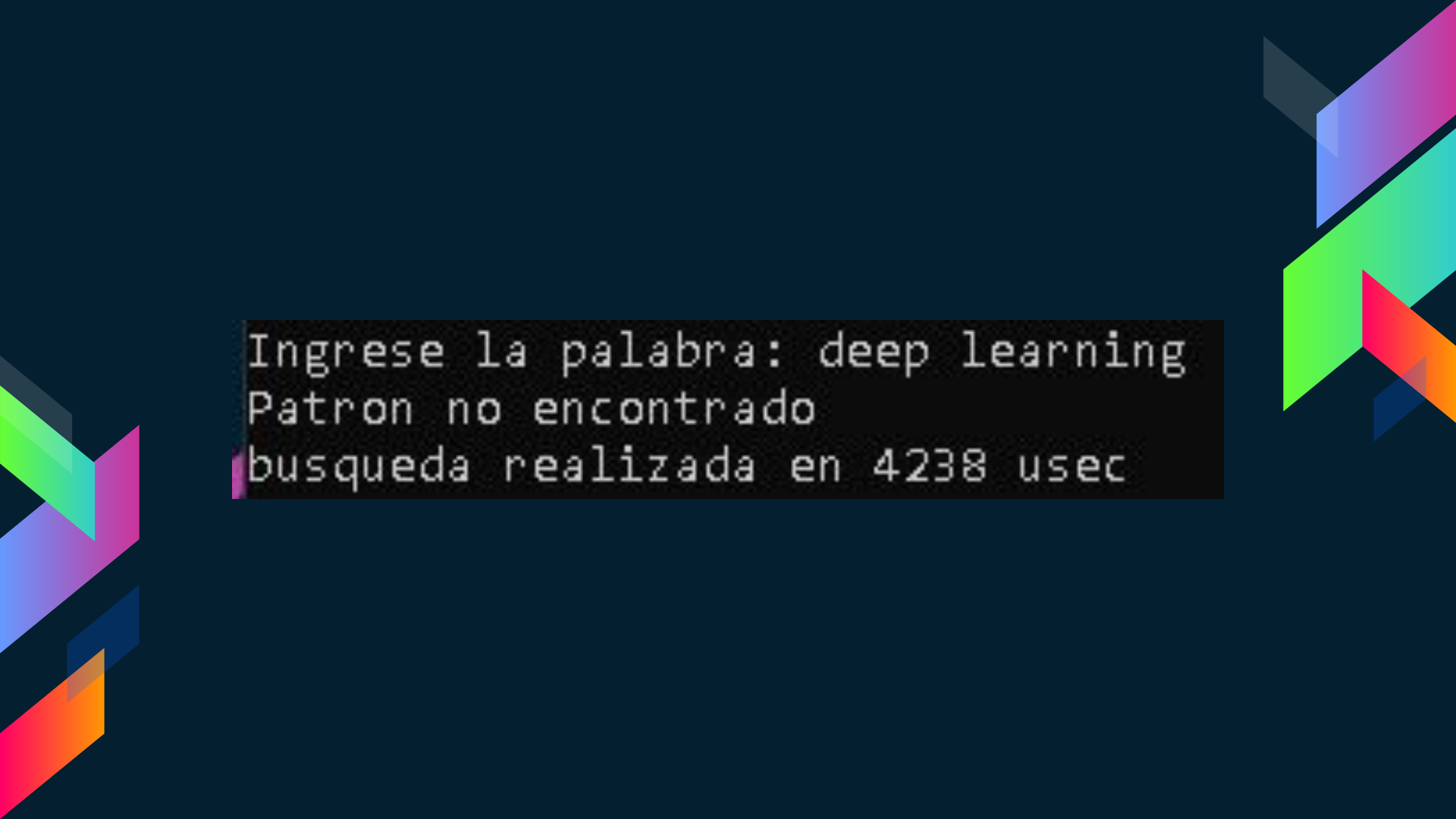
Computer Science > Artificial Intelligence

[Submitted on 25 Apr 2007]

An Adaptive Strategy for the Classification of G-Protein Coupled Receptors

S. Mohamed, D. Rubin, T. Marwala

One of the major problems in computational biology is the inability of existing classification models to incorporate expanding and new domain knowledge. This problem of static classification models is addressed in this paper by the introduction of incremental learning for problems in bioinformatics. Many machine learning tools have been applied to this problem using static machine learning structures such as neural networks or support vector machines that are unable to accommodate new information into their existing models. We utilize the fuzzy ARTMAP as an alternate machine learning system that has the ability of incrementally learning new data as it becomes available. The fuzzy ARTMAP is found to be comparable to many of the widespread machine learning systems. The use of an evolutionary strategy in the selection and combination of individual classifiers into an ensemble system, coupled with the incremental learning ability of the fuzzy ARTMAP is proven to be suitable as a pattern classifier. The algorithm presented is tested using data from the G-Coupled Protein Receptors Database and shows good accuracy of 83%. The system presented is also generally applicable, and can be used in problems in genomics and proteomics.



```
Ingrese la palabra: deep learning  
Patron no encontrado  
busqueda realizada en 4238 usec
```


Ingrese la palabra: neural networks

busqueda realizada en 12140 usec

Cantidad de resultados: 46

	Score	Link	PDF
1:	36.4491	https://arxiv.org/abs/0707.0930	https://arxiv.org/pdf/0707.0930
2:	36.4491	https://arxiv.org/abs/0705.1390	https://arxiv.org/pdf/0705.1390
3:	30.3742	https://arxiv.org/abs/0707.4524	https://arxiv.org/pdf/0707.4524
4:	24.2994	https://arxiv.org/abs/0705.1680	https://arxiv.org/pdf/0705.1680
5:	18.2245	https://arxiv.org/abs/0705.3690	https://arxiv.org/pdf/0705.3690
6:	18.2245	https://arxiv.org/abs/0705.2011	https://arxiv.org/pdf/0705.2011
7:	18.2245	https://arxiv.org/abs/0704.3706	https://arxiv.org/pdf/0704.3706
8:	12.1497	https://arxiv.org/abs/0707.4619	https://arxiv.org/pdf/0707.4619
9:	12.1497	https://arxiv.org/abs/0706.2048	https://arxiv.org/pdf/0706.2048
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18:	6.07485	https://arxiv.org/abs/0707.4487	https://arxiv.org/pdf/0707.4487
19:	6.07485	https://arxiv.org/abs/0707.4032	https://arxiv.org/pdf/0707.4032
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21:	6.07485	https://arxiv.org/abs/0706.3317	https://arxiv.org/pdf/0706.3317
22:	6.07485	https://arxiv.org/abs/0706.2979	https://arxiv.org/pdf/0706.2979
23:	6.07485	https://arxiv.org/abs/0706.2602	https://arxiv.org/pdf/0706.2602
24:	6.07485	https://arxiv.org/abs/0706.2130	https://arxiv.org/pdf/0706.2130
25:	6.07485	https://arxiv.org/abs/0706.0457	https://arxiv.org/pdf/0706.0457
26:	6.07485	https://arxiv.org/abs/0706.0300	https://arxiv.org/pdf/0706.0300



Physics > Data Analysis, Statistics and Probability

[Submitted on 6 Jul 2007]






Bayesian Learning of **Neural Networks** for Signal/Background Discrimination in Particle Physics


Michael Poggwizd, Laura Jane Elgass, Pushpalatha C. Bhat




Neural networks are used extensively in classification problems in particle physics research. Since the training of **neural networks** can be viewed as a problem of inference, Bayesian learning of **neural networks** can provide more optimal and robust results than conventional learning methods. We have investigated the use of Bayesian **neural networks** for signal/background discrimination in the search for second generation leptoquarks at the Tevatron, as an example. We present a comparison of the results obtained from the conventional training of feedforward **neural networks** and networks trained with Bayesian methods.

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Ingrese la palabra: network protocols
busqueda realizada en 6929 usec
Cantidad de resultados: 2
```

	Score	Link	PDF
1:	18.4207	https://arxiv.org/abs/0708.1480	https://arxiv.org/pdf/0708.1480
2:	9.21034	https://arxiv.org/abs/0704.1373	https://arxiv.org/pdf/0704.1373

 arxiv.org/abs/0708.1480

 Cornell University

network protocols | 1/2   

arXiv.org > cs > arXiv:0708.1480

Help | Adv

Computer Science > Logic in Computer Science

[Submitted on 10 Aug 2007 (v1), last revised 14 Nov 2007 (this version, v2)]

Valid formulas, games and network protocols

Jean-Louis Krivine (PPS), Yves Legrandgérard (PPS)

We describe a remarkable relation between the notion of valid formula of predicate logic and the specification of network protocols. We give several examples such as the acknowledgement of one packet or of a sequence of packets. We show how to specify the composition of protocols.

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Ingrese la palabra: operating systems
busqueda realizada en 5649 usec
Cantidad de resultados: 3
```

	Score	Link	PDF
1:	8.80488	https://arxiv.org/abs/0706.2748	https://arxiv.org/pdf/0706.2748
2:	8.80488	https://arxiv.org/abs/0706.2069	https://arxiv.org/pdf/0706.2069
3:	8.80488	https://arxiv.org/abs/0706.1755	https://arxiv.org/pdf/0706.1755

arxiv.org/abs/0706.2748



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operating systems

1/3



arXiv.org > cs > arXiv:0706.2748

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Computer Science > **Operating Systems**

[Submitted on 19 Jun 2007 (v1), last revised 20 Jun 2007 (this version, v2)]

A Survey of Unix Init Schemes

Yvan Royon (INRIA Rhône-Alpes), Stéphane Frénot (INRIA Rhône-Alpes)

In most modern **operating systems**, init (as in "initialization") is the program launched by the kernel at boot time. It runs as a daemon and typically has PID 1. Init is responsible for spawning all other processes and scavenging zombies. It is also responsible for reboot and shutdown operations. This document describes existing solutions that implement the init process and/or init scripts in Unix-like systems. These solutions range from the legacy and still-in-use BSD and SystemV schemes, to recent and promising schemes from Ubuntu, Apple, Sun and independent developers. Our goal is to highlight their focus and compare their sets of features.

Ingrese la palabra: multicore
busqueda realizada en 4419 usec
Cantidad de resultados: 2

	Score	Link	PDF
1:	18.4207	https://arxiv.org/abs/0707.3548	https://arxiv.org/pdf/0707.3548
2:	9.21034	https://arxiv.org/abs/0706.4048	https://arxiv.org/pdf/0706.4048

← → ↻ 🔒 arxiv.org/abs/0707.3548



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multicore

1/2



the site

arXiv.org > math > arXiv:0707.3548

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Mathematics > Numerical Analysis

[Submitted on 24 Jul 2007]

Parallel Tiled QR Factorization for **Multicore** Architectures

[Alfredo Buttari](#) (Department of Electrical Engineering and Computer Science, University Tennessee, Knoxville, Tennessee), [Julien Langou](#) (Department of Mathematical Sciences, University of Colorado at Denver and Health Sciences Center, Colorado), [Jakub Kurzak](#) (Department of Electrical Engineering and Computer Science, University Tennessee, Knoxville, Tennessee), [Jack Dongarra](#) (Department of Electrical Engineering and Computer Science, University Tennessee, Knoxville, Tennessee and Computer Science and Mathematics Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee)

As **multicore** systems continue to gain ground in the High Performance Computing world, linear algebra algorithms have to be reformulated or new algorithms have to be developed in order to take advantage of the architectural features on these new processors. Fine grain parallelism becomes a major requirement and introduces the necessity of loose synchronization in the parallel execution of an operation. This paper presents an algorithm for the QR factorization where the operations can be represented as a sequence of small tasks that operate on square blocks of data. These tasks can be dynamically scheduled for execution based on the dependencies among them and on the availability of computational resources. This may result in an out of order execution of the tasks which will completely hide the presence of intrinsically sequential tasks in the factorization. Performance comparisons are presented with the LAPACK algorithm for QR factorization where parallelism can only be exploited at the level of the BLAS operations.


```
Ingrese la palabra: parallel algorithms
Patron no encontrado
busqueda realizada en 6560 usec
Ingrese la palabra: parallel algorithm
busqueda realizada en 1193 usec
Cantidad de resultados: 2
```

	Score	Link	PDF
1:	9.21034	https://arxiv.org/abs/0707.0159	https://arxiv.org/pdf/0707.0159
2:	9.21034	https://arxiv.org/abs/0706.2155	https://arxiv.org/pdf/0706.2155

← → ↺ arxiv.org/abs/0707.0159



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parallel algorithm

1/1



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arXiv.org > cond-mat > arXiv:0707.0159

Search...

Help | Advanc

Condensed Matter > Strongly Correlated Electrons

[Submitted on 2 Jul 2007]

Direct Extension of Density-Matrix Renormalization Group toward 2-Dimensional Quantum Lattice Systems: Studies for **Parallel Algorithm**, Accuracy, and Performance

S. Yamada, M. Okumura, M. Machida

We parallelize density-matrix renormalization group to directly extend it to 2-dimensional (n -leg) quantum lattice models. The parallelization is made mainly on the exact diagonalization for the superblock Hamiltonian since the part requires an enormous memory space as the leg number n increases. The superblock Hamiltonian is divided into three parts, and the correspondent superblock vector is transformed into a matrix, whose elements are uniformly distributed into processors. The parallel efficiency shows a high rate as the number of the states kept m increases, and the eigenvalue converges within only a few sweeps in contrast to the multichain algorithm.

Ingrese la palabra: parallelism

busqueda realizada en 3619 usec

Cantidad de resultados: 16

	Score	Link	PDF
1:	14.2618	https://arxiv.org/abs/0708.1986	https://arxiv.org/pdf/0708.1986
2:	14.2618	https://arxiv.org/abs/0707.3548	https://arxiv.org/pdf/0707.3548
3:	7.1309	https://arxiv.org/abs/0708.1962	https://arxiv.org/pdf/0708.1962
4:	7.1309	https://arxiv.org/abs/0707.1607	https://arxiv.org/pdf/0707.1607
5:	7.1309	https://arxiv.org/abs/0707.1042	https://arxiv.org/pdf/0707.1042
6:	7.1309	https://arxiv.org/abs/0706.4048	https://arxiv.org/pdf/0706.4048
7:	7.1309	https://arxiv.org/abs/0706.3009	https://arxiv.org/pdf/0706.3009
8:	7.1309	https://arxiv.org/abs/0706.2733	https://arxiv.org/pdf/0706.2733
9:	7.1309	https://arxiv.org/abs/0706.2073	https://arxiv.org/pdf/0706.2073
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11:	7.1309	https://arxiv.org/abs/0705.1218	https://arxiv.org/pdf/0705.1218
12:	7.1309	https://arxiv.org/abs/0705.1215	https://arxiv.org/pdf/0705.1215
13:	7.1309	https://arxiv.org/abs/0704.2001	https://arxiv.org/pdf/0704.2001
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16:	7.1309	https://arxiv.org/abs/0704.0857	https://arxiv.org/pdf/0704.0857



Quantum Physics

[Submitted on 15 Aug 2007]

Duality and Recycling Computing in Quantum Computers

Gui Lu Long, Yang Liu

Quantum computer possesses quantum **parallelism** and offers great computing power over classical computer \cite{er1,er2}. As is well-know, a moving quantum object passing through a double-slit exhibits particle wave duality. A quantum computer is static and lacks this duality property. The recently proposed duality computer has exploited this particle wave duality property, and it may offer additional computing power \cite{r1}. Simply put it, a duality computer is a moving quantum computer passing through a double-slit. A duality computer offers the capability to perform separate operations on the sub-waves coming out of the different slits, in the so-called duality **parallelism**. Here we show that an n -dubit duality computer can be modeled by an $(n + 1)$ -qubit quantum computer. In a duality mode, computing operations are not necessarily unitary. A n -qubit quantum computer can be used as an n -bit reversible classical computer and is energy efficient. Our result further enables a $(n + 1)$ -qubit quantum computer to run classical algorithms in a $O(2^n)$ -bit classical computer. The duality mode provides a natural link between classical computing and quantum computing. Here we also propose a recycling computing mode in which a quantum computer will continue to compute until the result is obtained. These two modes provide new tool for algorithm design. A search algorithm for the unsorted database search problem is designed.

Ingrese la palabra: software development

busqueda realizada en 4846 usec

Cantidad de resultados: 3

	Score	Link	PDF
1:	8.80488	https://arxiv.org/abs/0707.3236	https://arxiv.org/pdf/0707.3236
2:	8.80488	https://arxiv.org/abs/0706.2824	https://arxiv.org/pdf/0706.2824
3:	8.80488	https://arxiv.org/abs/0705.1583	https://arxiv.org/pdf/0705.1583

← → ↺ arxiv.org/abs/0707.3236



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software development

1/1



arXiv.org > cs > arXiv:0707.3236

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Computer Science > Other Computer Science

[Submitted on 22 Jul 2007]

RS-232 Led Board

Vladimir Tskhvaradze

This article demonstrates how to develop a Microchip PIC16F84 based device that supports RS-232 interface with PC. Circuit (LED Board) design and **software development** will be discussed. PicBasic Pro Compiler from microEngineering Labs, Inc. is used for PIC programming. Development of LED Board Control Console using C/C++ is also briefly discussed. The project requires basic work experience with Microchip PICs, serial communication and programming.

Ingrese la palabra: UML

busqueda realizada en 26847 usec

Cantidad de resultados: 370

	Score	Link	PDF
1:	19.9499	https://arxiv.org/abs/0707.3588	https://arxiv.org/pdf/0707.3588
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3:	11.97	https://arxiv.org/abs/0708.1294	https://arxiv.org/pdf/0708.1294
4:	11.97	https://arxiv.org/abs/0708.0519	https://arxiv.org/pdf/0708.0519
5:	11.97	https://arxiv.org/abs/0707.2161	https://arxiv.org/pdf/0707.2161
6:	11.97	https://arxiv.org/abs/0707.2142	https://arxiv.org/pdf/0707.2142
7:	11.97	https://arxiv.org/abs/0707.0704	https://arxiv.org/pdf/0707.0704
8:	11.97	https://arxiv.org/abs/0706.0267	https://arxiv.org/pdf/0706.0267
9:	7.97997	https://arxiv.org/abs/0708.1810	https://arxiv.org/pdf/0708.1810
10:	7.97997	https://arxiv.org/abs/0708.1498	https://arxiv.org/pdf/0708.1498
11:	7.97997	https://arxiv.org/abs/0708.1385	https://arxiv.org/pdf/0708.1385
12:	7.97997	https://arxiv.org/abs/0708.1016	https://arxiv.org/pdf/0708.1016
13:	7.97997	https://arxiv.org/abs/0708.0143	https://arxiv.org/pdf/0708.0143
14:	7.97997	https://arxiv.org/abs/0707.4236	https://arxiv.org/pdf/0707.4236
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16:	7.97997	https://arxiv.org/abs/0707.3238	https://arxiv.org/pdf/0707.3238
17:	7.97997	https://arxiv.org/abs/0707.2726	https://arxiv.org/pdf/0707.2726
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21:	7.97997	https://arxiv.org/abs/0707.0271	https://arxiv.org/pdf/0707.0271
22:	7.97997	https://arxiv.org/abs/0707.0159	https://arxiv.org/pdf/0707.0159

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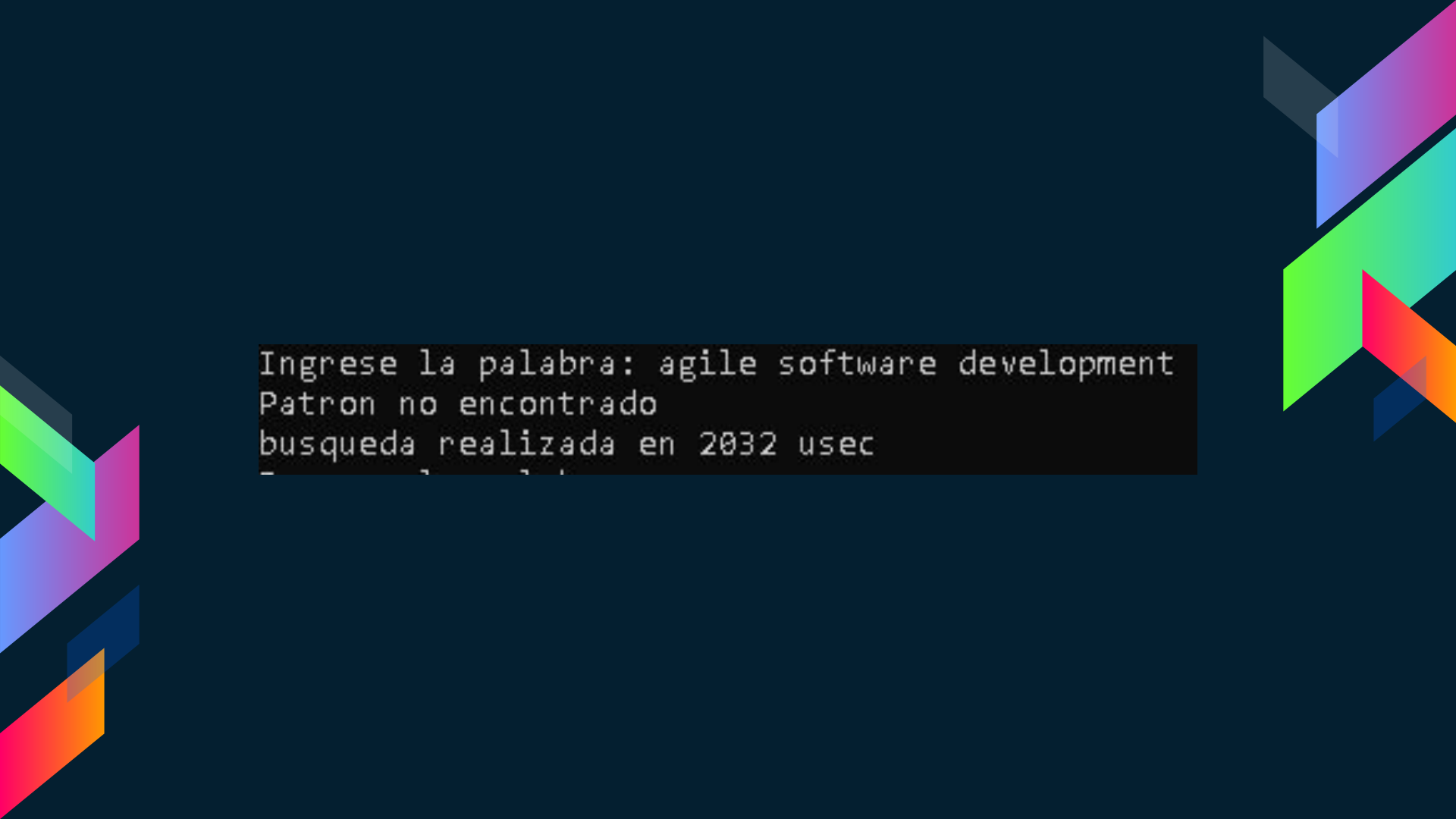
Astrophysics

[Submitted on 24 Jul 2007]

Magnetic braking in young late-type stars: the effect of polar spots

A. Aibéo, J. M. Ferreira, J. J. G. Lima

The concentration of magnetic flux near the poles of rapidly rotating cool stars has been recently proposed as an alternative mechanism to dynamo saturation in order to explain the saturation of angular momentum **um** loss. In this work we study the effect of magnetic surface flux distribution on the coronal field topology and angular momentum **um** loss rate. We investigate if magnetic flux concentration towards the pole is a reasonable alternative to dynamo saturation. We construct a 1D wind model and also apply a 2-D self-similar analytical model, to evaluate how the surface field distribution affects the angular momentum **um** loss of the rotating star. From the 1D model we find that, in a magnetically dominated low corona, the concentrated polar surface field rapidly expands to regions of low magnetic pressure resulting in a coronal field with small latitudinal variation. We also find that the angular momentum **um** loss rate due to a uniform field or a concentrated field with equal total magnetic flux is very similar. From the 2D wind model we show that there are several relevant factors to take into account when studying the angular momentum **um** loss from a star. In particular, we show that the inclusion of force balance across the field in a wind model is fundamental if realistic conclusions are to be drawn from the effect of non-uniform surface field distribution on magnetic braking. This model predicts that a magnetic field concentrated at high latitudes leads to larger Alfvén radii and larger braking rates than a smoother field distribution. From the results obtained, we argue that the magnetic surface field distribution towards the pole does not directly limit the braking efficiency of the wind.



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Ingrese la palabra: agile software development
Patron no encontrado
busqueda realizada en 2032 usec
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Referencias

Ukkonen, E., 1995. On-line construction of suffix trees. *Algorithmica*, 14(3), pp.249-260.