# Papers I Love

# Daniel Frederico Lins Leite

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		tp://venus.cs.qc.edu/~waxman/cs211%20spring%202009/why%20recursive%20fibonacci%20so%20slow.pdf	is%			

## 1.1.2 Compression

 Data Compression Using Long Common Strings http://www.cs.brandeis.edu/~dilant/cs175/%5BSiying-Dong%5D.pdf

#### 1.1.3 Hash

1. SHA-1 and the Strict Avalanche Criterion https://arxiv.org/pdf/1609.00616.pdf

#### 1.1.4 Data Structures

1. Bitlist New Full-Text Index for Low Space Cost and Efficient Keyword Search

http://www.vldb.org/pvldb/vol6/p1522-rao.pdf

2. Binomial Coefcient Computation: Recursion or Iteration? http://delab.csd.auth.gr/papers/SBI02m.pdf

#### 1.1.5 Elections + Consensus

- Elections in a Distributed Computing System http://academic.research.microsoft.com/Publication/716253/elections-in-a-distributed-computing-system http://homepage.cs.uiowa.edu/~ghosh/Bully.pdf
- 2. The Part-Time Parliament http://research.microsoft.com/en-us/um/people/lamport/pubs/lamport-paxos.pdf
- 3. In Search of an Understandable Consensus Algorithm https://ramcloud.atlassian.net/wiki/download/attachments/6586375/raft.pdf

#### 1.1.6 Computer Graphics

 Bresenham's Algorithm http://graphics.idav.ucdavis.edu/education/GraphicsNotes/Bresenhams-Algorithm. pdf

#### 1.2 Architectures

#### 1.2.1 Computer Architecture

- Quantifying the Cost of Context Switch http://www.cs.rochester.edu/u/cli/research/switch.pdf
- 2. What Every Programmer Should Know About Memory https://people.freebsd.org/~lstewart/articles/cpumemory.pdf

#### 1.2.2 Multi Tenancy

- 1. Enabling Multi-Tenancy an Industrial Experience Report http://swerl.tudelft.nl/twiki/pub/Main/TechnicalReports/TUD-SERG-2010-030.pdf
- 2. Multi-Tenant Saas Applications: Maintenance Dream or Nightmare http://swerl.tudelft.nl/twiki/pub/Main/TechnicalReports/TUD-SERG-2010-031.pdf
- Towards an Elastic and Autonomic Multitenant Database http://research.microsoft.com/en-us/um/people/srikanth/netdb11/ netdb11papers/netdb11-final8.pdf

#### 1.2.3 REST

 ${\it 1. Architectural\ Styles\ and\ the\ Design\ of\ Network-Based\ Software\ Architectures}$ 

http://academic.research.microsoft.com/Publication/1309313/architectural-styles-and-the-design-of-network-based-software-architectures http://www.ics.uci.edu/~fielding/pubs/dissertation/top.htm

#### 1.2.4 SEDA

1. An Architecture for Highly Concurrent, Well-Conditioned Internet Services

http://academic.research.microsoft.com/Publication/112151/seda-an-architecture-for-well-conditioned-scalable-internet-services

http://www.eecs.harvard.edu/~mdw/papers/mdw-phdthesis.pdf

#### 1.2.5 Servers

1. Flash an Efficient and Portable Web Server https://www.usenix.org/event/usenix99/full\_papers/pai/pai.pdf

#### 1.2.6 Other Architectures

 The Monad Manifesto http://www.jsnover.com/Docs/MonadManifesto.pdf

2. The Hla Tutorial http://www.pitch.se/hlatutorial

#### 1.2.7 Patterns

1. Active Object: An Object Behavioral Pattern for Concurrent Programming

http://www.cs.wustl.edu/~schmidt/PDF/Act-Obj.pdf

2. Plop Half-Sync/half-Async: An Architectural Pattern for Efficient and Well-Structured Concurrent I/o

http://www.cs.wustl.edu/~schmidt/PDF/PLoP-95.pdf

3. EASTL - Electronic Arts Standard Template Library http://www.open-std.org/jtc1/sc22/wg21/docs/papers/2007/n2271.html

#### 1.2.8 Overlay Networks

1. Architectures for an Event Notification Service Scalable to Wide-Area Networks

http://academic.research.microsoft.com/Publication/314658/architecturesfor-an-event-notification-service-scalable-to-wide-area-networks http://www.inf.usi.ch/carzaniga/papers/phd\_thesis.pdf

#### 1.2.9 Distributed Systems

1. Time, Clocks and the Ordering of Events in a Distributed System http://academic.research.microsoft.com/Publication/775212/time-clocks-and-the-ordering-of-events-in-a-distributed-system http://research.microsoft.com/en-us/um/people/lamport/pubs/pubs.html#time-clocks

http://research.microsoft.com/en-us/um/people/lamport/pubs/time-clocks.pdf

- 2. Paxos Made Simple
  - https://www.microsoft.com/en-us/research/publication/paxos-made-simple/
- 3. Distributed Snapshots: Determining Global States of Distributed Systems <a href="http://academic.research.microsoft.com/Publication/803548/distributed-snapshots-determining-global-states-of-distributed-systems">http://academic.research.microsoft.com/en-us/um/people/lamport/pubs/pubs.html#chandy <a href="http://research.microsoft.com/en-us/um/people/lamport/pubs/chandy.pdf">http://research.microsoft.com/en-us/um/people/lamport/pubs/chandy.pdf</a>
- 4. Your Coffee Shop Doesn't Use Two-Phase Commit http://www.enterpriseintegrationpatterns.com/docs/IEEE\_Software\_Design\_2PC.pdf
- 5. Life Beyond Distributed Transactions: An Apostate's Opinion http://www-db.cs.wisc.edu/cidr/cidr2007/papers/cidr07p15.pdf
- 6. Conict-free Replicated Data Types https://hal.inria.fr/inria-00609399/document

#### 1.2.10 Process Algebra

- A Brief History of Process Algebra http://alexandria.tue.nl/extra1/wskrap/publichtml/200402.pdf
- 2. Some of My Favourite Results in Classic Process Algebra (Version of September 9, 2003)

https://www.researchgate.net/publication/228785318\_Some\_of\_My\_Favourite\_Results\_in\_Classic\_Process\_Algebra\_Version\_of\_September\_9\_2003

3. Reactive Systems: Modelling, Specication and Verication https://www.semanticscholar.org/paper/Reactive-Systems-Modelling-Specification-and-Ace 454e1c72efc65270649e10efb11f4390606b7ea7

#### 1.2.11 Event Based Architecture

- 1. Design of a Scalable Event Notification Service Interface and Architecture http://academic.research.microsoft.com/Publication/312680/design-of-a-scalable-event-notification-service-interface-and-architecture http://www.inf.usi.ch/carzaniga/papers/CU-CS-863-98.pdf
- Fast Forwarding for Content-Based Networking http://academic.research.microsoft.com/Publication/7217/fast-forwardingfor-content-based-networking http://www.inf.usi.ch/carzaniga/papers/cucs-922-01-r1.pdf
- 3. Real-Time Modelling of Dds for Event-Driven Applications http://www.ctr.unican.es/publications/hpt-jjg-2012a.pdf

#### 1.2.12 Resiliency

1. Adaptive Overload Control for Busy Internet Servers http://academic.research.microsoft.com/Publication/634136/adaptive-overload-control-for-busy-internet-servers http://www.eecs.harvard.edu/~mdw/papers/control-usits03.pdf

#### 1.3 Programming

#### 1.3.1 Language Analysis

- Evaluating the Design of the R Language http://r.cs.purdue.edu/pub/ecoop12.pdf
- 2. A Modest Proposal: C++ Resyntaxed http://users.monash.edu/~damian/papers/HTML/ModestProposal.html

#### 1.3.2 Process Theory

 A Brief History of Process Algebra http://alexandria.tue.nl/extra1/wskrap/publichtml/200402.pdf

#### 1.3.3 Object Oriented

1. A Theory of Objects

http://academic.research.microsoft.com/Publication/1354440/a-theory-of-objects http://lucacardelli.name/Talks/1997-06%20A%20Theory%20of%200bject% 20(ECOOP%20Tutorial).pdf

- 2. Traits: Composable Units of Behaviour http://scg.unibe.ch/archive/papers/Scha03aTraits.pdf
- 3. Applying Traits to the Smalltalk Collection Hierarchy http://www.researchgate.net/publication/2564879\_Applying\_Traits\_ to\_the\_Smalltalk\_Collection\_Hierarchy
- 4. A Laboratory for Teaching Object-Oriented Thinking http://www.inf.ed.ac.uk/teaching/courses/seoc/2007\_2008/resources/ CRC\_00thinking.pdf

#### 1.3.4 Generic Programming

1. Design Patterns for Generic Programming in C++ https://www.lrde.epita.fr/dload/papers/coots01.html

#### 1.3.5 Dynamic Dispatch

#### 1.3.6 Functional Programming

- The essence of functional programming http://homepages.inf.ed.ac.uk/wadler/papers/essence/essence.ps. gz
- 2. Monadic Parser Combinators http://www.cs.nott.ac.uk/~pszgmh/monparsing.pdf
- Design and evaluation of C++ open multi-methods https://parasol.tamu.edu/~yuriys/papers/OMM10.pdf

#### 1.4 Database

- 1. The Ubiquitous B-Tree http://people.cs.aau.dk/~simas/aalg06/UbiquitBtree.pdf
- 2. Generalized Search Trees for Database Systems http://db.cs.berkeley.edu/papers/vldb95-gist.pdf
- 3. Concurrency and Recovery in Generalized Search TreeS http://db.cs.berkeley.edu/papers/sigmod97-gist.pdf
- 4. Data Cube: A Relational Aggregation Operator Generalizing Group-By, Cross-Tab, and Sub-Totals http://research.microsoft.com/pubs/69578/tr-95-22.pdf
- 5. Query Optimization in Microsoft Sql Server PDW http://academic.research.microsoft.com/Publication/56916436/query-optimization-in-microsoft-sql-server-pdw
- 6. Druid: A Real-Time Analytical Data Store http://static.druid.io/docs/druid.pdf
- 7. Map-Reduce: Simplified Dataprocessing on Large Clusters http://static.googleusercontent.com/media/research.google.com/en/us/archive/mapreduce-osdi04.pdf
- 8. Google's Mapreduce Programming Model Revisited http://www.idt.mdh.se/kurser/cd5100/ht06/MapReduce/Ralf-Laemmel-paper/paper.pdf
- Cassandra a Decentralized Structured Storage System http://www.cs.cornell.edu/projects/ladis2009/papers/lakshman-ladis2009. pdf
- 10. Bigtable: A Distributed Storage System for Structured Data http://static.googleusercontent.com/media/research.google.com/en//archive/bigtable-osdi06.pdf

- 11. Dynamo: Amazon's Highly Available Key-Value Store http://s3.amazonaws.com/AllThingsDistributed/sosp/amazon-dynamo-sosp2007. pdf
- 12. Solving Big Data Challenges for Enterprise Application Performance Management http://vldb.org/pvldb/vol5/p1724\_tilmannrabl\_vldb2012.pdf

#### 1.5 Data Fusion

1. A Generic Architecture for Fusion-Based Intrusion Detection Systems https://rcdeboer.home.xs4all.nl/rcdb\_thesis.pdf

#### 1.6 Artificial Intelligence

1. Computing Machinery and Intelligence http://orium.pw/paper/turingai.pdf

#### 1.7 Text Mining

- 1. Text Mining Infrastructure in R https://www.jstatsoft.org/article/view/v025i05
- 2. Checkers Is Solved http://www.eecs.wsu.edu/~holder/courses/CptS570/fall07/papers/ Schaeffer07.pdf
- 3. Mastering the Game of Go with Deep Neural Networks and Tree Search https://gogameguru.com/i/2016/03/deepmind-mastering-go.pdf

#### 1.8 VIPs

 Richard Bellman's contributions to computer science http://www.sciencedirect.com/science/article/pii/0022247X86901460

### 2 Mathematics

#### 2.1 Geometry

1. An Elementary Course in Synthetic Projective Geometry

#### 2.2 Linear Algebra

 Basic Linear Algebra Subprograms for Fortran Usage https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/19780018835. pdf

- 2. FLAME: Formal Linear Algebra Methods Environment http://tinyurl.com/ycxkmzw7
- 3. The Five Greatest Applications of Markov Chains http://langvillea.people.cofc.edu/MCapps7.pdf

#### 2.3 Real Analysis

 Coisas que o Luís precisa aprender http://www.todasasconfiguracoes.com/wp-content/uploads/2012/04/ luis.pdf

#### 2.4 Statistics

- 1. A Note on the Generation of Random Normal Deviates http://projecteuclid.org/euclid.aoms/1177706645
- 2. Tidy Data
   http://vita.had.co.nz/papers/tidy-data.pdf
- 3. A Tutorial on Principal Component Analysis Derivation, Discussion and Singular Value Decomposition https://www.cs.princeton.edu/picasso/mats/PCA-Tutorial-Intuition\_jp.pdf
- 4. An introduction to ROC analysis https://ccrma.stanford.edu/workshops/mir2009/references/ROCintro.pdf
- 5. TEACHING SURVEY SAMPLING WITH THE 'SAMPLING' R PACK-AGE http://iase-web.org/documents/papers/icots8/ICOTS8\_4J1\_TILLE.pdf
- 6. Data Mining and Statistics: What's the Connection http://docs.salford-systems.com/dm-stat.pdf

#### 2.5 Differential Equations

 Euler Methods, Explicit, Implicit, Symplectic https://www.researchgate.net/publication/302468139\_Euler\_Methods\_ Explicit\_Implicit\_Symplectic

#### 2.6 Matrix Calculus

1. The Matrix Calculus You Need For Deep Learning https://arxiv.org/abs/1802.01528

#### 2.7 Forecast

 Forecasting Global Climate Change https://faculty.wharton.upenn.edu/wp-content/uploads/2015/02/ GlobalClimateChange-FWP-(2)\_2.pdf

#### 3 Science

#### 3.1 Research

 Why Most Published Research Findings Are False http://journals.plos.org/plosmedicine/article?id=10.1371/journal. pmed.0020124

## 4 Physics

Seven Possible Alternative Interpretations of the 'cosmological Red Shift'
Which Can do Away with the Dark Energy
http://www.vixra.org/pdf/1403.0005v1.pdf

## 5 Economy

### 5.1 Political Economy

#### **5.1.1** Taxes

- The Laffer Curve Past, Present, and Future http://s3.amazonaws.com/thf\_media/2004/pdf/bg1765.pdf
- 2. Dynamic Revenue Estimation https://ideas.repec.org/a/aea/jecper/v10y1996i1p141-57.html
- Dynamic Scoring an Introduction to the Issues https://www.aeaweb.org/annual\_mtg\_papers/2005/0107\_1430\_1304. pdf