

# Daniel Lemire, Ph.D.

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**Keywords:** Collaborative Data Management, Database Theory, Data Warehousing, Multidimensional Databases (OLAP), Data Mining, Time Series, Collaborative Filtering, Information Retrieval.

## Experience

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- 2004-...* Professor in Computer Science  
Promoted to Full Professor in 2009  
**Université du Québec à Montréal (UQAM)**  
<http://www.proesseurs.uqam.ca/pages/lemire.daniel.htm>
- 2002-2004* Research Officer in eBusiness  
Institute for Information Technology, E-business  
**National Research Council of Canada (NRC)**
- 2002-2003* Team Leader for the e-Health Research Group  
Institute for Information Technology  
**National Research Council of Canada (NRC)**
- 2001-2002* Assistant Professor in Mathematics  
Mathematics and Statistics Department  
**Acadia University** (Wolfville, Canada)
- 1999-2001* Independent Scientific Consultant  
Digital Signal Processing (Medical Images and Geophysics)  
**TechElements Inc.** and **Ondelette.com**
- 1998-1999* Post-doctoral fellow  
Signal processing (ECG, EEG)  
**Institut de génie biomédial** (Montreal, Canada)

## Education

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- 1995-1998* Ph.D. in Engineering Mathematics  
“Iterative Schemes and Wavelets”  
**École Polytechnique de Montréal** and **Université de Montréal**  
Supervisors: Gilles Deslauriers and Serge Dubuc
- 1994-1995* M.Sc. in Mathematics  
“A Priori Approximations for Nonlinear Systems”  
**University of Toronto**  
Supervisor: Catherine Sulem

1990-1994 B.Sc. in Mathematics with “High Distinction”  
**University of Toronto**

Scholarships and prizes:

- Natural Sciences and Engineering Research Council of Canada (NSERC) post-doctoral fellowship
- FCAR scholarship (Ph.D.) and NSERC scholarship (M.Sc. and Ph.D.).
- C.D. Howe Memorial for 4 years (approximative value: \$50,000).
- NSERC Canada Scholarship for 4 years (\$4,000).
- St.Micheal’s College Dean’s medal (class of 1994).
- 3T0 Scholarship (UofT)

### **Secondary affiliations**

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- Adjunct professor at the University of New Brunswick in the Computer Science and Applied Statistics Department.

### **Recent Teaching Experience**

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- INF 9004 - Informatique des entrepôts de données (A Computer Science Perspective on Data Warehousing);
- INF 6104 - Recherche d’informations et web (Information Retrieval and Web);
- INF 6460 - Recherche et filtrage d’informations (Information Retrieval and Filtering);
- INF 6450 - Gestion de l’information avec XML (Information Management with XML).

### **Professional Memberships**

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- Association for Computing Machinery (ACM).

### **Supervision**

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I supervise UQAM students in the Computer Science Ph.D. and Cognitive Computer Science Ph.D. programs. I coauthored several of my talks, articles and reports with my students and fellows (eLS2004; COLA2003; LL2005; TRD01; BELL2004-TR; TRD05001; APICS2005; ICEIS07; DOLAP07).

Name	Funding	When	What	University
Wilfrid Blais	NSERC	2009-...	Ph.D. (Cognitive CS)	UQAM
Badis Merdaoui	NSERC	2008-...	Ph.D. (Cognitive CS)	UQAM
Kamel Aouiche	NSERC	2006-2008	Post-doctoral fellow	UQAM
Hazel Webb	NSERC	2005-...	Ph.D. Computer Science	UNB
Steven Keith	NSERC	2004-2006	M.Sc. Computer Science (completed)	UNB

## Research program

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My research program is focused on indexing multidimensional data sets in the context of (nearly) infinite storage capabilities. The data may come from time series, text documents or business transactions.

- OLAP and Very Large Databases: fast queries and updates by wavelets and efficient storage through hybrid OLAP (CASCON2002; IS2006; DOLAP2003) and text mining (APICS2005). This work is done in close collaboration with Owen Kaser (UNB/SJ).
- eBusiness Data Mining and Collaborative Filtering (LL2005; IR2005; SDM2005; COLA2003): some of the results of my work were licensed in October 2004 by Bell Canada and are now core to the Bell Sympatico/MSN Web site inDiscover. Collaborators include Stephen Downes (NRC Moncton), Anna Maclachlan (Idilia Inc.), Bruce Spencer (NRC Fredericton), and Harold Boley (NRC Fredericton).
- Time Series Mining (ICDM05; AAAI05; IJCAI05; MBR2004; Monet2004). This work is done with Yuhong Yan (NRC Fredericton), Martin Brooks (NRC Ottawa), Will Fitzgerald (NASA Ames), and Dan Kucerovsky (UNB).

### Individual Research funding (external agencies)

- Natural Sciences and Engineering Research Council of Canada — NSERC Grant 2007-2012, committee 330, (\$75,000).
- Fonds Québécois de la recherche sur la Nature et les Technologies — FQRNT Grant (Quebec Government) in 2006-2008 (\$54,249) as a new researcher.
- Natural Sciences and Engineering Research Council of Canada — NSERC Grant 2003-2007, committee 330, (\$48,000)<sup>1</sup>.

### Team Research funding

- Leaders Opportunity Fund, Canadian Foundation for Innovation (CFI) and Government of Québec — ERASME Data Warehouse (\$999,618, as one of three applicants, with Gilbert Paquette and Petko Valtchev).
- New Brunswick Innovation Fund — Research Assistantships Initiative 2007-2008 (\$10,000, with Owen Kaser).
- New Brunswick/Quebec Cooperation Program 2007-2008 (\$1,825, with Owen Kaser).

### Civil Servant Invention Act (Canada)

file number	type	name of file
4722-10641-2	Section 9	InDiscover
4722-10642-2	Section 9	RACOFI Composer
4726-10642-1	Copyright	RACOFI Composer

<sup>1</sup>Attributed as an adjunct professor at UNB.

## **Services (internal)**

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### **Pedagogical**

- Member of UQAM’s online-learning committee (2008-...). (Comité sur l’environnement numérique d’apprentissage)

### **Career**

- Member of the new faculty support and integration committee (2007-...).
- Vice-President of the Faculty Council (2005-2007).
- I participated in several hiring committees for new professors in 2005, 2007, 2008, and 2009.

### **Academic Programs**

- Chair of the certificate program in Applied Computer Science (2007-...).
- Chair of the distance learning B.Sc. (2005-2007).
- Chair of the science and technology certificate (2005-2007).

### **Research**

- Researcher and member of the scientific committee of the LICEF Research Center (Cognitive Computer Science) since 2006.

## **Services (external)**

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### **Organizing Committees**

- I was the steering chair of the Second Canadian Semantic Web Working Symposium (CSWWS 2009).
- I organized the 2<sup>nd</sup> KDD Workshop on Large Scale Recommenders Systems and the Netflix Prize at KDD 2008 with Yehuda Koren, Alex Tuzhilin, Jim Bennett and Charles Elkan.
- I was co-chair of the Emerging Technologies for Web-based Communities (ET-WBC) Workshop (Mondragon University, Spain, February 25th 2006) with Mamadou Tadiou.
- I was co-chair of the “Canadian Semantic Web Symposium 2006 (CSWWS’06)” with Mamadou Tadiou. The proceedings are published by Springer. The event received financial support from the Rule Markup Initiative, Ontotext, UQAM, and Laval University.
- In November 2004, I was on the SWIG’04 organizing committee with Griff Richards, Bruce Spencer, Harold Boley, Fred Popowich, and Olga Marino.

### **Journal Special Issues**

- In 2009, I organized a journal special issue on Learning and the Social Web (<http://socialwebjetwi.info/>) for the Journal of Emerging Technologies in Web Intelligence.
- We organized a Special Issue on Canadian Semantic Web for the Computational Intelligence journal (August 2007).

### **Program committees (workshops)**

- ACM Conference on Management of Emergent Digital EcoSystems - Student Workshop (MEDES SW) 2009;
- International Workshop on Business Intelligence for Emerging e-Business Applications (BieeBa) 2009;
- Fouille de données complexes dans un processus d'extraction des connaissances (FDC-EGC) 2007;
- International Advanced Database Conference (IADC) 2007 — Advances in Querying Non-Conventional Data Sources track;
- Atelier Systèmes Décisionnels (ASD) 2006, 2007, 2008;
- BaseWeb'05: workshop held in conjunction with Canadian AI'05.

### **Program committees (international symposia)**

- Learners and their new expectations from ICTT — TICE 2008.

### **Program committees (international conferences)**

- International Conference on Database and Expert Systems Applications (DEXA) 2009;
- ACM Conference on Recommender Systems (RecSys) 2009;
- International Conference on Enterprise Information Systems (ICEIS) 2009;
- Journées francophones sur les Entrepôts de Données et l'Analyse en ligne (EDA) 2009;
- North American Computing and Philosophy Conference (NA-CAP) 2008, 2009;
- Association for the Advancement of Artificial Intelligence (AAAI) 2008 — Web Track;
- Conference on Web Information Systems and Technologies (WEBIST) 2007, 2008, 2009;
- Information Resources Management Association International Conference (IRMA) 2007.

### **Journals**

- Associate editor-in-chief of the Journal of Emerging Technologies in Web Intelligence;
- Member of the editorial board of the Atlantic Electronic Journal of Mathematics.
- Editor of the Journal of Computers.

### **Funding Agencies**

- **Fonds Québécois de la recherche sur la Nature et les Technologies (FQRNT)**
  - From 2007 to 2009, I was member of the review committee 03F (Theoretical Computer Science).
  - In 2007 and 2008, I reviewed funding proposals for the FQRNT new researcher program.
  - In 2006–2007, I was member of the review committee 309 for the “Projet de recherche en équipe” program.

- **Natural Sciences and Engineering Research Council of Canada (NSERC)**
  - In 2005, 2007, and 2008, I reviewed funding proposals for NSERC’s discovery grant program (committee 330).
  - In 2007, I reviewed a proposal for NSERC’s “Idea to Innovation” (INNOV) program.
- **Other agencies**
  - In 2008–2009, I reviewed a MITACS proposal.

### Thesis Review

- Sreeraman Rajan, “A Wavelet-based Correlator Approach for Segmentation and Classification of the First Two Heart Sounds in a PCG Signal.” Ph.D. Thesis, UNB, 2004.
- Fang Wang, “Detecting and Preventing Rule Conflicts in APPEL.” M.Sc. Thesis, UNB, 2004.

### Standards

- ISO Committee Member (Data Format and Interchange, 2003).

### Services on the Web

- I host the Data Warehouse and OLAP bibliography which was previously hosted by Alberto Mendelzon (UofT). This page alone receives more than 350 hits per day: <http://www.daniel-lemire.com/OLAP>.
- I run my own blog at <http://www.daniel-lemire.com/blog/>. It has over 1,500 subscribers.

### Industry and Consulting

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- Since October 2007, I am on the advisory board of FavQuest Inc.
- My “Slope One” Collaborative Filtering algorithm is used by the DVD recommender site <http://hitflip.de>, by the Music site <http://starfrosch.ch/>, by the investment news site <http://www.valueinvestingnews.com/>, and by the content management engine Drupal. It is implemented in the Vogoo (<http://www.vogoo-api.com>), Apache Mahout (<http://lucene.apache.org/mahout/>) and Taste (<http://taste.sourceforge.net/>) software libraries.
- In October 2004, in a three-way agreement between Daniel Lemire, NRC, and Bell Canada, Bell Canada licensed the technology behind the <http://inDiscover.net> Web site. The Web site became a Bell Sympatico/MSN web site on November 5<sup>th</sup> 2004. The term “indiscover” is found in over 7,890 Web pages according to Google.
- I was the consulting scientist for the first wavelet-based image server at the “Serveur national de radiologie” in France (“National Radiology Server”) (CIRA1999; WebTek2000). **This product was nominated for an IST prize.**

- Over several years, I worked with THEM Geophysics Inc. with funding from FalconBridge and CAMIRO (Canadian Mining Industry Research Organization) on improving geophysical data processing for the THEM system. The signal-to-noise ratio was improved by at least 100% using better mathematical modeling. The software has been used successfully in Northern Canada and Sudan in exploration contracts worth several millions of dollars.

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### **Under Review**

- [1] Daniel Lemire and Owen Kaser, Recursive n-gram hashing is pairwise independent, at best.

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### **Books**

- [CSWWS2006] Mamadou Tadiou Koné and Daniel Lemire (Eds.), Canadian Semantic Web, Semantic Web and Beyond: Computing for Human Experience, Vol. 4, Springer, 2006, ISBN 0-387-29815-0.
- [CI2007] Mamadou Tadiou Koné and Daniel Lemire (Eds.), Special Issue on Canadian Semantic Web, Computational Intelligence, Blackwell Publishing, August 2007 - Vol. 23 Issue 3, pages 299–392.

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### **Book chapters**

- [Collab2009] Sylvie Noël, Daniel Lemire, On the Challenges of Collaborative Data Processing, to appear in Collaborative Information Behaviour: User Engagement and Communication Sharing (edited by Jonathan Foster), IGI Global.

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### **Journal Articles**

- [DKE2009] Daniel Lemire, Owen Kaser, Kamel Aouiche, Sorting improves word-aligned bitmap indexes, to appear in Data & Knowledge Engineering.
- [PR2009] Daniel Lemire, Faster Retrieval with a Two-Pass Dynamic-Time-Warping Lower Bound, Pattern Recognition 42 (9), pages 2169–2180, 2009.
- [IJCM2009] Daniel Lemire, Martin Brooks, Yuhong Yan, An Optimal Linear Time Algorithm for Quasi-Monotonic Segmentation. International Journal of Computer Mathematics 86 (7), 2009. (Impact Factor: 0.254)
- [LNBIP2009] Kamel Aouiche, Daniel Lemire and Robert Godin, Web 2.0 OLAP: From Data Cubes to Tag Clouds, Lecture Notes in Business Information Processing Vol. 18, pages 51–64, 2009.
- [TALG2008] Daniel Lemire and Owen Kaser, Hierarchical Bin Buffering: Online Local Moments for Dynamic External Memory Arrays. ACM Transactions on Algorithms, Volume 4, Number 1, pages 1–31, 2008.
- [NJC2006] Daniel Lemire, Streaming Maximum-Minimum Filter Using No More than Three Comparisons per Element. Nordic Journal of Computing 13 (4), pages 328–339, 2006. (Impact Factor: 0,80)

- [IS2006] Owen Kaser and Daniel Lemire, Attribute Value Reordering for Efficient Hybrid OLAP, *Information Sciences*, Volume 176, Issue 16, pages 2279–2438, 2006. (Impact Factor: 0.23)
- [LL2005] Daniel Lemire, Harold Boley, Sean McGrath, Marcel Ball, Collaborative Filtering and Inference Rules for Context-Aware Learning Object Recommendation, *International Journal of Interactive Technology & Smart Education*, Volume 2, Issue 3, August 2005.
- [IR2005] Daniel Lemire, Scale and Translation Invariant Collaborative Filtering Systems. *Information Retrieval*. Volume 8, Number 1, pages 129–150, January 2005. (NRC 46508) (Impact Factor: 0.61)
- [JFAA2001] Serge Dubuc, Daniel Lemire, Jean-Louis Merrien, Fourier analysis of 2-point Hermite interpolatory subdivision schemes, *Journal of Fourier Analysis and Applications*, Volume 7, Issue 5, 2001.
- [ITBE2000] Daniel Lemire, Chantal Pharand, Jean-Claude Rajaonah, Bruno Dubé, A.-Robert LeBlanc, Wavelet time entropy, T wave morphology and myocardial ischemia, *IEEE Transactions in Biomedical Engineering*, vol. 47, no. 7, July 2000. (Impact Factor: 1.665)
- [ASMQ1999] Gilles Deslauriers, Serge Dubuc, and Daniel Lemire, Une famille d'ondelettes biorthogonales sur l'intervalle obtenue par un schéma d'interpolation itérative, *Ann. Sci. Math. Québec* 23, no.1, pp. 37–48, 1999.

### **In Proceedings**

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- [DOLAP08] Owen Kaser, Daniel Lemire, Kamel Aouiche, Histogram-Aware Sorting for Enhanced Word-Aligned Compression in Bitmap Indexes, DOLAP 2008, 2008. (Acceptance Rate: 41%)
- [BDA08] Kamel Aouiche, Daniel Lemire and Owen Kaser, Tri de la table de faits et compression des index bitmaps avec alignement sur les mots (Fact Table Sorting and Word-Aligned Compression for Bitmap Indexes), BDA'08, 2008. (Acceptance Rate: 33%)
- [IDEAS08] Hazel Webb, Owen Kaser, Daniel Lemire, Pruning Attributes From Data Cubes with Diamond Dicing, IDEAS'08, 2008. (Acceptance Rate: 34%)
- [WEBIST08] Kamel Aouiche, Daniel Lemire, Robert Godin, Collaborative OLAP with Tag Clouds: Web 2.0 OLAP Formalism and Experimental Evaluation, WEBIST 2008, 2008. (Acceptance Rate: 15%)
- [DOLAP07] Kamel Aouiche and Daniel Lemire, A Comparison of Five Probabilistic View-Size Estimation Techniques in OLAP, DOLAP 2007, pp. 17–24, 2007. (Acceptance Rate: 43%)
- [CASCON07] Owen Kaser and Daniel Lemire, Removing Manually-Generated Boilerplate from Electronic Texts: Experiments with Project Gutenberg e-Books. CASCON 2007, pp. 272–275, 2007.

- [WWW07] Owen Kaser and Daniel Lemire, Tag-Cloud Drawing: Algorithms for Cloud Visualization. Tagging and Metadata for Social Information Organization (WWW 2007), 2007.
- [ICEIS07] Kamel Aouiche and Daniel Lemire, Unassuming View-Size Estimation Techniques in OLAP, An Experimental Comparison. ICEIS-2007, pp. 145–150, 2007. (Impact Factor: 0.10)
- [SDM07] Daniel Lemire, A Better Alternative to Piecewise Linear Time Series Segmentation, SIAM Data Mining 2007, 2007. (Acceptance Rate: 25%, Impact Factor: 0,10)
- [CS06] Dan Kucerovsky and Daniel Lemire, Monotonicity Analysis over Chains and Curves. Curves and Surfaces 2006, pages 180–190, 2007.
- [CaSTA06] Owen Kaser, Daniel Lemire, Steven Keith, The LitOLAP Project: Data Warehousing with Literature, CaSTA 2006, Fredericton, 2006.
- [ICDM05] Daniel Lemire, Martin Brooks, and Yuhong Yan, An Optimal Linear Time Algorithm for Quasi-Monotonic Segmentation, *Proceedings of IEEE Data Mining 2005 (ICDM-05)*, pp. 709-712, November 2005. (Acceptance Rate: 22%) (Impact Factor: 0.35)
- [AAAI05] Will Fitzgerald, Daniel Lemire, and Martin Brooks, Quasi-monotonic segmentation of state variable behavior for reactive control, *Proceedings of AAAI05*, pp. 1145–1151, July 2005. (Acceptance Rate: 27%) (Impact Factor: 1.49)
- [IJCAI05] Yuhong Yan, Martin Brooks, Daniel Lemire, Scale-Based Monotonicity Analysis in Qualitative Modelling with Flat Segments, *Proceedings of IJCAI05*, pp. 400–405, July 2005. (Acceptance Rate: 18%) (Impact Factor: 1.82)
- [SDM2005] Daniel Lemire and Anna Maclachlan, Slope One Predictors for Online Rating-Based Collaborative Filtering. *Proceedings of SIAM Data Mining*, pp. 471–476 2005. (Acceptance Rate: 36%, Impact Factor: 0,10)
- [MBR2004] Yuhong Yan, Daniel Lemire, and Martin Brooks, Monotonicity Analysis for Constructing Qualitative Models, *Proceedings of MBR'04*, 2004
- [Monet2004] Yuhong Yan, Daniel Lemire, and Martin Brooks, Monotone Pieces Analysis for Qualitative Modeling, *Proceedings of ECAI MONET 2004*, 2004.
- [COLA2003] Michelle Anderson, Marcel Ball, Harold Boley, Stephen Greene, Nancy Howse, Daniel Lemire, Sean McGrath, RACOFI: A Rule-Appling Collaborative Filtering System, *Proceedings of IEEE/WIC COLA'03*, Halifax, Canada, October 2003. (NRC 46507)
- [DOLAP2003] Owen Kaser and Daniel Lemire, Attribute Value Reordering for Efficient Hybrid OLAP. *DOLAP'03*, New Orleans, Louisiana, November 7, 2003. (NRC 46510) (Acceptance Rate: 43%) (Impact Factor: 0.55)

- [CS2003] Daniel Lemire, A Family of 4-point Dyadic High Resolution Subdivision Schemes. *Proceedings of Curves and Surfaces 2002*, Saint-Malo, France, 2003. (NRC 45811)
- [CASCON2002] Daniel Lemire, Wavelet-Based Relative Prefix Sum Methods for Range Sum Queries in Data Cubes. *Proceedings of CASCON2002*, Toronto, Canada, 2002. (NRC 44967) (**Best Paper Award**)

#### **Abstracts (Peer-Reviewed)**

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- [ECAP2007] Jean Robillard and Daniel Lemire, The Semantic Web and its Flaws, ECAP'07, Twente, Netherland, June 2007.
- [CS2006] Dan Kucerovsky and Daniel Lemire, Monotonicity Analysis and Sphere-Preserving Filters, *Curves and Surfaces*, Avignon, France, June-July 2006.
- [eLS2004] Marcel Ball, Harold Boley, Daniel Lemire, Sean McGrath, Collaborative Filtering and Inference Rules for Context-Aware Learning Object Recommendation, e-Learning Summit, Fredericton, April 2004.
- [CS2002] Daniel Lemire, High Resolution Subdivision Schemes, *Curves and Surfaces*, Saint-Malo, France, June-July 2002.
- [CMBEC25] Daniel Lemire, Chantal Pharand, Jean-Claude Rajaonah, Bruno Dubé, A.-Robert LeBlanc, Wavelet Time Entropy and T Wave Morphology, *CMBEC 25*, London, June 1999.

#### **Technical Reports**

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- [0807.1734] Daniel Lemire, Faster Sequential Search with a Two-Pass Dynamic-Time-Warping Lower Bound, 2008. (arXiv:0807.1734)
- [TRD08011] Hazel Webb, Owen Kaser, Daniel Lemire, Pruning Attributes From Data Cubes with Diamond Dicing, UNBSJ CSAS Technical Report TR-08-011, 2008.
- [TRD07001] Owen Kaser and Daniel Lemire, Removing Manually-Generated Boilerplate from Electronic Texts: Experiments with Project Gutenberg e-Books. UNBSJ CSAS Technical Report TR-07-001, 2007.
- [TRD06001] Daniel Lemire and Owen Kaser, One-Pass, One-Hash n-Gram Statistics Estimation, UNBSJ CSAS Technical Report TR-06-001, October 2006.
- [TRD05001] Steven Keith, Owen Kaser, Daniel Lemire, Analyzing Large Collections of Electronic Text Using OLAP, UNBSJ CSAS Technical Report TR-05-001, June 2005.
- [TRD01] Daniel Lemire, Sean McGrath, Implementing a Rating-Based Item-to-Item Recommender System in PHP/SQL, Technical Report D-01, January 2005.
- [BELL2004-TR] Daniel Lemire, Sean McGrath, and Bruce Spencer, The Design and Architecture of a Collaborative Filtering Web site — inDiscover.net, NRC Technical Report Submitted to Bell Canada, October 2004, 14 p.

- [DOLAP2003-TR] Owen Kaser and Daniel Lemire, Attribute Value Reordering for Efficient Hybrid OLAP, January 2004, 29 p., NRC 46509.
- [CERN2003] Jean-Michel Nonglaton, Franco Lenardon, and Daniel Lemire, Wavelet Shrinkage of LINAC III and Protons Synchrotron Booster Transformers by the Haar Transform, CERN Technical Report Number AB-Note-2003-033, April 2003, NRC 45816.
- [CHIPP2003] Irina Kondratova, Scott Flinn, and Daniel Lemire, Teleoncology Technology Assessment Report for the Teleoncology Project. Submitted to the Teleoncology Project, CHIPP, Health Canada, Beauséjour Hospital Corporation. Moncton, New Brunswick, February 2003, 25 p., NRC 45799.
- [Acadia200205-01] Daniel Lemire, Local Interpolation by High Resolution Subdivision Schemes. Technical Report 200205-01, Acadia University, April 2002.
- [THEM2001-02] Daniel Lemire, Baseline asymmetry, Tau projection, B-field estimation and automatic half-cycle rejection, THEM Geophysics Inc., THEM2001-02, February 2001.
- [THEM2001-01] Daniel Lemire, Off-time denoising: is stacking the solution?, THEM Geophysics Inc., THEM2001-01, January 2001.
- [THEM1999-02] Daniel Lemire, Rapport sur un nouvel algorithme de correction de la ligne de base pour THEM Geophysics, Splines interpolation des moyennes et moindres carrés (SIM), THEM Geophysics Inc., THEM1999-02, 1999.
- [CIRA1999] Alain Béliveau, Daniel Lemire, White paper sur la compression d'images par la Fast Wavelet Transform, société Compression d'Images, Réseaux et Automatismes, mars 1999.
- [EPM/RT-97/28] Gilles Deslauriers, Serge Dubuc, Daniel Lemire, Dérivés de l'interpolation itérative de Lagrange et les ondelettes b-adiques de Cohen-Daubechies-Feauveau, Rapport technique EPM/RT-97/28, École Polytechnique de Montréal, Montréal, avril 1997.

### **Lecture Notes**

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- [INF6104] Daniel Lemire, Recherche d'informations et web (Information Retrieval and the Web), Université du Québec à Montréal, 2008. Online course: <http://benhur.teluq.uqam.ca/SPIP/inf6104/>.
- [INF6460] Daniel Lemire, Recherche et filtrage d'informations (Information Retrieval and Filtering), Université du Québec à Montréal, 2007. Online course: <http://benhur.teluq.uqam.ca/SPIP/inf6460/>.
- [INF6450] Daniel Lemire, Gestion de l'information avec XML (Information Management with XML), Université du Québec à Montréal, ISBN 2762418747, 2005. (Revised in 2006, 2007 and 2008.) Online course: <http://www.teluq.uqam.ca/inf6450/>.

### **Thesis**

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[PhD] Daniel Lemire, Schémas d'interpolation et ondelettes, Ecole Polytechnique de Montréal, ISBN 0612373770, 1998.

### **Supervised Thesis**

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[KeithThesis] Steven W. Keith, Efficient Storage Methods for a Literary Data Warehouse, Master of Computer Science, University of New Brunswick, May 2006.

### **Invited Talks**

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[UQAM2009] Daniel Lemire, All About Bitmap Indexes... And Sorting Them, Séminaire du département d'informatique, UQAM, February 2009.

[Lyon2007] Daniel Lemire, Time Series Indexing and Aggregation, Laboratoire ERIC, Université Lyon 2, Lyon, France, January 2007.

[NRC2006] Daniel Lemire, Time Series Indexing and Aggregation, NRC, Fredericton, November 2006.

[CIC2006] Daniel Lemire, Asemantic searching, CIC, UQAM, May 2006.

[LACIM2006] Daniel Lemire, Analyse multi-échelle de la monotonie, LACIM, UQAM, January 2006.

[Ottawa2006] Daniel Lemire, Rating-Based Collaborative Filtering, TAMALE Seminar, Computer Science Department, Ottawa University, January 2006.

[UQAM2005] Daniel Lemire, Analyse multi-échelle de la monotonie, Séminaire du département d'informatique, UQAM, October 2005.

[CRG2005] Daniel Lemire, Accélérations des bases de données multidimensionnelles par ondelettes et tri des valeurs d'attribut, Séminaire du Centre de recherche en géomatique, Université Laval, February 2005.

[CIRTA2005] Daniel Lemire (with Anna Maclachlan), Filtrage collaboratif par évaluations (Rating-Based Collaborative Filtering), Ateliers du CIRTA, January 2005.

[RALI2004] Daniel Lemire (with Anna Maclachlan), Filtrage collaboratif par évaluations (Rating-Based Collaborative Filtering), Séminaires RALI, Université de Montréal, October 2004.

[AILIA2004] Daniel Lemire (with Harold Boley and Bruce Spencer), Semantic Web in Brief, Annual Language Industry Association (AILIA) Meeting, September 2004.

[IEEE2003] Daniel Lemire, 20 years of Wavelets, Annual IEEE New Brunswick Chapter Talk, December 2003.

[Arts2003] Daniel Lemire, RACOFI: Rule-Appling Collaborative Filtering, Guest Speaker, Arts-Netlantic Network, October 2003.

- [Acadia2003] Daniel Lemire, Quasi-Optimal Collaborative Filtering Systems, CS Department, Acadia University, October 2003.
- [CMS2003] Daniel Lemire, Quadratic and Cubic 2-Step Subdivision Schemes, Approximation Theory and Harmonic Analysis Symposium, Summer CMS 2003, Edmonton, June 2003.
- [NRC-Ottawa2002] Daniel Lemire, Life Behind a Web Portal: Large Data Sets, Approximation Theory and Wavelets, NRC-IIT Colloquium, Ottawa, Canada, December 2002. (Repeated at UNB/SJ in Saint John, New Brunswick, Canada a week later)
- [UNB2002] Daniel Lemire, High Resolution Subdivision Schemes, UNB Math. & Stat. Colloquium, Fredericton, Canada, October 2002.
- [CAMIRO2001] Daniel Lemire, Recent mathematical advances in EM modeling for mineral exploration, Canadian Mining Industry Research Organization (CAMIRO), Toronto, Ontario, 2001.
- [GeoQc1999] Alain Béliveau and Daniel Lemire, Géophysique, traitement du signal et analyse numérique, congrès Géologie Québec, gouvernement du Québec, Québec, 1999.

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#### **Panel**

- [SWIG04Panel] Daniel Lemire (with Bruce Spencer, Fred Popowich, and Éric Duval), Towards the Semantic Web: When, Where and How will it impact?, Semantic Web Symposium (SWIG'04) Opening, 2004.

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#### **Other Communications**

- [CREPUQ2006] Richard Hotte, Nicolas Lecomte, Daniel Lemire, Jean-François Savard, L'utilisation des blogues dans l'enseignement supérieur en ligne, Colloque CREPUQ - SCTIC 2006, April 2006.
- [APICS2005] Steven Keith, Owen Kaser, Daniel Lemire, Analyzing Large Collections of Electronic Text Using OLAP, APICS 2005, Wolfville, Canada, October 2005.
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