

Associate Professor  
Department of Computer Science and Operations Research (DIRO)  
Université de Montréal

Université de Montréal  
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## Education

- 12/2009      **University of California, Berkeley**, Berkeley, CA, USA  
Ph.D. in Computer Science Designated Emphasis in Communication,  
Computation and Statistics  
Dissertation title: Discriminative Machine Learning with Structure  
Committee: Michael Jordan (chair), Peter L. Bartlett, Peter J. Bickel, Dan Klein
- 5/2003      **McGill University**, Montreal, QC, Canada  
B.Sc. Triple Honours in Mathematics, Physics and Computer Science  
First Class Honours in Math. & Physics, First Class Honours  
in Math. & CS, Anne Molson Gold Medal (best in math),  
Dean's Honour List, GPA 3.96/4.00

## Academic and Research Positions

- since 01/2019      **Samsung, SAIT**  
*VP & Lab Director SAIT AI Lab - Montreal (part-time)*
- since 06/2019      **Université de Montréal**  
*Associate Professor* Department of Computer Science  
and Operations Research (DIRO)
- 08/2016 - 06/2019      *Assistant Professor*, DIRO
- 09/2013 - 08/2016      **École Normale Supérieure & INRIA**, Paris, France  
*Research Scientist* in SIERRA project team
- 09/2011 - 08/2013      **École Normale Supérieure & INRIA**, Paris, France  
Computer Science Department  
*Research in Paris Fellow* in SIERRA project team
- 11/2008 - 08/2011      **University of Cambridge**, Cambridge, UK  
Department of Engineering  
*Research Associate* in Machine Learning Group

## Professional Affiliations

Since 01/2019	<i>VP - Lab Director, Samsung, SAIT AI Lab - Montreal</i>
Since 10/2017	<i>Lab Scientist, CDL Montreal</i>
Since 07/2017	<i>CIFAR Fellow, CIFAR</i>
Since 12/2016	<i>Faculty Fellow, Element AI</i>
Since 11/2016	<i>Regular Member, Centre de recherches mathématiques (CRM)</i>
Since 08/2016	<i>Full Member, Mila</i>

## Selected Awards and Distinctions

2018	Canada CIFAR AI Chair
2016	Google Focused Research Award
2015	NIPS Best Reviewer Award
2015	Google Faculty Research Award
2014	MCMCSki IV Honorable Mention Poster Prize
2013	NIPS Reviewer Award
2011-2012	Research in Paris Fellowship, City of Paris
2009-2011	Wolfson College Junior Research Fellowship, University of Cambridge
2008	UC Berkeley College of Engineering Graduate Student Prize <i>For outstanding scholarship and achievement at the College of Engineering</i>

## Professional Activities

- Associate editor for TPAMI; Action editor for JMLR (2019-...)
- Senior area chair for ICML 2019, AAAI 2019, IJCAI 2020
- Area chair for ICML 2015–2018, NIPS 2016–2017, 2019, AISTATS 2018–2020, ICLR 2019, UAI 2020 and CVPR 2018
- Sponsorship chair for AISTATS 2018 and for ICML 2020
- Co-organizer for the Montreal AI Symposium, 2018; Board member for Montreal AI Symposium, 2018-now
- Workshop co-organizer for:
  - Optimization workshop at DALI 2019 and DALI 2020
  - *Smooth Games Optimization and Machine Learning* international workshop, NIPS 2018 and 2019
  - *The Generative and Discriminative Learning Interface* international workshop, NIPS 2009.
- Program Committee member for:
  - International Conference on Monte Carlo Methods and Application, MCM 2017
  - 15th EUROPT Workshop on Advances in Continuous Optimization, 2017
- Mini-symposium organizer, SIAM Conference on Optimization, 2017
- Session chair for the International Conference on Continuous Optimization (ICCOPT), 2013.
- Grant reviewer for ERC and for Israel Science Foundation
- Peer Reviewer for major journals and conferences in:
  - machine learning (JMLR, TPAMI, Machine Learning, TKDE; NIPS, ICML, ICLR COLT, UAI, AISTATS, IJCAI, EMNLP)
  - statistics (Annals of Statistics, JRSS-B, Statistics and Computing)
  - optimization (Mathematical Programming, SIOPT, MOR, JOTA)
  - computer vision (IJCV; CVPR, ECCV).

## Selected University Services

- Faculty Recruitment Committee member (2017-2018), president (2018-2020), DIRO
- Secretary and member of the scientific council, Mila (2017-2020)

## Funding

### *As Principal Investigator:*

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|-------------------|--|
| 09/2018 - 03/2023 | Canada CIFAR AI Chair (\$1,220,000)<br>Canadian Institute for Advanced Research (CIFAR)            |
| 04/2017 - 03/2022 | Discovery Grant (\$125,000)<br>Natural Sciences and Engineering Research Council of Canada (NSERC) |
| 12/2016 - 11/2019 | Google Focused Research Award (\$495,000)<br>Google  |
| 2/2015 - 04/2017  | Google Faculty Research Award (\$120,000)<br>Google  |

### *As Co-investigator:*

- |                   |   |
|-------------------|---|
| 07/2017 - 6/2020  | Research Grant (\$2,107,000)<br>Open Philanthropy                         |
| 04/2018 - 03/2020 | Research Grant (\$200,000)<br>IVADO, Fundamental Research Funding Program |
| 04/2018 - 03/2020 | Research Grant (\$200,000)<br>IVADO, Fundamental Research Funding Program |
| 04/2018 - 03/2020 | Research Grant (\$180,000)<br>IVADO, Fundamental Research Funding Program |
| 04/2018 - 03/2020 | Research Grant (\$195,000)<br>IVADO, Fundamental Research Funding Program |
| 02/2017 - 12/2019 | Research Contract (3,962,400)<br>Samsung SAIT                             |
| 05/2013 - 04/2016 | Research Contract (\$555,000)<br>Microsoft Research                       |

## Teaching

2017-2020 (4)	<b>University of Montreal</b> Advanced Structured Prediction and Optimization (IFT 6132) - grad class
2016-2019 (4)	<b>University of Montreal</b> Probabilistic Graphical Model (IFT 6269) - grad class
2014, 2015	<b>École Normale Supérieure</b> Statistical Machine Learning - 1st year master
2014, 2015	<b>École Normale Supérieure de Cachan</b> Programming Projects for Machine Learning - 2nd year master
2015	<b>École Normale Supérieure de Cachan</b> Probabilistic Graphical Models - 2nd year master
2006, 2008	<b>University of California, Berkeley</b> Practical Machine Learning - grad class

## Postdoctoral Researcher Supervision

since 09/2019	Golnoosh Farnadi (UdM) - co-supervisor
since 09/2019	Nicolas Loizou (UdM) - co-supervisor
since 09/2019	Frédérique Quesnel (Polytechnique) - co-supervisor
since 07/2019	Damien Scieur (SAIL Montreal)
since 01/2019	Sharan Vaswani (UdM)
09/2014 - 08/2016	Anton Osokin (Microsoft Research-Inria Joint Centre)

## Ph.D. Student Supervision/Co-Supervision

Since 09/2019	Hugo Bérard (UdeM) - Co-Supervisor
since 09/2018	Jose Gallego-Posada (UdM) - Principal Supervisor
since 06/2018	Sébastien Lachapelle (UdM) - Co-Supervisor
since 09/2017	Rémi Le Priol (Udm) - Principal Supervisor
since 01/2017	Aristide Baratin (UdM) - Principal Supervisor
since 01/2017	Gabriel Huang (UdM) - Principal Supervisor
09/2016-05/2020	Gauthier Gidel (UdM) - Principal Supervisor

07/2017-12/2019	Yassine Yaakoubi (École Polytechnique) - Co-Supervisor
09/2015 - 11/2018	Rémi Leblond (École Normale Supérieure) - Principal Supervisor
09/2014 - 09/2018	Jean-Baptiste Alayrac (École Normale Supérieure) - Co-Supervisor
12/2013 - 12/2016	Anastasia Podosinnikova (École Normale Supérieure) - Co-Supervisor

## MSc Student Supervision/Co-Supervision

Since 01/2020	Miaofeng Liu (UdeM) - Principal Supervisor
04/2017 - 08/2017	Rémi Le Priol (ENS Cachan) - Principal Supervisor
04/2016 - 08/2016	Gauthier Gidel (École Normale Supérieure) - Principal Supervisor
04/2014 - 08/2014	Isabella Lukasewitz (École Polytechnique) - Principal Supervisor

## Invited Presentations (since 2016)

(more than 90 presentations over my career)

2019	Google Brain, Paris, France <i>New Perspectives on Generative Adversarial Networks</i>
2019	Talk at Cégep Bois-de-Boulogne <i>Apprentissage automatique et données massives</i>
2019	Samsung AI Forum, Seoul, Korea <i>New Optimization Perspectives on Generative Adversarial Networks</i>
2019	The Deep Learning Summit by Re-Work, Montreal, Canada <i>New Optimization Perspectives on Generative Adversarial Networks</i>
2019	Session “Variational Inequalities, Minimax Problems and GANs” at ICCOPT 2019, Berlin, Germany <i>Negative Momentum for Improved Game Dynamics</i>
2019	Gatsby Computational Neuroscience Unit, London, UK <i>New perspectives on GANs</i>
2019	Invited Tutorial, Optimization Days 2019, HEC, Montreal <i>Modern Optimization for Structured Machine Learning</i>

- 2019 Forum : Nos organisations face à la 4e révolution industrielle, UQAM, Montreal  
*Éléments de contexte pour l'Intelligence Artificielle*
- 2019 Optimization and Statistical Learning workshop, OSL 2019, Les Houches, France  
*Extragradient and Negative Momentum to Optimize GANs*
- 2019 Facebook AI Research, Montreal  
*Extragradient and Negative Momentum to Optimize GANs*
- 2019 DALI Meeting 2019, Optimization workshop, George, South Africa  
*Extragradient and Negative Momentum to Optimize GANs*
- 2018 Optimization and Deep Learning Seminar series, Department of Mathematics and Statistics, McGill University, Montreal  
*Recent Advances in Frank-Wolfe Optimization*
- 2018 Element AI, Montreal  
*Modern Optimization for Structures Machine Learning*
- 2018 DeepMind, London, UK  
*New Perspectives on Generative Adversarial Networks*
- 2018 CIFAR LMB meeting, Montreal  
*Negative Momentum for Improved Game Dynamics*
- 2018 Club de Math talk, University of Montreal  
*La borne d'Occam ou le principe le plus fondamental de l'épistémologie des sciences!*
- 2018 Data Analytics Lab, ETH Zurich  
*Modern Optimization for Structured Machine Learning*
- 2018 Journée de coconstruction de la Déclaration de Montréal IA responsable, Montreal  
*Éléments de contexte pour l'Intelligence Artificielle*
- 2018 Machine Learning Group, Department of Computer Science, UBC, Montreal  
*Recent Advances in Frank-Wolfe Optimization*

- 2018            NSF-DIMACS sponsored workshop on Optimization in Machine Learning, Lehigh, PA, USA  
*Frank-Wolfe Splitting via Augmented Lagrangian Method*
- 2018            TechAide AI Conference, Montreal  
*New Perspectives on Generative Adversarial Networks*
- 2018            Session "First-order methods for large-scale convex problems, at ISMP 2018, Bordeaux, France  
*Frank-Wolfe Splitting via Augmented Lagrangian Method*
- 2018            CIFAR LMB meeting, Montreal  
*A Variational Inequality Perspective on GANs*
- 2018            MPI for Intelligent Systems, Tuebingen, Germany  
*A Variational Inequality Perspective on GANs*
- 2018            Invited lecturer for the Winter School on Optimization and Operations Research organized by EPFL, Zinal, Switzerland  
*Recent advances in large scale convex optimization and applications to machine learning*
- 2018            Samsung SAIT, Seoul, Korea  
*New Perspectives on Generative Adversarial Networks*
- 2018            Center for Advanced Intelligence Project (AIP), RIKEN, Tokyo, Japan  
*New Perspectives on Generative Adversarial Networks*
- 2018            Department of Statistics, University of Oxford, Oxford, UK  
*New Perspectives on Generative Adversarial Networks*
- 2018            Statistical Inference, Learning and Models in Data Science workshop at the Fields Institute for Research in Mathematical Sciences, Toronto, Canada  
*New Perspectives on Generative Adversarial Networks*
- 2018            Workshop "l'IA fait ses classes" organized by College Sainte-Anne, Montreal  
*Éléments de contexte pour l'Intelligence Artificielle*
- 2018            MPI for Intelligent Systems, Tuebingen, Germany  
*Revisiting unsupervised learning with lessons from discriminative learning*



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- 2018 Machine Learning and Optimization laboratory, EPFL, Lausanne, Switzerland  
*Modern Optimization for Structured Machine Learning*
- 2018 SIERRA Group seminar at Inria Paris, France  
*New Perspectives on Generative Adversarial Networks*
- 2017 Toronto Learning Group seminar, Department of CS, University of Toronto Toronto, Canada  
*Modern Optimization for Structured Machine Learning*
- 2017 Discrete optimization workshop organized by the CERC "Data Science for Real-time Decision Making", Université de Montréal, Montreal  
*Recent Advances in Frank-Wolfe Optimization*
- 2017 Le 65e Congrès de la CSN, Montreal  
*Éléments d'une 4e révolution: Apprentissage automatique et données massives (Big Data)*
- 2017 Tutte Colloquium, Combinatorics and Optimization Department, University of Waterloo, Waterloo, Canada  
*Recent Advances in Frank-Wolfe Optimization*
- 2017 Talk in the context of "cours d'initiation à la recherche" organized by Cégep de Maisonneuve, Montreal  
*Apprentissage automatique et données massives (Big Data)*
- 2017 Mini-symposium "Modern Frank-Wolfe Optimization and Applications", 2017 SIAM Conference on Optimization, Montreal  
*Recent Advances in Frank-Wolfe Optimization*
- 2017 NIPS, Long Beach, CA, USA  
*On Structured Prediction Theory with Calibrated Convex Surrogate Losses*
- 2017 NIPS Workshop "Learning on Distributions, Functions, Graphs and Groups", Long Beach, CA, USA  
*On Structured Prediction Theory with Calibrated Convex Surrogate Losses*
- 2017 Optimization and Statistical Learning workshop, OSL 2017, Les Houches, France  
*Recent Advances in Frank-Wolfe Optimization*

- 2017                      Session "Quasi-Monte Carlo, Sequential Monte Carlo and Applications in Machine Learning" at the International Conference on Monte Carlo Methods and Application (MCM 2017), Montreal  
*Optimization Tools for Adaptive MonteCarlo Integration*
- 2017                      CIFAR LMB meeting, Long Beach, CA, USA  
*SeaRNN: training RNNs with global-local losses*
- 2017                      IS Colloquium, MPI for Intelligent Systems, Tuebingen, Germany  
*Modern Optimization for Structured Machine Learning*
- 2016                      DIRO Colloquium, University of Montreal  
*Modern Optimization for Structured Machine Learning*
- 2016                      Conic and Polynomial Optimization cluster at ICCOPT 2016, Tokyo, Japan  
*On the Global Linear Convergence of Frank-Wolfe Optimization Variants*
- 2016                      CIFAR LMB meeting, Barcelona Spain  
*Revisiting unsupervised learning with lessons from discriminative learning*
- 2016                      Conference: "Rêvez votre avenir en sciences" , Collège Bois-de-Boulogne , Montreal  
*Apprentissage automatique et données massives (Big Data)*
- 2016                      Learning and Optimization workshop of DALI meeting, Sestri Levante, Italy  
*On the Global Linear Convergence of Frank-Wolfe Optimization Variants*

## Publications

### Refereed Journal Publications

- 1       Rémi Leblond, Fabian Pedregosa, Simon Lacoste-Julien. Improved Asynchronous Parallel Optimization Analysis for Stochastic Incremental Methods. *JMLR*, 2018.
- 2       Edouard Oyallon, Sergey Zagoryuko, Gabriel Huang, Nikos Komodakis, Simon Lacoste-Julien, Matthew Blaschko, Eugene Belilovsky. Scattering Networks for Hybrid Representation Learning. *TPAMI*, 2018.

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- 3 Jean-Baptiste Alayrac, Piotr Bojanowski, Nishant Agrawal, Josef Sivic, Ivan Laptev, Simon Lacoste-Julien. Learning from Narrated Instruction Videos. *TPAMI*, 2017.
  - 4 B. Taskar, S. Lacoste-Julien and M. Jordan. Structured Prediction, Dual Extragradient and Bregman Projections. *JMLR*, 2006.

### Refereed Conference Publications

- 5 J. Gallego, A. Vani, M. Schwarzer, S. Lacoste-Julien. GAIT: A Geometric Approach to Information Theory, *AISTATS*, 2020.
- 6 W. Azizian, D. Scieur, I. Mitliagkas, S. Lacoste-Julien, G. Gidel. Accelerating Smooth Games by Manipulating Spectral Shapes, *AISTATS*, 2020.
- 7 W. Azizian, I. Mitliagkas, S. Lacoste-Julien, G. Gidel. A Tight and Unified Analysis of Extragradient for a Whole Spectrum of Differentiable Games, *AISTATS*, 2020.
- 8 S. Y. Meng, S. Vaswani, I. Laradji, M. Schmidt, S. Lacoste-Julien. Fast and Furious Convergence: Stochastic Second Order Methods under Interpolation, *AISTATS*, 2020.
- 9 S. Lachapelle, P. Brouillard, T. Deleu, S. Lacoste-Julien. Gradient-Based Neural DAG Learning, *ICLR*, 2020.
- 10 H. Berard, G. Gidel, A. Almahairi, P. Vincent, S. Lacoste-Julien. A Closer Look at the Optimization Landscapes of Generative Adversarial Networks, *ICLR*, 2020.
- 11 S. Vaswani, A. Mishkin, I. Laradji, M. Schmidt, G. Gidel, S. Lacoste-Julien. Painless Stochastic Gradient: Interpolation, Line-Search, and Convergence Rates, *NeurIPS*, 2019.
- 12 G. Gidel, F. Bach, S. Lacoste-Julien. Implicit Regularization of Discrete Gradient Dynamics in Deep Linear Neural Networks, *NeurIPS*, 2019.
- 13 T. Chavdarova, G. Gidel, F. Fleuret, S. Lacoste-Julien. Reducing Noise in GAN Training with Variance Reduced Extragradient. *NeurIPS*, 2019.
- 14 G. Gidel, H. Berard, G. Vignoud, P. Vincent, S. Lacoste-Julien. A Variational Inequality Perspective on Generative Adversarial Nets. *ICLR*, 2019.
- 15 G. Gidel, R. Askari, M. Pezeshki, R. Le Priol, G. Huang, S. Lacoste-Julien, I. Mitliagkas. Negative Momentum for Improved Game Dynamics. *AISTATS*, 2019.

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- 16 K. Struminsky, S. Lacoste-Julien, A. Osokin. Quantifying Learning Guarantees for Convex but Inconsistent Surrogates. *NIPS*, 2018.
  - 17 R. Le Priol, A. Piché, S. Lacoste-Julien. Adaptive Stochastic Dual Coordinate Ascent for Conditional Random Fields. *UAI*, 2018.
  - 18 G. Gidel, F. Pedregosa, S. Lacoste-Julien. Frank-Wolfe Splitting via Augmented Lagrangian Method. *AISTATS* (oral), 2018
  - 19 R. Leblond, J.-B. Alayrac, A. Osokin, S. Lacoste-Julien. SEARNN: Training RNNs with GlobalLocal Losses. *ICLR*, 2018.
  - 20 F. Pedregosa, R. Leblond, S. Lacoste-Julien. Breaking the Nonsmooth Barrier: a Scalable Parallel Method for Composite Optimization. *NIPS* (spotlight), 2017.
  - 21 A. Osokin, F. Bach, S. Lacoste-Julien. On Structured Prediction Theory with Calibrated Convex Surrogate Losses. *NIPS* (oral), 2017.
  - 22 J.-B. Alayrac, J. Sivic, I. Laptev, S. Lacoste-Julien. Joint Discovery of Object States and Manipulating Actions. *ICCV*, 2017.
  - 23 D. Arpit, S. Jastrzebski, N. Ballas, D. Krueger, E. Bengio, M. S. Kanwal, T. Maharaj, A. Fischer, A. Courville, Y. Bengio, S. Lacoste-Julien. A Closer Look at Memorization in Deep Networks. *ICML*, 2017.
  - 24 Gauthier Gidel, Tony Jebara, Simon Lacoste-Julien. Frank-Wolfe Algorithms for Saddle Point Problem, *AISTATS*, 2017.
  - 25 Rémi Leblond, Fabian Pedregosa, Simon Lacoste-Julien. ASAGA: Asynchronous Parallel Saga. *AISTATS*, 2017.
  - 26 Pascal Germain, Francis Bach, Alexandre Lacoste, Simon Lacoste-Julien. PAC-Bayesian Theory Meets Bayesian Inference. *NIPS*, 2016.
  - 27 Jean-Baptiste Alayrac, Piotr Bojanowski, Nishant Agrawal, Josef Sivic, Ivan Laptev and Simon Lacoste-Julien. Unsupervised Learning from Narrated Instruction Videos. *CVPR* (oral), 2016.
  - 28 Anton Osokin, Jean-Baptiste Alayrac, Isabella Lukasewitz, Puneet K Dokania, Simon Lacoste-Julien, Minding the Gaps for Block Frank-Wolfe Optimization of Structured SVMs. *ICML*, 2016

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- 29 Anastasia Podosinnikova, Francis Bach, Simon Lacoste-Julien. Beyond CCA: Moment Matching for Multi-View Models. *ICML*, 2016.
  - 30 Thomas Hofmann, Aurelien Lucchi, Simon Lacoste-Julien, Brian McWilliams. Variance Reduced Stochastic Gradient Descent with Neighbors. *NIPS*, 2015.
  - 31 Rahul G Krishnan, Simon Lacoste-Julien, David Sontag. Barrier Frank-Wolfe for Marginal Inference. *NIPS*, 2015.
  - 32 Anastasia Podosinnikova, Francis Bach, Simon Lacoste-Julien. Rethinking LDA: Moment Matching for Discrete ICA. *NIPS*, 2015.
  - 33 Simon Lacoste-Julien, Martin Jaggi. On the Global Linear Convergence of Frank-Wolfe Optimization Variants. *NIPS*, 2015.
  - 34 Visesh Chari, Simon Lacoste-Julien, Ivan Laptev, Josef Sivic. On Pairwise Costs for Network Flow Multi-Object Tracking. *CVPR*, 2015.
  - 35 Simon Lacoste-Julien, Fredrik Lindsten, Francis Bach. Sequential Kernel Herding: Frank-Wolfe Optimization for Particle Filtering. *AISTATS*, 2015.
  - 36 Aaron Defazio, Francis Bach, Simon Lacoste-Julien. SAGA: A fast incremental gradient method with support for non-strongly convex composite objectives. *NIPS*, 2014.
  - 37 Simon Lacoste-Julien, Konstantina Palla, Alex Davies, Gjergji Kasneci, Thore Graepel, Zoubin Ghahramani. SiGMa: Simple Greedy Matching for Aligning Large Knowledge Bases. *KDD*, 2013.
  - 38 Simon Lacoste-Julien, Martin Jaggi, Mark Schmidt, Patrick Pletscher. Block-Coordinate Frank-Wolfe Optimization for Structural SVMs. *ICML*, 2013.
  - 39 F. Bach, S. Lacoste-Julien and G. Obozinski. On the Equivalence between Herding and Conditional Gradient Algorithms. *ICML*, 2012.
  - 40 S. Lacoste-Julien, F. Huszar and Z. Ghahramani. Approximate Inference for the Loss-Calibrated Bayesian. *AISTATS*, 2011.
  - 41 S. Lacoste-Julien, F. Sha and M. Jordan. DiscLDA: Discriminative Learning for Dimensionality Reduction and Classification. *NIPS*, 2008.
  - 42 S. Lacoste-Julien, B. Taskar, D. Klein and M. Jordan. Word Alignment via Quadratic Assignment. *HLT-NAACL*, 2006.

- 43 B. Taskar, S. Lacoste-Julien and M. Jordan. Structured Prediction via the Extragradient Method. *NIPS*, 2005.
- 44 B. Taskar, S. Lacoste-Julien and D. Klein. A Discriminative Matching Approach to Word Alignment. *EMNLP*, 2005.
- 45 S. Lacoste-Julien, H. Vangheluwe, J. de Lara and P. Mosterman. Meta-Modelling Hybrid Formalisms. *CACSD*, 2004.