

EMMANUEL BENGIO
School of Computer Science
McGill university
folinoid.com

Education

- 2009-2011 CÉGEP DE BOIS-DE-BOULOGNE
Diploma of College Studies (DEC) in Computer Science and Mathematics
- 2011-2014 UNIVERSITÉ DE MONTRÉAL
Bachelor of Computer Science, honor, Université de Montréal
- 2014-2016 MCGILL UNIVERSITY
Master of Science, Computer Science
Advisors: Joelle Pineau & Doina Precup
Thesis: "On Reinforcement Learning for Deep Neural Architectures : Conditional Computation with Stochastic Computation Policies"
- 2016- MCGILL UNIVERSITY
PhD, Computer Science
Advisors: Joelle Pineau & Doina Precup

Scientific works

- 2013 *Combining Modality Specific Deep Neural Networks for Emotion Recognition in Video*, S. Ebrahimi et al, 2013, Emotion Recognition In The Wild Challenge and Workshop (EmotiW 2013)
- 2015 *Conditional computation in neural networks using a decision-theoretic approach*, Pierre-Luc Bacon, Emmanuel Bengio, Joelle Pineau, Doina Precup. 2nd Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM 2015)
- 2016 *Conditional Computation in Neural Networks for faster models*. Emmanuel Bengio, Pierre-Luc Bacon, Joelle Pineau, Doina Precup. International Conference on Learning Representations, Workshop Track (ICLR 2016)

Interests

Machine Learning, deep learning and reinforcement learning. In particular, applying RL methods to extend deep models' capacity and computational complexity, unsupervised learning in RL environments.

Compilers, design and implementation of programming languages

Video game programming, computer graphics

Music, guitar improvisation and composition

Internships and research projects

Summer 2010

Internship at *Laboratoire d'Informatique des Systèmes Adaptatifs (LISA)*, Université de Montréal
Exploration of sparse artificial neural networks models for compression of 3D animation skeletons.

In partnership with Ubisoft, we developed neural network models to compress 3D skeletal animation data. The models were regularized for sparse coding and to take into account the quirks of 3D animation.

Summers 2011-12

Internship at LISA, Université de Montréal

Exploration of convolutional artificial neural networks for detection of emotions in images of human faces.

We explored convolutional architectures, inspired from the visual cortex, for a vision task that consists of classifying images of faces to retrieve the associated emotion. We have mostly explored various ways of training this model, notably using phases of unsupervised learning of representations, that allow for better classification.

Summer 2013

Research internship at *Laboratoire de Traitement Parallèle*, Université de Montréal

Exploration of lexical analysis approaches based on statistical and low-level optimisations.

We developed a lexical analysis generator, that uses statistical analysis of corpora of language samples to optimise generated lexing code, using optimisations such as intelligent branch ordering and targeted register allocation. Such optimized lexers outperform state-of-the-art lexical generator tools.

Distinctions

2011-2014 Entry scholarship, Département d'Informatique et Recherche Opérationnelle

2012, 2013, 2014

Palmarès du Doyen de la Faculté des Arts et Sciences (academic excellence distinction)

Summer 2013

Undergraduate Student Research Awards, CRSNG

2013 *Bourse d'excellence académique Abilis*, Solutions Abilis (excellence scholarship)

2014-2015 NSERC Canada Graduate Scholarship - Master's Program

Implication

Association générale des étudiants de Bois-de-Boulogne (AGEBdeB)

2009-2011 Coordinator of the *Coda*, music comitee of Bois-de-Boulogne

Association des étudiants du Département d'informatique et de recherche opérationnelle de l'Université de Montréal (AÉDIROUM)

2012-2014 2nd, then 3rd year student representative

Computer Science Games, Université de Montréal team

The CSGames is an annual computer science competition that attracts over 30 teams (7 to 10 students) of north american undergraduate students.

2012 Third place in "Extreme Programming" (fast programming)

2013 Second place in "Extreme Programming"

2014 Second place in "CGI Challenge" (combinatorial optimization)