Labo GAMME
Music and Machine Learning
University of Montreal
People (in no particular order)

Douglas Eck
Director
NEMISIG, New York

Alexandre Lacoste
Former Student
Now at RadioLibre.ca / W3

Norman Casagrande
Former Student
Now at Last.FM

Lysiane Bouchard
Current Student

Francois Maillet
Current Student

James Bergstra
Current Student

Jean-François Paiement
Current student
(at EPFL, Lausanne)

Stanislas Lauly
Current Student

Simon Lemieux
Current Student

Thierry Bertin-Mahieux
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Francois Maillet
Current Student

James Bergstra
Current Student

Sean Wood
Current Student

Jasmin Lapalme
Former Master’s Student

Simon Lemieux
Current Student

James Bergstra
Current Student
Affiliations

• LISA - Machine Learning, University of Montreal

• BRAMS - Brain Music and Sound, University of Montreal, McGill, Concordia

• CIRMMT - Center for Interdisciplinary Research in Media, Music and Technology - McGill, University of Montreal

• Sun Labs, Boston. Eck was visiting professor Jan-July 2007 at Sun and continues to work with Paul Lamere on Search Inside the Music. However there is currently no official connection between Gamme and Sun.
A Venn Diagram...

\{\text{Gamme}\} = \{\text{BRAMS}\} \cap \{\text{LISA}\}
• Laboratoire d’Informatique des Systèmes Adaptatifs (Machine Learning)

• Interests:
  • Time series analysis
  • “Deep” architectures
  • Finance and insurance
  • Dimensionality reduction
  • Ensemble learning

Faculty Members

Yoshua Bengio
Douglas Eck
Balázs Kégl
Pascal Vincent
(now CNRS, Paris Sud)
• Brain, Music and Sound
• Neuroscience and music
• 14 faculty members from University of Montreal, McGill and Concordia
• Excellent facilities for music neuroscience
• Many interesting machine learning questions, e.g. classification of MRI imaging results

Co-Directors

Isabelle Peretz
Neuropsych, Univ. of Montreal

Robert Zatorre
Neuroscience, Montreal Neurological Institute
Music Performance Laboratory at BRAMS

- Music performance laboratory (Eck) installed at BRAMS.
- Recording and reproducing Boesendorfer grand piano
- Able to collect and analyze professional (and unprofessional :-) performances
- Studio supports audio recording of jazz quartet
Past, Present and Future Projects

- Music similarity and recommendation (e.g. contributions to Search Inside the Music)
- Music sequence learning (e.g. Echo State Networks, generative models, LSTM)
- Meter and rhythm-related work (e.g. beat tracking, finding metrical structure in audio)
- Expressive music performance [Boesendorfer piano] (one focus: when no score is available such as jazz improv.)
- Dimensionality reduction (e.g. “deep” audio encoding using DBNs)
- Machine learning approaches to signal processing (e.g. note onset detection)
- Work related to music production (e.g. automatic music mixing and mastering)

GAMME students will describe project details... it would take too many slides to go through these individually
Conclusions

• Sorry I couldn’t be there
• Please ask GAMME students lots of questions
• Hope to see any and all in Montreal!

--Doug