### Research Interests by Professors

#### NEW PROFESSORS

<table>
<thead>
<tr>
<th>Professor</th>
<th>Affiliations</th>
<th>Research Interests</th>
</tr>
</thead>
</table>
| Aaron Courville      | UdeM                                 | - Computer vision  
                        |                                                                                   | - DL  
                        |                                                                                   | - GANs  
                        |                                                                                   | - Generative models  
                        |                                                                                   | - Multi-modal learning  
                        |                                                                                   | - NLP  
                        |                                                                                   | - Probabilistic models |
| Aishwarya Agrawal† (August 2020) | UdeM | - Computer vision  
                        |                                                                                   | - DL  
                        |                                                                                   | - NLP |
| Blake Richards       | McGill                              | - DL+neuroscience  
                        |                                                                                   | - Neural data analysis  
                        |                                                                                   | - RL |
| Christopher Pal      | Polytechnique / UdeM                | - Causality  
                        |                                                                                   | - Computational photography  
                        |                                                                                   | - Computer vision  
                        |                                                                                   | - DL  
                        |                                                                                   | - NLP  
                        |                                                                                   | - Probabilistic models |
| Danny Tarlow         | Google Brain / McGill               | - Learning to program  
                        |                                                                                   | - Probabilistic models |
| Devon Hjelm          | Microsoft Research / UdeM           | - Information theory  
                        |                                                                                   | - NLP  
                        |                                                                                   | - RL |
| Doina Precup         | McGill                              | - Medical ML  
                        |                                                                                   | - Reasoning  
                        |                                                                                   | - RL |
| Fernando Diaz        | Microsoft Research                  | - Information retrieval |
| Geoffrey Gordon      | Microsoft Research / McGill         | - Optimization  
                        |                                                                                   | - RL  
                        |                                                                                   | - Spectral learning |
| Guillaume Rabusseau  | UdeM                                 | - Tensor factorization |
| Hugo Larochelle       | Google Brain / UdeM                 | - Computer vision  
                        |                                                                                   | - DL  
                        |                                                                                   | - NLP |
| Ioannis Mitliagkas   | UdeM                                 | - Continuous optimization |

† Indicates that this professor joined after the publication date of the document.
<table>
<thead>
<tr>
<th>Name</th>
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</table>
| Irina Rish            | UdeM                | • DL  
• DL+neuroscience  
• Medical ML  
• Neural data analysis |
| Jackie Cheung         | McGill              | • NLP                                                                                 |
| Jian Tang             | HEC / UdeM          | • GANs  
• Graph neural networks  
• Interconnected data analysis  
• Learning on graphs  
• Molecular modeling |
| Joelle Pineau         | McGill              | • DL  
• medical ML  
• RL  
• Robotics |
| Laurent Charlin       | HEC / UdeM          | • Data-mining  
• NLP  
• Recommender systems  
• RL |
| Marc G. Bellemare     | Google Brain / McGill  | • DL  
• Generative models  
• Information theory  
• Online learning  
• RL |
| Nicolas Le Roux       | Google Brain / McGill / UdeM | • Computer vision  
• DL  
• Optimization |
| Pascal Vincent        | UdeM                | • DL  
• Generative models  
• Medical ML |
| Pierre-Luc Bacon      | UdeM                | • RL                                                                                 |
| Prakash Panangaden    | McGill              | • ML theory  
• Quantum information theory  
• Semantics and logics for probabilistic systems and languages |
| Reihaneh Rabbany      | McGill              | • Interconnected data analysis |
| Sarath Chandar        | Polytechnique       | • DL  
• NLP                                                                                 |
| Siamak Ravanbakhsh    | McGill              | • Deep Learning  
• Probabilistic Models |

- DL: Deep Learning
- GANs: Generative Adversarial Networks
- ML theory: Machine Learning Theory
- Optimization: Optimization Techniques
- NLP: Natural Language Processing
- RL: Reinforcement Learning
- Semantics and logics for probabilistic systems and languages: Semantics and Logics for Probabilistic Systems and Languages
- Online learning: Online Learning
- Computer vision: Computer Vision
- Data-mining: Data Mining
- Interconnected data analysis: Interconnected Data Analysis
- Distributed systems: Distributed Systems
- Medical ML: Medical Machine Learning
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<tbody>
<tr>
<td>Simon Lacoste-Julien</td>
<td>UdeM</td>
<td>Learning on Graphs, Generative Models, Invariant and Equivariant Representation Learning, ML for Physics and Cosmology</td>
</tr>
<tr>
<td>Siva Reddy* (Jan 2020)</td>
<td>McGill</td>
<td>NLP, Reasoning</td>
</tr>
<tr>
<td>William L. Hamilton</td>
<td>McGill</td>
<td>DL, Interconnected data analysis, Learning on graphs, NLP</td>
</tr>
<tr>
<td>Yoshua Bengio</td>
<td>UdeM</td>
<td>Causality, Climate change, DL, DL+neuroscience, Dynamical systems, GANs, Generative models, Graph neural networks, Learning on graphs, Medical ML, Molecular modeling, NLP, Recurrent neural networks, RL</td>
</tr>
</tbody>
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Last update: November 08, 2019