Martin Weyssow, PhD student *Curriculum Vitae, December 2021*

Contact Information

Affiliation:

GEODES, Software Engineering Research Lab
Département d'Informatique et de Recherche Opérationnelle (DIRO)
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Research Interests

Machine learning for software engineering, multimodal representation learning, natural language processing, deep learning, graph neural networks, information retrieval and recommender systems.

Education

University of Montreal

PhD, Computer Science — Fall 2020 - present
Thesis topic: Deep learning for software engineering, multimodal learning
Advisor: Prof. Houari Sahraoui

Research Internship — Fall 2019 - Fall 2020
Advisor: Prof. Houari Sahraoui

University of Namur, Belgium

MSc., Computer Science and Data Science — 2018 - 2020
Thesis advisor: Prof. Houari Sahraoui
Grade: 19/20 (*highest grade*)

BSc., Computer Science, Minors Mathematics — 2015 - 2018

Scholarships

Scholarship for Excellence, DIRO (University of Montreal) — 2021
Google Scholarship for Excellence, DIRO (University of Montreal) — 2021
1 year of full-time research fundings
Scholarship for Excellence, DIRO (University of Montreal) — 2020
Research Scholarship, Mitacs Globalink Canada — Spring 2020

Community Services

SOSYM Journal AI-MDE Theme Issue, *Peer Reviewing* — 2021
IEEE SANER Conference, *Peer Reviewing* — 2021
ACM/IEEE MODELS Conference, *Student Volunteer* — 2020
IEEE Transactions on Software Engineering, *Peer Reviewing* — 2020
Data & Models Workshop, *Participant* — 2020
Participant of a workshop about the role of artificial intelligence in model-driven engineering organized at McGill's Bellairs Research Institute.
(http://www.bellairs2020.ece.mcgill.ca/index.htm)

Teaching

University of Namur

INFOB318 - Individual bachelor project, *Project Supervisor* 2020 - 2021

INFOB131 - Introduction to programmation, *Teaching Assistant* Fall 2020

Students (co)-supervision

Aton Kamanda (MSc)

Lucas Maes (MSc)

Past students

Bastien Nicolas (MSc.) Spring 2021

Learning from Code Flow Dependencies using Graph Neural Networks for Code Refactoring

Lucas Maes (BSc.) Fall 2020 - Spring 2021

Code Documentation Generation Plug-In Development using Pretrained Language Models

Aton Kamanda (BSc.) Fall 2020 - Spring 2021

Code Search Plug-In Development using Pretrained Language Models

Publications

M. Weyssow, H. Sahraoui & B. Liu (2021)
Better Modeling the Programming World with Code Concept Graphs-augmented Multi-modal Learning
submitted at IEEE International Conference on Software Engineering

M. Weyssow, H. Sahraoui & E. Syriani (2021)
Recommending Metamodel Concepts during Modeling Activities with Pre-Trained Language Models
arXiv preprint arXiv:2104.01642.
under revision for Software and Systems Modeling journal

Mussbacher, G., Combemale, B., Kienzle, J. et al. (2020)
Opportunities in intelligent modeling assistance
Software and Systems Modeling

M. Weyssow, H. Sahraoui, B. Vanderose & B. Frénay (2020)
Combining Code Embedding with Static Analysis for Function-Call Completion
arXiv preprint arXiv:2008.03731

G. Mussbacher, B. Combemale, S. Abrahão, N. Bencomo, L. Burgueño, G. Engels, J. Kienzle, T. Kühn, S. Mosser, H. Sahraoui, **M. Weyssow** (2020)
Towards an Assessment Grid for Intelligent Modeling Assistance
2nd Workshop on Artificial Intelligence and Model-driven Engineering

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Coursework & projects

IFT6390 - Fundamentals of machine learning

– Acquired fundamentals knowledge about machine learning and Python libraries

(numpy, scikit-learn, pytorch).
  - **Project:** Study of the interpretability of machine learning models on various classification tasks (*grade:* A+)

IFT6285 - Natural language processing
  - Acquired technical and conceptual skills on how to conduct NLP research.

IFT6755 - Software analysis
  - **Project:** Using transfer learning to generate state machines (*grade:* A+)

IFT6255 - Information retrieval
  - Acquired strong skills about information retrieval techniques and their usage in modern search engines and recommender systems.
  - **Project 1:** Comparison of search engines on TREC AP88-90 collection (*grade:* A+)
  - **Project 2:** Comparison study on the usage of autoencoders for code search (*grade:* A+)

IFT6253 - Model-driven engineering
  - **Project:** Leveraging LSTM-based neural language models for modeling activities prediction (*grade:* A+)
  - **Paper:** Recommending Metamodel Concepts during Modeling Activities with Pre-Trained Language Models

IFT6010 - Modern natural language processing
  - Acquired strong skills on cutting-edge deep learning approaches for NLP and technical programming skills (pytorch, pytorch-geometric)
  - **Project:** Towards unbiased evaluation of DL-based code completion recommender systems (*grade:* A+)
  - **Papers:** Two ongoing papers about multimodal learning and attention-fusion approaches with structured data modalities for code search (ICSE-NIER and FSE)