Veronica Chelu

PhD Candidate at McGill University,
School of Computer Science,
Montreal, Canada   ✉ *veronica.chelu@mail.mcgill.ca*

▬▬▬ Research

direction **Learning algorithms for reinforcement learning (RL) & sequential decision making**.

interests *RL & sequential decision making, policy optimization, online learning, deep learning.*

enthusiastic@ *causality, robotics, neuroscience, psychology, pharmacology.*

▬▬▬ Education

2019–**Ph.D. in Computer Science**, *McGill University*, Montreal.
present *Specialization:* Artificial Intelligence, Reinforcement Learning. *Dissertation topic:* Towards efficient credit assignment algorithms in RL—leveraging models to learn, plan and adapt. Advised by Prof. Doina Precup.

2016–2018 **M.Sc in Computer Science**, *University "Politehnica" Bucharest*, Bucharest.
Specialization: Artificial Intelligence. *Master Thesis:* The influence of exploratory behaviour on temporal abstraction and subgoal identification in hierarchical reinforcement learning.

2009–2013 **B.Sc in Computer Science**, *University "Politehnica" Bucharest*, Bucharest.
Bachelor Thesis: Emotion simulation on virtual 3D face models.

▬▬▬ Publications

[1] **Veronica Chelu**, Tom Zahavy, Arthur Guez, Doina Precup, and Sebastian Flennerhag. *Optimism and adaptivity in policy optimization.* in submission.

[2] Arushi Jain, **Veronica Chelu**, Sharan Vaswani, Arthur Guez, and Nicolas Le Roux. *Actor-critic as a joint maximization problem.* RLDM 2022.

[3] **Veronica Chelu**, Diana Borsa, Doina Precup, and Hado van Hasselt. *Selective Credit Assignment.* arXiv 2022, [pdf].

[4] Ray Jiang, Shangtong Zhang, **Veronica Chelu**, Adam White, and Hado van Hasselt. *Learning Expected Emphatic Traces for Deep RL.* AAAI 2022, [pdf].

[5] Anthony GX-Chen, **Veronica Chelu**u, Blake A. Richards, and Joelle Pineau. *A Generalized Bootstrap Target for Value-Learning, Efficiently Combining Value and Feature Predictions.* AAAI 2022, [pdf].

[6] **Veronica Chelu**, Doina Precup, and Hado van Hasselt. *Forethought and Hindsight in Credit Assignment.* In: Proceedings of Neural Information Processing Systems (NeurIPS) 2020. [pdf].

[7] Anthony GX-Chen, **Veronica Chelu**, Blake Richards, and Joelle Pineau. *Lambda Successor Return Error.* In: Biological and Artificial Reinforcement Learning Workshop at Neural Information Processing Systems (NeurIPS) 2020.

[8] **Veronica Chelu** and Doina Precup. *Option Discovery by Aiming to Predict.* In: Proceedings of Reinforcement Learning and Decision Making (RLDM), in Multi-Task and Lifelong Reinforcement Learning Workshop and in Self-Supervised Learning Workshop at International Conference on Machine Learning (ICML) 2019. [pdf].

[9] **Veronica Chelu**. *Temporal abstraction and subgoal discovery by clustering successor features.* In: Women in Machine Learning (WIML) Workshop 2018. [poster].

[10] **Veronica Chelu**. *The influence of exploratory behaviour on temporal abstraction and subgoal identification.* Transylvanian Machine Learning Summer School (2018) - Best Poster Award. [poster].

[11] **Veronica Chelu***, J. Baek*, L. Iordache, V Paunescu, A. Ghiuta H. Ryu, Y. Soh A. Petreanu, A. Leica, and B. Jeon. *Scene Understanding Networks for Autonomous Driving based on Around*

View Monitoring System. In: Workshop on Autonomous Driving, Conference on Computer Vision and Pattern Recognition (CVPR) 2018. [pdf].

Academic experience, teaching & talks

Summer 2023 — **Research supervision of two undergrads: Nathan De Lara, and Steve Wen**.

June 2023 — **Talk on Optimism and Adaptivity**, *Mila RL workshop 2023*.

Summer 2020 — **Talk on Forethought and Hindsight in Reinforcement Learning**, *RL Sofa, Mila 2020*.

Summer 2020 — **Teaching assistant and mentor**, *AI4SocialGood Summer Lab 2020*, [details].

Winter 2020 — **Teaching assistant for the Reinforcement Learning course**, *McGill University*, [Comp767].

July 2019 — **Contributed talk on *Option Discovery by Aiming to Predict*,** *Modeling Inductive Biases in Reinforcement Learning Workshop*, at Reinforcement Learning and Decision Making (RLDM) 2019.

Spring 2018 — **Lecturer for Deep Learning for Visual Arts**, *Faculty of Mathematics and Computer Science, University of Bucharest*.

June 2018 — **Applied deep learning for vision, sound and control**, *Faculty of Mathematics and Computer Science, University of Bucharest*, Recent Advances in Artificial Intelligence (RAAI) 2018.

Summer 2018 — **Lectures and workshops on Reinforcement Learning**, *University "Politehnica" Bucharest*, ROSEdu - Romanian Open Source Education, [details].

Academic awards

2022-2024 — **FRQNT, Fonds de recherche du Quebec**, *Nature and Technology*.

2021-2022 — **IVADO's PhD Excellence scholarship**.

2020-2021 — **Borealis AI 2020-2021 Fellowship**.

2016-2018 — **Excellence Scholarship**, *for the M.Sc in Computer Science and Engineering at University "Politehnica" Bucharest*, funded by the Romanian government.

2016-2018 — **Merit Scholarship**, *for the M.Sc in Computer Science and Engineering at University "Politehnica" Bucharest*, funded by the Romanian government.

2009-2013 — **Merit Scholarship**, *for the B.Sc in Computer Science at University "Politehnica" Bucharest*, funded by the Romanian government.

Industry experience

April 2022 – April 2023 — **Research Scientist Intern**, *DeepMind*, Montreal, CA.

Feb 2020 – July 2020 — **Research Scientist Intern**, *DeepMind*, London, UK, Core RL team.

2016–2018 — **Research Engineer**, *Apsisware*, Bucharest, LG Electronics R&D team.
Worked on: *Scene Understanding for assisted technology and autonomous driving* and *Generative models with application to facial recognition*

2016 — **Machine Learning Engineer**, *Sparktech Software*, Bucharest.

2015 — **Software Engineer**, *Deutsche Bank*, Bucharest.

2014	**Software Engineer**, *Misys*, Bucharest.
2013	**Software Engineer**, *Cronian Labs*, Bucharest.

Committee, reviewing and volunteering

July 2020	**Top Reviewer - top 33% ranking**, *ICML 2020*.
October 2020	**Reviewer**, *Deep Reinforcement Learning Workshop at NeurIPS 2020*.
July 2019	**Reviewer**, *Multitask and Lifelong Reinforcement Learning Workshop at ICML 2019*.
December 2019	**Reviewer**, *Women in Machine Learning (WIML) Workshop at NeurIPS 2019*.
December 2018	**Reviewer**, *Continual Learning Workshop at NeurIPS 2018*.
December 2018	**Reviewer**, *Women in Machine Learning (WIML) Workshop at NeurIPS 2018*.

Training courses

Summer 2020	**Theory of Reinforcement Learning Boot Camp**, *online from Simons Institute for Theory of Computing*.
Fall 2019	**Probabilistic Analysis of Algorithms and Data Structures**, *with Prof. Dr. Luc Devroye*, COMP 690 at McGill University.
Summer 2019	**Deep Learning and Reinforcement Learning Summer School (DLRL) 2019**, *at University of Alberta*.
Summer 2018	**Transylvanian Machine Learning Summer School (TMLSS) 2018**, *https://tmlss.ro/*.

Computer & programming skills

General	Python, C, C++, Git, Unix, Latex.
Machine Learning	Jax, Tensorflow, Pytorch, Numpy, Matplotlib.

Life

meditation enthusiast, conciousness explorer, yoga instructor (200h RYT), amateur hand-balancer & acrobat.