

## Elaine Lau

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### EDUCATION

#### Mila, McGill University - Master of Science in Computer Science

Montreal, Canada

- Under the Supervision of Prof. Doina Precup, *GPA: 4.00/4.00*

May 2022 - Present

#### McGill University - Bachelor of Science

Montreal, Canada

- Major Statistics and Computer Science, *major GPA: 3.86/4.00*

Sep 2017 - Apr 2022

### PUBLICATIONS

#### Deep Conservative Reinforcement Learning for Personalization of Mechanical Ventilation Treatment

First Author

RLDM 2022, Winner of ProjectX Research Competition

- Initiated the idea of utilizing offline RL with LSTM-Autoencoder in order to gain current but also past information at each state for each patient for the problem on mechanical ventilation settings
- Providing analytical reasoning on choosing the optimal offline RL algorithm in addressing mechanical ventilation
- Focusing on the implementation of Conservative Q-Learning and the evaluation metrics

#### Policy Gradients Incorporating the Future

Second Author

ICLR 2022, NeurIPS 2021 Deep RL Workshop

- The research proposed a method that allows a policy during training to leverage future information in online and offline RL
- Conducted running hundreds of jobs to experiment on different hyperparameters and auxiliary loss
- Assisted in processing event files such as episodes, rewards from TensorBoard to be used for visualization in manuscript
- Concisely summarized and analysed on existing papers in related work within the manuscript

### RESEARCH

#### Abstractive Summarization using Longformer-PEGASUS

Natural Language Processing, McGill University

Sep 2020 – Dec 2020

- The research proposed a technique to replace self-attention in PEGASUS with Longformer's self-attention mechanism that scales linearly with the sequence length for improvements in abstractive summarization of long documents
- Focused on preprocessing, finetuning, and evaluating (ROUGE score) the models, Long-PEGASUS and Long-Bart
- Originate the research idea with two other teammates and contributed extensively to writing the research paper

### EXPERIENCE

#### NVIDIA

Santa Clara, California

Data Scientist Intern

Jan 2022 – Apr 2022

- Designed an accelerated feedback model that detects usefulness of feedbacks in GeForce Now (GFN) Cloud Gaming Service
- Integrated an end-to-end pipeline in GFN data science team to improve the efficiency and productivity in examining feedback
- Conducted statistical analysis of trends and relationships of user behavior and system telemetry in designing heuristic functions

#### Vector Institute

Toronto, Ontario

Applied Machine Learning Intern

Sep 2021 – Dec 2021

- Designed an end-to-end generative empathetic chatbot that can automate a customer service support using GPT-2, BERT
- Investigation in knowledge infusion, modifications on loss functions, inference techniques and different evaluation metrics
- Finetuning masked language modelling and multi-class classification model in downstream tasks using BERT

#### TD Bank

Toronto, Ontario

Data Scientist

May 2021 – Aug 2021

- Took the initiative to implement a search tool to improve efficiency of file/keyword comparison work for auditors who must manually scan through multiple documents for keywords to find important information
- Applied summarization models (T5, BERT, BART) and topic modelling (BERTopic, KeyBERT) on financial reports

#### AI4Good Summer Lab

Montreal, Quebec

Mentor

Jun 2021, Jun 2022

- Provided guidance and support on a machine learning project of consumption modelling given the limited resources and time

### TECHNICAL SKILLS

**Programming** Python, Java, C, R, Ocaml, JavaScript, MATLAB, SQL

**Frameworks & Tools** Pandas, Matplotlib, Flask, Tensorflow, PyTorch, Scikit-Learn, AWS, Azure, Git, Tableau, CSS, DBeaver

**Courses** Natural Language Processing, Computer Vision, Applied in Machine Learning, Database Systems, Time Series Analysis, Generalized Linear Models, Stochastic Process, Introduction to Data Science

### INTERESTS

**Languages:** Fluent in English, Mandarin, Cantonese

**Interests:** Machine Learning, Logic (Mathematical Proof), Videography, Volunteer Work, Board Games