Larkin Liu

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Contact Information

Larkin Liu
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https://larkz.github.io

Languages

English (Native), Chinese (Native), German (Goethe Zertifikat B1)

Citizenship

Canadian

Research Interests

Stochastic Decision Processes, Reinforcement Learning, Software Design, Business Analytics, Causal Inference, Deep Learning

Technical Skills

Programming Languages (Advanced Proficiency):	Python, Scala, Kotlin, C, R
Programming Languages (Intermediate Proficiency):	C++, Objective C, Java, Shell, Assembly
Distributed Computing Frameworks:	Apache Spark, Hadoop
Operating Systems:	Windows, Linux, MacOS

Education

University of Toronto — Toronto, Ontario, Canada
Master's of Applied Science, Industrial Engineering — 2015 - 2017
Focus in Operations Research

- Thesis: Comparative Study between Statistical Fraud Detection Methods on eCommerce
- Advisor: Prof. Dr. Viliam Makis
- Committee: Viliam Makis, Chi-Guhn Lee, Vahid Sarhangian

University of Toronto — Toronto, Ontario, Canada
Bachelors of Applied Science, with Honours, Mechanical Engineering — 2010 - 2015
Minor in Robotics and Mechatronics
Extra Credits in Physics & Computer Science

Journal Publications

[1] L. Liu, J. Luo. *mctreesearch4j*: A Monte Carlo Tree Search Implementation for the JVM. *Journal of Open Source Software* [In Review]. 2021

Conference Proceedings

[2] L. Liu, R. Downe, and J. Reid. Multi-Armed Bandit Strategies for Non-Stationary Reward Distributions and Delayed Feedback Processes. *In Canadian Operational Research Society 61st Annual Conference (CORS)*. arXiv:1902.08593v1. 2019

Manuscripts

[3] L. Liu, J.T. Luo, An Extensible and Modular Design and Implementation of Monte Carlo Tree Search for the JVM. *Manuscript available*. doi: 10.20944/preprints202107.0622.v1. 2021

[4] L. Liu. Algorithm for Two-Phase Facility Planning via Balanced Clustering and Integer Programming. *Manuscript available*. arXiv:1902.08593v1. 2020

[5] L. Liu, J. Reid, Y.C. Lin. Improving the Performance of the LSTM and HMM Model via Hybridization. *Manuscript available*. arXiv:1907.04670. 2019

Invited Talks

[6] Deploying Deep Learning Models at Scale on GPU-enabled Clusters. *Invited at Speaker Databricks-Zalando Community Event*. Online Event. 2021

[7] Recurrent Neural Networks for Quasi AB Testing. *Invited Speaker at Data Science Days Zalando*. Online Event. 2021.

[8] Multi-Armed Bandit Strategies for Non-Stationary Reward Distributions and Delayed Feedback Processes. *Invited Speaker at AISC*. Toronto ON Canada. 2019.

[9] Application of Machine Learning in Advertising Technology at StackAdapt. *Guest Lecturer at the University of Toronto School of Continuing Studies*. Toronto ON Canada. 2018.

[10] How Data Science is Revolutionizing Digital Advertising *Invited interview at StackAdapt*. Toronto ON Canada. 2017.

[11] What is Artificial Intelligence? *Invited Guest on Interview with Najeeb Khan*. Toronto ON Canada. 2017.

Technical Reports

[12] Early Gearbox Fault Detection via Auto-Regressive Models in the Time Domain constructed from Vibrational Data. Summer Research Fellowship Program. University of Toronto. 2012

[13] Automated Measurement of Contact Angles for Sessile Droplets using MATLAB Image analysis Library. Summer Research Assistant. University of Toronto 2011

Articles

[14] L. Liu. Data Science Do's and Don'ts. *Online Article*. Available on LinkedIn. 2016

Teaching Experience

Mentor, *SharpestMinds* **January 2019 - September 2020**
Toronto, ON, Canada

- Prepared tutorials and lessons in mathematics, statistics, computer science and machine learning for mentees who wish to work in the industry based out of Canada and the USA.
- **Past Mentees**:
  - P. Damiba, Data Scientist — US Citizenship and Immigration Services (2020)
  - G. Swarg, Data Engineer — Canada Foodbank (2020)
  - S. Badavanahalli, Software Developer — CNET (2019)

Teaching Assistant - MIE364, *University of Toronto* **Winter 2017**
Toronto, ON, Canada

- Curriculum grading for *Reliability Engineering*

Teaching Assistant - APS104, *University of Toronto* **Fall 2016**
Toronto, ON, Canada

- Laboratory and tutorial instructor for *Introduction to Computer Programming*

Grants & Awards

- Mitacs Accelerate Industry Government Joint Research Grant (2015) — C$30,000
- Wallace G Chalmers Engineering Design Award (2013) — C$860
- Faculty of Applied Science Engineering Research Fellowship (2012) — C$3000
- Cancer Care Ontario IDEA Challenge Development Grant (2012) — C$1000
- Magna Family Scholarship (2010) — C$10,000

Recognition

- Class Rank of 2/202 Students in Final Semester University of Toronto (2015)
- Sir Isaac Newton Physics Contest top 1% of all Contestants (2009)

Industry Experience

Zalando SE, *Berlin, Germany* **January, 2020 - Present**
Applied Scientist

Loblaw Companies Ltd., *Toronto, ON, Canada* **August, 2018 - January 2020**
Data Scientist

StackAdapt, *Toronto, ON, Canada* **October, 2016 - August, 2018**
Data Scientist

Paytm Labs, *Toronto, ON, Canada* **October, 2015 - June, 2016**
Visiting Scientist

RBC Capital Markets, *Toronto, ON, Canada* **June, 2014 - April, 2015**
Research Student

Advanced Micro Devices Inc., *Toronto, ON, Canada* **May, 2013 - May, 2014**
Reliability Engineering Intern

Public Service

- *Session Chair for Business Analytics Section*, CORS Annual Conference 2019

Membership

- *Member*, German-Chinese Association of Artificial Intelligence (GCAAI) 2020-
- *Member*, Artificial Intelligence Socratic Circles (AISC) 2018-
- *Member*, Canadian Operational Research Society (CORS) 2015-
- *President*, University of Toronto Data Science Group (UTDSG) 2015-2017
- *Member*, University of Toronto Operational Research Group (UTORG) 2015-2017
- *Member*, University of Toronto Robotics Association (UTRA) 2012-2017