ALEXANDER EL-HAJJ

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Experience

Jan 2021–Present

Statistics Canada, *Analyst, Ottawa, ON*

Identified and recommended new strategies to improve the efficiency of certain projects, such as the use of the IBM-WATSON NLP-CLASSIFIER to classify ICD-10 codes

Lead discussions with stakeholders and assume a managerial role when management is away

Solve complex issues relating to duplicate respondents in a survey sample using SAS macros

Writing a blog for the Data Science Network for the Federal Public Service (DSNFPS) on the Elastic Stack and its applications within the Data Science Division

Lead author of a Statistics Canada Daily article to be published with a research paper on food insecurity written in 2020

Jan 2020–Jan 2021

Statistics Canada, *Data Scientist, Ottawa, ON*

Health Canada Collaboration: Integrated API calls from various Natural Health Product databases to a centralized pipeline

- Implemented a Quality Assurance verification task that determined whether the product claims complied with Health Canada regulations

Public Health Agency of Canada Collaboration: Assisted in the designing and development of the simulation environment as well as the novel Reinforcement Learning (RL)-based modelling approach for learning and analyzing pandemic mitigation strategies (COVID-19)

Co-lead writer in the publication of a book chapter on the novel Reinforcement Learning (RL)-based modelling approach (above)

Developed a fully-integrated dashboard using the Elastic Stack

Designated Elastic Stack expert within the Data Science Division at Statistics Canada

Jan 2019–Jan 2020

Statistics Canada, *Recruit Analyst, Ottawa, ON*

Learned complex STATA code and conducted a code translation (from STATA to SAS) for the intergenerational family file scripts (over 3000 lines of STATA code)

Lead research analyst for two publications on food insecurity: 1) a validation report; and 2) a research paper exploring the association between food insecurity and stressful life events

Developed a machine learning (ML) text classification model that classified NAICS codes using the Support Vector Machines (SVM) algorithm (**85% accuracy**)

Sept 2018–Jan 2019

Statistics Canada, *Analyst, Ottawa, ON*

Created automated programs (e.g., anomaly detector) to increase survey process efficiency

Used text mining to collect vital information from interviewer notes and remarks

Developed programs to solve daily problems and verify survey data accuracy

Jun 2018–Aug 2018

Statistics Canada, *Survey Development and Dissemination Analyst, Ottawa, ON*

Implemented an interactive dashboard to assist in the visualization of the over 900 variables

Conducted custom data tabulations and analysis for clients requesting cost recovery

Jul 2016–Aug 2017

Department of National Defence, *Records Management Clerk, Ottawa, ON*

Created, updated and modified Excel spreadsheets while analyzing for errors

Maintained files precisely and professionally

Academic Credentials

2013–2018	**Bachelor of Economics Hons,** *Carleton University, Ottawa*
	Minor: Statistics
	Dean's Honour List 2017-2018
	Graduation Date: August 2018
	Honours Paper: "The Impact of Substance Abuse in Tennessee: The Relationship between Low Birth Weight and Substance Use During Pregnancy"
2012–2013	**Bachelor of Computer Science,** *Carleton University, Ottawa*

Selected publications
ACCEPTED

March 10, 2021	El-Hajj, A., Benhin, E. (2021). The association between stressful life events and food insecurity. *Longitudinal and International Study of Adults Research Paper Series.* https://www150.statcan.gc.ca/n1/en/catalogue/89-648-X2021001
November 2, 2020	El-Hajj, A., Benhin, E. (2020). Validation of the Food Security Module in the 2018 Longitudinal and International Study of Adults. *Longitudinal and International Study of Adults Research Paper Series.* https://www150.statcan.gc.ca/n1/pub/89-648-x/89-648-x2020004-eng.htm

Book Chapters
PRE-RELEASE

Release Date: November 2021	Denis, N., El-Hajj, A., Drummond, B., Abiza, Y., & Gopaluni, K. (2021). Learning COVID-19 Mitigation Strategies using Reinforcement Learning. In *Mathematics of Public Health: Proceedings of the Seminar on the Mathematical Modelling of COVID-19* (Volume 85 of Fields Institute Communications). Cham: Springer International Publishing. (preliminary citation)

Research Interests

Deep learning, reinforcement learning, natural language processing, steganalysis, cryptography, food insecurity, and education and quality of life

Technical Skill

Coursework (academic)	Statistics, operations research, experimental design, data mining and machine learning, research methods in economics, econometrics, measurement economics, and sampling methodology
Coursework (personal)	Probabilistic Graphical Models 1 (Coursera, 2021), Sequence Models (Coursera, 2020), Machine Learning A-Z (Udemy, 2019), Deep Learning A-Z (Udemy, 2018), and Neural Networks for Machine Learning From Scratch (Udemy, 2018)

Computing

Proficient	Python, R, Julia, Elastic Stack (Elasticsearch, Logstash, Kibana), SAS, STATA, SQL, bash, painless, Vega, Vega-Lite, Git, Docker, Amazon Web Services, Microsoft Azure
	Packages: pandas, numpy, matplotlib, sqlite3, seaborn, plotly, scikit-learn, requests, beautifulsoup, xgboost, elasticsearch, urllib3
Basic	Power BI, SPSS, VBA, Matlab, Octave, Java, jq, GGobi
	Packages: pytorch, tensorflow, keras, scrapy, scipy, lightgbm

Leadership Positions

May 2021–Present	**Organizer, Internal Reading Group,** *Statistics Canada, Ottawa*
	Assist with deciding on a research paper to deliberate while also leading discussions on the corresponding research paper
Jan 2020–Present	**Steering Committee Member, Machine Learning Community of Practice,** *Statistics Canada, Ottawa*
	Organize and facilitate events such as presentations or video tutorials on a wide-range of machine learning topics
Sept 2018–April 2020	**Founder and Lead Organizer, Kaggle Competitive Group,** *Statistics Canada, Ottawa*
	Lead a team of colleagues to compete in upcoming Kaggle.com data science competitions
July 2018	**Captain, Imputation Hackathon,** *Statistics Canada, Ottawa*
	Tasked to design and create a more precise and efficient method for imputing T2 tax data
	Facilitated and organized a team of 8 colleagues to complete a final product in three days
2015–2017	**Vice President, Help Everyone Live Prosperously**, *Carleton University, Ottawa*
	Organized philanthropy and fundraising events while coordinating an organization of 10 members

Volunteer Experience

2015–2018	Statistics Tutor, Salvation Army, Carleton Foot Patrol, and Relay for Life
2012–2015	Wax Off for Cancer, Ottawa Food Bank, Canadian Foundation for AIDS Research, Scotiabank AIDS Walk, Bi-annual Mooney's Bay Cleanup, and Carleton Disability Awareness Center

Other

April 2020-Present	**Member,** Public Health Agency of Canada (PHAC) External Modelling Experts Group (COVID-19)
Sept 2018–Present	**Member,** R/Python Users & Machine Learning Community of Practice, *Statistics Canada, Ottawa*
2016–Present	**Security Clearance:** Government of Canada Reliability Status