TANYA TANG

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BACKGROUND

Hi! I'm an optimization consultant, software developer, data storyteller, and engineer who is looking for a new opportunity to grow my skills and make an impact. Take a look through this resume, or, if you prefer something much more dynamic and exciting, visit my website at **tanyat.ca**!

SKILLS

Languages	Python, Java, C#, JavaScript/TypeScript, C++, MATLAB, Scala
Machine Learning	scikit-learn, keras, Spark ML
Optimization Tools	CPLEX, Gurobi, OR-Tools, FICO XPRESS
Development	React, NodeJS, Angular, .NET, SignalR, Flask, Maven
Miscellaneous	SQL, Git/GitHub, jupyter, seaborn/matplotlib, Unix/Linux

EDUCATION

University of Toronto, Toronto, ON *September 2018 - July 2020*
Master of Applied Science
Supervisor: J. Christopher Beck
Relevant Courses: Stochastic Simulation, Integer Programming, Scalable Machine Learning

University of Waterloo, Waterloo, ON *September 2013 - April 2018*
Bachelor of Applied Science, Option in Management Sciences

WORK EXPERIENCE

Visual8 *August 2020 - Present*
Consultant - Algorithms/Optimization

- Developed and implemented a custom web application for a Fortune 500 pharmaceutical company with an optimization engine to streamline their drug shipping network across the United States
- Manipulated and analyzed datasets (over 10 million rows) to quantify algorithm efficacy and successfully presented results to the client
- Implemented quality control measures to improve the team's usage of version control software
- Worked on improving other algorithms, integer programming models, and simulation models for a wide range of international clients

RELEVANT PROJECTS

50 in '07: Predictive Analytics for the Maple Leafs

- **Technical Skills**: Machine learning, data visualization, software development, AWS deployment
- Collected, cleaned, and transformed data obtained using the NHL public API

- Implemented binary classification machine learning models to predict if a particular shot will be a goal
- Implemented regression machine learning models to predict the number of goals a particular player will score in a game
- Developed a front-end dashboard to showcase Tableau data visualizations and demonstrate the machine learning models

OrderUp!: Live Ordering System

- **Technical Skills**: Full stack software development, REST API design, communication protocols
- Developed a live ordering system using WebSocket protocol for two-way communication
- Installed as a pilot project in a manufacturing facility in Ontario, Canada to facilitate plant floor workers ordering parts from the warehouse

Facial Emotion Detection

- **Technical Skills**: Computer vision, transfer learning, deep learning
- Implemented a real-time facial emotion detection application using OpenCV and Keras
- VGG16 network with all but the top two layers frozen was used as the convolution base
- This work is summarized in the Medium article: *Dynamic Emotion Detection Using Transfer Learning*

MASc Project: Packing and Scheduling in Composites Manufacturing

- **Areas of Research**: Mathematical programming, clustering, algorithm design, statistical analysis, object-oriented design
- This project was sponsored by Visual8 and was motivated by the real-world problem of packing/clustering batches and the subsequent scheduling of those batches within a composites manufacturing plant
- Used combinatorial optimization techniques to decompose then solve this highly complex and multi-layered problem
- Part of this work was presented at the CPAIOR 2020 conference

PUBLICATIONS

Published: Tang, Tanya & Beck, J. Christopher. (2020). CP and Hybrid Models for Two-Stage Batching and Scheduling. *Proceedings of the 17th International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research*, 431-446.

Under Review: Tang, Tanya & Beck, J. Christopher. (2021). Batching and Scheduling for Composites Manufacturing. *Journal of Intelligent Manufacturing.* Under review.

HONOURS AND AWARDS

NSERC CGS-Masters Award	*2019 - 2020*
Graduation Dean's List (Top 10% of Class)	*June 2018*
First in Class Rankings Award	*May 2017*
NSERC Undergraduate Research Award	*May 2015 - August 2015*