# Theodor M. Perivolaris

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Re: Junior Machine Learning Scientist at Architech.                    Application URL: www.theodor.io/architech

Dear Ms. Cudmore,

I am a Biomedical Engineering graduate who can offer years of exceptional data analysis and reporting skills and the drive to learn that will help a company like Architech continue growing. I am excited about the opportunity to join the Architech team, especially after witnessing the delightful Face of Toronto exhibit at this years Nuit Blanche.

My Capstone Design Project in university involved training a neural network to classify skin conditions (N=6) based on user provided photos. I was responsible for curating training images, synthesizing new data from the existing images and finding optimal hyper-parameter settings for the neural network. Overall my contributions to the neural network increased test set accuracy by 30%.

In addition, I was the project manager of our group, responsible for ensuring milestones were complete on time or early, providing weekly progress reports to our supervisor, and most importantly, creating a collaborative and organized team by ensuring decisions were group based, and having short, frequent meetings.

I would like to provide you with a brief overview of how my skills will match the needs of the position. This is not meant to be all inclusive, but rather a quick overview - for a complete overview of my qualifications please visit ***theodor.io/architech/***

| Posted Qualifications | My Qualifications |
|---|---|
| *Fluent in the Python Data Analytics stack (Pandas, Numpy, Scipy, Sklearn, Matplotlib etc)* | Python is my language of choice for working with data. Pandas makes reading, wrangling and working with data very straightforward. I have taken courses that focus on using Numpy/Scipy/Sklearn/Matplotlib to analyze data, and have applied what I learned to analyze MNIST data, NYC 311 data, and Titanic survivor data. |
| *Knowledge of data visualization techniques.* | Frequently I enjoy visualizing data in a way to convey information in an appealing manner and have knowledge of good design practices. I mainly use ggplot2 (in R), Bokeh, Matplotlib, or ggplot (in Python), and CartoDB or Plot.ly APIs for online visualizations. |
| *Relevant experience in one of the following areas is a plus: Hadoop and/or Spark, R, deep learning, text mining and NLP, health-care analytics, financial data modelling.* | Although I have not had the need to employ a Hadoop/Spark cluster, I have knowledge of both and an understanding of the MapReduce model. Using Python's NLTK package I have mined text data from the Enron email corpus, and Reddit content using a Google BigQuery database. My degree is in biomedical engineering, and I feel that data analytics is a great benefit to the healthcare industry. I have an hobby-interest in financial data and have written a scripts in the past to procure financial data. |

I am confident that my abilities will complement this position well and that I will be a great addition to the team at Architech. Thank you for your consideration. I very much look forward to the opportunity to speak with you in person about my interest in this position.

Sincerely,

Theodor M. Perivolaris

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## Relevant Experience

**Research Student**                                         *May. 2015 - Present*
*University of Toronto*

- Responsible for designing an algorithm capable of classifying sleep stages based on surface EEG signals
- Research current literature for existing methods of sleep stage classification
- Research best practices for data acquisition, and testing of algorithms on lab acquired signals

**Project Manager - Capstone Design Project**              *Oct. 2013 - Apr. 2014*
*Ryerson University*

- Developed and tested an iOS App., which allowed a user to capture, crop, and rotate a photo of an unknown skin condition and then classify the skin condition
- Configured neural network for classification of skin conditions ($N = 6$), and made a 30% increase of test set accuracy by writing a script to optimize hyper-parameter settings
- Curated dataset of training images, synthesized new data from existing dataset which increased neural network accuracy
- Attended regular meetings with supervising professor where we demonstrated our milestone achievements, and generated weekly progress reports.

**Technical Skills**

- MATLAB
  Simulink, Image Processing, Signal Processing, Parallel Computing, Neural Networks
- Python
  Pandas, Numpy, Scipy, Sklearn, Matplotlib, ggplot, Requests, BeautifulSoup
- R
  ggplot2, stringr, sqldf, randomForest

**Other Selected Projects (Academic and Personal)**

- "Exploratory analysis of Enron e-mail corpus using machine learning algorithms in Python including natural language processing"
- "Design, fabrication and testing of 3 lead monitoring electrocardiogram (ECG)"
- "EEG signal analysis for the detection of seizures using MATLAB"
- Conducted field study and analysis on the use of rapid serial visual presentation to increase the rate of reading

## Volunteer Experience

**Ryerson Engineering Student Society**                     *Jan. 2012 - Oct. 2012*
*Orientation Week Chair*

- Organized and supervised Orientation events for over 1,000 Engineering students.
- Secured and managed the $18,000+ budget, a 55% increase from the previous year, by presenting the need for an increase to the Dean of Engineering.
- Managed a team of 3 vice-chairs, 10+ organizing volunteers, and 90+ student leaders.
- Prepared feasibility and risk management analysis for the 15 orientation events

**FIRST Robotics Competition - Team 907**                   *Sept. 2010 - Dec. 2012*
*Mentor*

- Advised Team 907 through strategy synthesis and design process.
- Developed and maintained relationships with student team members and mentors.

## Education

**B.Eng**
*Ryerson University*
Biomedical Engineering

**Key Courses**

- Design of BioMEMS
- Radiation Therapy Devices
- Biomedical Image Analysis
- Biomedical Instrumentation
- Human-Computer Interfaces
- Biomedical Signal Analysis
- Anatomy/Physiology

**Other Skills**

- Microsoft Office Suite
- Apple iWork Suite
- Adobe Creative Suite
- Git