Matthew **Peyrard**

Software Engineer

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Skills

Programming	C, C++/C++14, C#, CUDA, Java, LaTeX, MatLab, Python.
Machine Learning & Data Science	NumPy, Pandas, scikit-learn
Natural Language Processing	Apache OpenNLP, NLTK and Stanford CoreNLP.
Database & Search	Cassandra, MSSQL, Solr/Lucene.
Distributed Systems	Apache Mesos, Apache Storm, and Datastax Enterprise.
Web	ASP.NET, JAX-RS.
Graphical	WPF, wxWidgets.
GIS	ESRI ArcGIS and ArcObjects.
Leadership	Experience as Team Lead and Scrum Master.

Experience

JSI Telecom

Ottawa, Canada

Software Engineer — *March 2015 - Present*

- At JSI Telecom I work on big data analysis problems. The work involves a Secret clearance, and as such specific details will not be available.
- Designed and implemented several advanced distrubuted search, filtering and sorting algorithms using Apache Lucene/Solr and Cassandra. These algorithms are capable of effeciently performing operations on billions of data records across hundreds of nodes.
- Applied machine learning techniques to solve classification problems involving big data.
- Used natural language processing techniques to solve linguistic classification problems involving big data.
- Used Apache Storm to handle distribution and scaling of large scale streams of data to be processed.
- Worked on many advanced graphical features using WPF for a client application.

Nanometrics

Ottawa, Canada

Software Engineer — *July 2014 - March 2015*

- Performed theoretical work to analyze the complexity of the various data acquisition patterns encountered by the time-series database built and maintained by the company. Used the results to design algorithms that optimize the way in which data is consumed when the system is under heavy load.
- Designed a new threading and synchronization model for the database to increase its scalability.
- Designed several front-end and back-end features for the product *Apollo Server*, a seismic data acquisition and retrieval system. These features involved monitoring and controlling seismic monitoring instruments (sensors and digitizers).

Thales Canada

Ottawa, Canada

Software Engineer — *January 2012 - July 2014*

- Worked as a software developer on *SOTS Platform*. This software allows military personal to automate the configuration of the communications equipment in military land vehicles. It also allows them to monitor and validate the configurations and operational status of said equipment.
- Worked as a software developer on *Tactical Battle Management System*. This software automates the live communication of tactical battle information amongst military land vehicles.
- Worked as a software developer and team lead on *SOTS Site*. This software supplies military personnel with the ability to configure communications frequencies and networks across groups of military land vehicles.

Electronic Arts

Vancouver, Canada

Software Engineer (Contractor) — *February 2011 - August 2011*

- Worked as a software engineer on the *Fifa 12* title for the Online team. Primary responsibilities were to help the team develop two new game modes called *Online Friendlies* and *Online Seasons*.
- Designed and implemented client and server components to drive the new online game modes.
- Server components worth noting include: Stat harvesters, leader boards, ladder rank tracking/updating, and achievements for the new *EA Sports Football Club* feature.
- Client components worth noting include: Seasonal stat analysis algorithms, which are based on the player's ladder performance in the new game modes, and used to trigger hundreds of audio and presentation cues during gameplay.

Canadian Ice Services (Environment Canada)

Ottawa, Canada

Software Engineer (Contractor)

March 2010

- Worked as a software engineer on the *Google Earth* project. Primary responsibilities were to develop a new application that could interface with Environment Canada's geo-databases in order to extract geographical data and incorpoprate it into Google Earth documents.
- Designed and implemented as application that could extract radar satellite imagery, telemetry and local data from geographic databases and use them to construct customized Google Earth documents.
- The application could project imagery and data into arbitrary coordinate systems. It could also perform several image enhancements and image reduction techniques.
- The application also supported a customized programming framework that could be used to embed web applications inside of the Google Earth document. These custom applications could make full used of the data sets imported from the geographic database.

Electronic Arts

Vancouver, Canada

Software Engineer (Co-op Student)

May 2007 - September 2007

- Worked as a software engineer on the *NHL 09* title for the Offline Game Modes team. Primary responsibilities were to help the team create a new game mode called *Be A Pro*. The game mode allowed the user to create their own hockey player, and to simulate a career as that player. The goal was to begin on a farm team, eventually earn a spot on an NHL team, and subsequently build a successful NHL career.
- Designed and build several back-end systems that would quantitatively assess a player's performance during a game, and use it to calculate probabilities that they would be promoted/demoted between lines and AHL/NHL rosters.
- Designed and built back-end systems that would control player interactions with their coach, and general manager based on their performance. These interactions would include things like salary negotiations, line movements, roster movements, trades, captaincy, end-of-year awards, retirement, etc.

Canadian Ice Services (Environment Canada)

Ottawa, Canada

Software Engineer (Co-op Student)

May 2007 - September 2007

- Worked as a software engineer for the ENVISAT and RADARSAT-2 projects. Primary responsibilities included building applications that would interface with the radar satellite telemetry systems and process their gathered data. The satellite imagery and telemetry needed to be enhanced and converted into specific coordinate systems and file formats in an automated fashion. The output of these applications would then be made available to professional ice-weather forecasters. These forecasts are vital to ensure safe passage of ships navigating in Canadian waters where iceburgs are present.
- Designed and implemented software to import and process satellite imagery/telemetry from the ENVISAT and RADARSAT-2 satellites.
- Implemented various algorithms to enhance radar satellite imagery and convert them between image file formats.

Education

Carleton University

Ottawa, Canada

Bachelor of Computer Science

- Graduated with Highest Honours
- Co-operative Education
- Thesis: "Massively Parallel Path Finding on the TESLA architecture."
- Advisor: Prof. Frank Dehne
- GPA: 11.54/12

Online Courses

- Data Science: Machine Learning. Taught by Andrew Ng via Coursera.
- Machine Learning Nanodegree. Offered by Udacity.

Honors & Awards

Academic

2010 **Senate Medal**, Outstanding Academic Achievement — *Carleton University*

2005-2009 **Dean's List Scholarship**, Outstanding Academic Achievement — *Carleton Univeristy*