Jose Cambronero

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(As of 08/26/2015) I am a final year student in the Masters in Computer Science program at NYU, with interests in programming language theory, compiler construction, and natural language processing. I'm particularly interested in leveraging the first two areas to create systems that improve the ability to do work in analytics in general. I have work experience both in the academic and industry settings.

Education

Academic Qualifications

○ **New York University: Courant Institute of Mathematical Sciences**   **NY, NY**
Masters in Computer Science   *Expected May 2016*
GPA: 3.8, MS Research/Thesis Fellowship Award Fall 2015, funding continued work on A2Q (an order-aware optimizing query compiler for Aquery)

○ **University of Pennsylvania**   **Philadelphia, PA**
Bachelor of Arts in Economics and Minor in German Studies   *2007–2011*
GPA: 3.93, Phi Beta Kappa, Summa Cum Laude, Dean's List (08, 09, 10)

Academic Work Experience

○ **Grader**   **New York University**
Graduate Course in Compiler Construction   *Spring 2015, Current (Fall 2015)*

I review all students' assignments and capstone compiler projects. In doing so, I provide explanations for any misunderstood concepts or areas of improvement. This involves analyzing their source code, test results, and any additional materials. Additionally, I host weekly office hours to answer any questions relating to the lectures or assignments.

○ **Teaching Assistant**   **New York University**
Graduate Course in Programming Languages   *Fall 2014*

I led weekly recitation for students in the Masters in Computer Science and Masters in Information Systems. This involved creating weekly presentations that reviewed key concepts, and providing real-world examples and exercises. I also held weekly office hours to aid students with any questions, in addition to communication via email.

Industry Work Experience

Full time

○ **Non-Agency Mortgages and US Housing**   **Morgan Stanley**
Securitized Credit Research Associate, New York   *July 2013 – July 2014*

- Built team's tools to perform analysis on large scale databases (>130 million observations of nested historical data and hundreds of features) using functional programming language q
- Developed strong relationships with modeling and quantitative analysis teams, working as a liaison between the more technical- and more business-oriented members on all three teams.
- Performed exploratory statistical analysis on new mortgage and housing market features to demonstrate their potential use in models via small-scale prototypes
- Leveraged programming skills to learn new languages (q/R) to improve the team's efficiency and

reproducibility of results

- Active poster on the internal Morgan Stanley q programming mailing list, frequently responding to questions posted by junior and senior modeling/technology/quantitative analysis colleagues, addressing functional programming features, optimizing expressions and clarifying language constructs

○ **Non-Agency Mortgages and US Housing**   **Morgan Stanley**
Securitized Credit Research Analyst, New York   *July 2011 – July 2013*

Internships ....

○ **Data Science**   **Cloudera**
Intern, San Francisco   *June 2015 – August 2015*

- Contributed Scala implementations of various statistical tests to Spark's MLlib Namely: a 1-sample Kolmogorov Smirnov (KS) test (merged), 2-sample KS test (final stages of review), 1-sample Anderson-Darling test (final stages of review)
- Contributed to Cloudera's open source project spark-timeseries using Scala. Added functionality such as EWMA smoothing, ARIMA models, up/downsampling, PACF/ACF plotting, serial correlation testing, heteroskedasticity testing
- Wrote blog entries communicating technical aspects of implementations and providing underlying intuition

○ **Fixed Income Generalist Sales and Fixed Income Credit Strategy**   **Morgan Stanley**
Richard B. Fisher Scholar, New York   *Summer 2010*

○ **Investment Banking and Alternative Investments**   **Morgan Stanley**
Douglas Paul Scholar, New York   *Summer 2009*

Notable Projects

○ **A2Q: an optimizing compiler from Aquery to q** For my independent study and Masters thesis I am working on developing a compiler for the order-aware query language Aquery. The compiler is implemented in C and generates q code, performing various optimizations in expressions by finding opportunities in the abstract syntax tree produced. See the github repo for more info and code.

○ **POS Tagging in German** As my final project in an NLP class, I implemented and compared various approaches to tagging the TIGER corpus in German with Parts-of-Speech. Models compared ranged from the simpler bi-gram Markov Model to Maximum Entropy Markov Models. Project was implemented using a combination of Python and Java. See the github repo for more info and code.

Technical skills

○ **Programming Languages:** Proficient in: C, q, R. Productive in Scala.

○ **Natural Languages:** Native fluency in English and Spanish. Working proficiency in German (verbal and written skills).

Interests and extra-curricular activity

○ I'm very interested in exploring realms that I know little about, which ends up making book series like **A Very Short Introduction** some of my favorite reads. In general, I love learning and have taken advantage of free online courses to explore topics such as machine learning, NLP, data analysis and Scala.

○ I also enjoy keeping a blog that lets me write explanations for things I have learned or show simple solutions to interesting problems. You can take a look at symfun.wordpress.com. The blog is "language-agnostic" (i.e. I pick whatever language is interesting or I feel like practicing), but you will find snippets of: C, q, Standard ML, Scala, and Java.