FRANCISCO GUTIERREZ

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SUMMARY

Profile: Experienced software developer and data scientist with strong math background. Knowledge and interest in machine learning and statistics.

Languages: Python, Ruby, Coffeescript, R, Octave/Matlab, SQL, Julia, Javascript, Java, C, C++, LISP, Scheme.

Technologies: Ruby on Rails, ipython notebooks, Flask, Node, Meteor, Mongo, MySQL, PostgressDB, Hadoop, Hive, Pig, Git, agile methodology, RSpec/BDD, Functional and Object Oriented programming.

Specialties: Data science, back end, full stack, machine learning, statistics, pattern recognition, artificial intelligence, algorithms, mathematical and scientific software, genetic algorithms, neural networks.

EXPERIENCE

Gumroad • ***Risk Engineer, Data Scientist*** • **Dec 2014 - Oct 2015**

- Developed features and machine learning models for internal risk scoring application written in Python.
- Dual role as data scientist and software engineer.
- Developed features for main Rails product.
- Technologies: Python, pandas, numpy, scikit-learn, Flask, ipython notebooks, Ruby, Ruby on Rails, Mongo, MySQL, EC2, Linux, OS X.

Liquid Labs (now Gisgster) • ***Co-founder, CTO*** • **Oct 2012 - Oct 2013**

- Developed prototypes for all our business ideas. Main developer for the ideas that we decided to pursue, including a contact management tool, a collaborative consumption date coaching app, an online expert exchange, and a hobby VC investment game.
- Worked with CEO on all business side activities including recruiting, business planning, presentations, demos, fundraising, etc.
- Technologies: Coffeescript, Node, Meteor, Mongo, Javascript, WebRTC, Nginx, Rails, Linux, OSX.

Tapjoy • ***Senior Software Engineer, Data Scientist*** • **Oct 2011 – Jul 2012**

- Wrote machine learning/statistical code in Octave and R to recommend mobile apps to users. Used Hadoop and Rails on Amazon EC2.
- Wrote A/B testing framework for Ruby on Rails app.
- Technologies: Ruby, Ruby on Rails, Git, RSpec, Octave, R, Hadoop, Hive, Pig, Linux, OS X.

Kabam • ***Lead Back End Engineer*** • **Jan 2011 – Oct 2011**

- Lead back end developer for the game Dragons of Atlantis, wrote scalable production code for a live application with ~500,000 DAU and ~4,000,000 MAU. http://apps.facebook.com/dragonsofatlantis/
- Technologies: Ruby, Ruby on Rails, MySQL, Redis, Javascript, Linux, Git, OS X.

BieMedia • ***Senior Software Engineer*** • **Jan 2010 – Jan 2011**

- Developed web and command line applications for order management, data scraping and aggregation, process management, automated link clicking, search, and automated video generation.
- Technologies: Ruby, PHP, Ruby on Rails, CakePHP, CSS, Javascript, JQuery, MySQL, Linux, OS X.

Mercurio Marketing LLC • ***Owner, President, CEO*** • **Apr 2008 – Jan 2010**

- Production of rock in Spanish concerts, and weekly nightclub events. Rock in Spanish band management. Modeling agency focusing on Spanish speaking bilingual models for promotions, and gogo dancers for night clubs.
- Ruby on Rails software development and consulting services.

Inspekt Security • ***Principal Scientist*** • **Jul 2007 – Apr 2008**

- Developed statistical pattern recognition software to detect hacking attempts in computer systems from abnormal activity patterns.
- Concepts: Statistics, information theory, and natural language processing.
- Technologies: Ruby, R, Ruby on Rails, Java, and MySQL in Linux and OS X.

Collective Intellect • ***Co-founder, Director of Research*** • **Apr 2005 – Sep 2006**

- Developed pattern recognition software to automatically score sentiment from message board posts and blogs, and a sentiment index from the stream of sentiment scores.
- Developed financial software to extract implied volatility from historical option chain prices, and statistical software to find correlations between sentiment index and financial metrics.
- Developed link analysis software to discover opinion leaders (mavens) in social media, blogs, message boards, and other implicit graphs online.
- Developed statistical language processing software to discover topic clusters in blogs.
- Wrote first draft of patent application working with patent attorney.
- Concepts: Statistics, linear algebra, latent semantic analysis, Bayesian networks, neural networks, graph theory, page rank algorithm, and quantitative finance.
- Technologies: Ruby, R, Python, Java, Rails, XML, and PostgressDB in Unix environment.

Dante Group / webMethods • ***Senior Software Engineer*** • **Sep 2002 – Apr 2005**

- Developed analysis engine for Business Activity Monitoring / Business Intelligence product at the startup company Dante Group later acquired by webMethods.
- Developed pattern recognition software to predict failures in corporate systems and processes.
- Developed real time OLAP system for analysis of historical data.
- Developed code for efficient aggregation of statistics O(1) used in all monitoring data.
- Presented and sold technology during due diligence for webMethods acquisition.
- Concepts: Neural networks, Kohonen nets, statistics, OLAP, linear algebra, decision trees.
- Technologies: Java, Python, JSP, MySQL, SQL Server, Ruby, and LISP in Unix environment.

Quark • ***Product Manager*** • **May 1999 – Sep 2000**

- Developed collaborative filtering engine in Perl for personalized recommendation engine for movies, restaurants, and targeted advertising. Managed the team that rewrote it in Java.
- Managed a 4 people team, wrote business plan, pitched product to clients.
- Technologies: Perl, Java, XML, XSLT, MySQL in Unix environment.

MicroStrategy • ***Industry Solutions Marketing Analyst*** • **Jun 1997 – May 1999**

- Participated in Associate program where recent graduates rotated through different company functions after a 6 week boot camp on Data Warehousing and Decision Support Systems.
- Worked as webmaster, product management engineer, and marketing analyst.
- Wrote marketing copy for product line, developed vertical solutions, attended trade shows.

First Quadrant LLP • ***Researcher, Data Analyst*** • **Summer 1995, Oct 1996 – Mar 1997**

- Wrote Perl scripts to analyze stock market data for financial research.
- Wrote genetic algorithms in C++ during summer research internship.

EDUCATION

Caltech • ***B.S. (1) Engineering & Applied Science, (2) Economics*** • **1992 – 1996**

- Double major with emphasis in physics, applied math, computer science, and economics.
- Coursework included classical, statistical, and quantum mechanics, electromagnetism, relativity, thermodynamics, physics research, chemistry, biology, computer science, circuit design, linear systems analysis, signal processing, vector and multivariate calculus, probability, statistics, linear and abstract algebra, differential equations, real and complex analysis, microeconomics, macroeconomics, econometrics, political science, cooperative and non-cooperative game theory, corporate finance, accounting, option pricing theory, stochastic calculus, investment analysis, and laboratory work in electrical, mechanical, computer, and software engineering.
- Research work included developing molecular dynamics simulations in C for the physics department, and genetic algorithms in C++ for internship through the economics department.
- Extracurricular activities included entrepreneurship academy, student investment fund, entrepreneur club, a business plan competition, and an internship in Tokyo.

ITESM • ***M.S. Computer Science / Intelligent Systems*** • **2001 – 2002**

- Computer science program focusing on practical applications of artificial intelligence, machine learning, robotics, and automation in general.
- Coursework included Bayesian networks, neural networks, genetic algorithms, simulated annealing, search and heuristics, logical inference systems, fuzzy logic, autonomous agents, decision trees, multi agent systems, robotics, knowledge engineering, expert systems, rule based systems, learning classifier systems, data mining, algorithm analysis, and statistics.
- Developed class projects in LISP, Java, and Python.
- Published research paper: "Biometrics and Data Mining: Comparison of Data Mining-Based Keystroke Dynamics Methods for Identity Verification", Publisher: Springer-Verlag Heidelberg, ISSN: 0302-9743, Volume 2313 / 2002, Book Title: MICAI 2002: Advances in Artificial Intelligence : Second Mexican International Conference on Artificial Intelligence Merida, Yucatan, Mexico, April 22-26, 2002. Proceedings

CU Denver • ***M.S. Applied Math*** • **2004 – 2010**

- Took classes for the MS program on computational biology and statistics. Coursework included Bayesian statistics, graph theory, linear algebra, stochastic processes, information theory, computational biology, and biology.
- Developed class projects in R, Python, Ruby, Octave, and Matlab.