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PROFESSIONAL EXPERIENCE

05/2010–Present – Microsoft - Bellevue/Washington & Fort Lauderdale/Florida

12/2016-Present – Principal Applied Scientist – Bing – Microsoft AI & Research - Relevance

- Convolutional Neural Network for ad detection on website screenshots.
- Bi-directional LSTM recurrent network for sentiment analysis for offensive classification of text passages.
- Website affinity on query model using Glove word embeddings and cosine similarity aggregated across website's documents.

04/2015-11/2016 – Senior Applied Scientist – Bing – Microsoft AI & Research - Relevance

- Implementation of Boosted Regression Decision Trees models for Content Quality detection.
- Design and development of universal adult document classifier. Cross-language n-gram language model design and multi-stream aggregation of adult signals.

06/2013-03/2015 – Senior Development Lead – Bing – Adult Filtering Team

- Lead overall adult filtering and experience strategy for Bing En-US and drove collaboration with global teams on adult leakage reduction.
- Implementation of adult filtering data mining models for Adult Leakage under En-US market.
- Creation of crowdsourcing application for adult leakage measurement.

06/2012-06/2013– SDE II – Bing – Indexgen – Spam/Junk/Adult Index Quality

- Implementation of Spam/Junk judgment platform integrated with crowd-sourcing using IE 9 C# toolbar.
- Statistical analysis of variance on Spam/Junk judgments on scraped results across crowd-sourcing judges. Bias and variance decomposition of judgment error.

08/2010-06/2012 – SDE II – Bing – Indexgen – Document Conversion

- Evaluation of multiple document conversion third party libraries as well as developed file type detection system based on Magic Words.
- Implementation of PDF title detection machine learning algorithm using boosted regression decision trees and random forest.
- Implementation of end-to-end document conversion pipeline verification system with Win/Loss analysis.

05/2010-08/2010 – SDET – Bing – IndexGen - Document Understanding

- Designed and developed automatic testing in production infrastructure and deployment pipeline for the Wrapstar project.

- Encoding detection mechanism testing for Bing. Developed side by side judging tool to compare previous and new detection mechanisms.
- Site specific and forum packages feature extraction P/R measurements, regression, and performance testing.
- OpenGraph feature extraction P/R measurements, regression, and performance testing.
- Developed BI dashboard for feature coverage tracking over web index as well as index size tracking.
- Structured data extraction from 1D and 2D tables testing as well as development of prototype Fact Answer for Bing with synonym analysis and n-gram matching over query string.
- Worked with massive distributed parallel computer system for index analysis and query analysis.

07/2009–05/2010 – Tropics Software Technologies - Sarasota/Florida

Business Intelligence Architect and C# Software Engineer

- Architect of workers' compensation enterprise data warehouse using SSAS.
- Implementation of insurance rating engine using ACORD XML specifications.
- Implementation of light imaging system using GDPicture libraries using TWAIN interface. WPF frontend using Telerik libraries.

04/2009–07/2009 – Unisource Program Administrators - Sarasota/Florida

Director of Business Intelligence

- Architect of Agency Portal using ADO.Net Data Services and the Entity Framework.
- Creation of probability distribution and cumulative density function for insured renewal projections.
- Implementation of Monte Carlo simulation for insured renewal rate projections.

05/2008–04/2009 – Claimetrics - Sarasota/Florida

Business Intelligence Lead

- ETL design and development of Unisource's databases into Claimetrics' data management systems.
- Creation of predictive time series for Property and Casualty industry using ARIMA and ARTXP models.
- Data mining using decision trees and neural networks in analysis services 2008 for Property and Casualty industry.

02/2003–04/2008 - Unisource Administrators Inc. - Sarasota/Florida

06/2007-04/2008 - I.T. Associate Supervisor

- Responsible for coordinating a team of five software developers.
- Project Manager for Insurprompt 2.0. A multi-tier Web 2.0 application implemented on ASP.net, integrated with YUI 3.0 (Yahoo User Interface Library) and AJAX with a SQL server backend.
- Setup and customization of MS CRM 3.0 and CRM Mobile module for Agency Management.

01/2006-05/2007 - Lead Software Developer

- Architect of the TPA Fees Billing Application. A multi-tier application to invoice Unisource's clients based on TPA services. Architect and main developer of a multi-threaded application to generate

over 700 reports for month end reporting and perform automatic integrity verification and distribution of the reports.

02/2005-12/2005 - Software Developer II

- Involved on several projects including the conversion of Unisource's claims management system from VB 6.0 to a multi-tier VB.Net application.

02/2003-01/2005 - Business Data Specialist II

- Developed Unisource's core month end process including database schema, data gather stored procedures, data integrity verification processes. Implementation of TPAIR and MCG extracts for data interchange with Unisource's clients.

02/2002–01/2003 - Webideas4all L.L.C. - Sarasota/Florida

Web Developer and Database Administrator

- Involved on several web development projects including web portals, e-commerce websites, and web administration systems developed on PHP 4.0 and ASP.net with a MySQL backend.
- MySQL Database Administrator on Linux servers.

09/2000–01/2002 - Calipso Comunicaciones S.A. - Cali/Colombia

Web Developer

- Involved on several web development projects including web portals and e-commerce websites developed on PHP 3.0 with a PostgreSQL backend.

EDUCATION

- 2006-2008- University of South Florida - Tampa/Florida

Master of Science in Computer Science

GPA: 4.0/4.0

Research Area: machine learning, data mining, and social network analysis.

- 1996-2001 – The Valley State University - Cali/Colombia

Bachelor of Science in Computer Science

GPA: 3.8/4.0 – Honored as best undergraduate student.

- 1998 – The Valley State University - IS Center - Cali/Colombia

Linux advanced management

- 2002 - Sarasota County Technical Institute-SCTI - Sarasota/Florida

Levels I and II of Cisco Certified Network Associate (CCNA)

ORGANIZATIONS AND AWARDS

- Member of IEEE Computational Intelligence Society
- Member of the Society of Hispanic Professional Engineers
- President 1999-2001 of CENESIS – The Valley State University – Colombia
- 1st place in the 1998 The Valley State University Programming Marathon.
- Recognized as best undergraduate student in 2001 at The Valley State University.

ACADEMIC PROJECTS

- **Undergraduate Thesis - The Valley State University – 2001**

Title: X-RIB - 3D modeling tool implementing Pixar's Renderman Interface Bytestream specification using BMRT (Blue Moon Rendering Tools).

Description: X-RIB was a CAD tool implemented in C++ for both Linux and Windows environments using the QT C++ libraries from Trolltech. The software implemented Pixar's Renderman Interface Bytestream to generate a .RIB file to be rendered using the Blue Moon Rendering Tools. Among its different modules, X-RIB featured a full animation mode with geometry interpolation between frames.

Advisor: Dr. Mauricio Gaona.

- **Graduate Project – University of South Florida – 2007**

Title: Current Flows in Electrical Networks for Fuzzy Social Network Analysis (FSNA)

Description: A new fuzzy operator to merge edges in a fuzzy graph was proposed. A Fuzzy Social Network graph is created based on activity records of a social network. Analysis of interactions among actors in the network is then performed treating the network as an electrical circuit and using current flow analysis to determine the path of such interactions.

Advisor: Dr. Abraham Kandel.

- **Master's Thesis – University of South Florida – 2008**

Title: Current Flows in Electrical Networks for Error-Tolerant Graph Matching

Description: The thesis presented a novel approach to error-tolerant graph matching based on current flow analysis. Analysis of current flows in an electrical network is a technique that uses the voltages and currents obtained through nodal analysis of a graph represented as an electrical circuit. An algorithm to calculate a similarity measure between two graphs based on the current flows along geodesics of the same degree was proposed. This similarity measure can be applied over large graph datasets, making it feasible to compare datasets of significant size in a reasonable amount of time. The thesis investigated the classification potential of several data mining algorithms based on the information extracted from a graph dataset and represented as current flow vectors. The operational prototype was evaluated on the NCI-HIV dataset.

Advisor: Dr. Lawrence O. Hall.

HIGHLIGHTS OF QUALIFICATIONS

- 8 Years of experience with Machine Learning and Data Mining techniques: Neural Networks, SVMs, KNN, EM-Clustering, Decision Trees, Rule Inference Systems, Boosting, Logistic Regression, PCA.
- 1 Year of experience with Deep Learning with CNTK: CNNs, RNNs, ResNets, LSTM-based NN, Word Embeddings, Auto-encoders.
- 6 Years of experience on Cloud computing, distributed systems, Big Data analysis.
- 14 Years of experience with C#.
- 16 Years of experience with SQL server including complex. Stored Procedures, cursors, triggers, UDF, CTE, CLR-web services integration, Replication, SSIS/DTS, SSAS, query optimization, and database administration.
- 8 Years of data warehousing and dimensional modeling experience following Kimball's methodology.
- 8 Years of experience with Reporting Architectures like Reporting Services and Crystal Reports.
- 15 Years of experience in web development (ASP, ASP.Net, PHP).
- 8 Years of experience with C++. Used for academic projects.
- 3 Year of experience with WPF and Expression Blend 4.0.
- Implemented Several Projects using Web 2.0 technologies: XML, XSL, CSS, DHTML, AJAX, JS, Knockout, Web services, WCF.
- Excellent mentoring skills, team work, and customer oriented person.
- 7+ Years working on the Search Engine and AI.
- 7+ Years working on the Insurance industry.