

Nelson Correa, Ph.D.

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- Summary** Founder and CEO, Andinum Inc. Data scientist and machine learning developer. Electrical Engineer and Computer software engineer with thirty years of experience in research, software development, and corporate management. Research and development of machine learning, natural language processing, machine translation, speech technology, e-learning, database, and web applications. Inventor with three U.S. patents and over thirty technical publications.
- Education** Ph.D. Electrical Engineering, Syracuse University, Syracuse, NY, 1988.
M.A. Mathematics, Syracuse University, Syracuse, NY, 1985.
M.Sc. Electrical Engineering, Syracuse University, Syracuse, NY, 1981.
B.Sc. Electronics, Universidad Javeriana, Bogotá, Colombia, 1979.
- Deep Learning Nanodegree (CNN, RNN, GAN, reinforcement learning). Udacity, 2018
EdX/BerkeleyX: Data8.1x, Data8.2x, Data8.3x, Foundations of Data Science, 2018
Stanford University Online, Natural Language Processing; Machine Learning, 2012
Coursera/Berkeley. Software Engineering for SaaS, 2012
- Experience** ***Andinum, Inc., New York***
Founder and CEO, 2004 – present
Andinum, Inc., is an AI technology company specializing in consulting and solution development for digital business transformation and compliance. Responsible for team, strategy, and technology development.
- Bank of America, Charlotte, NC***
Contractor – Data Architect V consultant, 2019 - 2021
Design and development of AI, machine learning and natural language processing (AI/ML/NLP) applications for regulatory and other banking functions. Work with stakeholders to identify use cases and application requirements. Model and application development in Python, SciPy, SciKit-Learn, and spaCy.
- NextEra Energy, Juno Beach, Florida***
Natural Language Processing and Data Science consultant, 2018 - 2019
NLP and Data Science consultant for NextEra's Nuclear Advanced Cognitive Trending (NUACT) project. Developed entity type system and annotation guidelines for entity and relation annotation of nuclear power plant condition reports, for NLU system using IBM Watson Knowledge Studio. Developed project progress metrics, annotation

progress, regression testing, and NLU model performance. Wrote Jupyter notebooks for cognitive insight extraction and project progress tracking using IBM Watson APIs.

United States Patent & Trademark Office, Alexandria, Virginia

Patent Examiner, 2012 - 2017

Patent Examiner, Art Unit 2844, Electronic Digital Logic Circuitry; Computers and Digital Data Processing Systems; Electric Lighting and Illumination, LED Lights and Circuits, Visual Display Systems.

IBM Research, Yorktown Heights, New York

Senior Software Consultant, Machine Translation, 2002 - 2011

Responsible for continued development of the LMT English-Spanish translation system, part of IBM's WebSphere Translation Server product. Lexical information extraction and integration from Oxford University Press dictionaries. Developed Java-based email translation application and website portal for access to translation services. Substantial translation quality improvement using statistical metric BLEU. Developed named-entity translation technique and translation quality evaluation method and tools.

Advancework International, Syracuse, New York

Vice President of Engineering, 2000 - 2002

Founding partner of venture capital funded company focused on mobile e-learning solutions. Lead 17-person product development team responsible for content engineering and product content. Designer and lead developer of JSP/XSL/SQL content management system for content production and delivery. UI/UX design and testing of instructional tools on Pocket-PC mobile client application. Managed relationship with Pearson Education for production of Market Leader video-based English course.

Syracuse Language Systems (Vivendi-Universal Interactive), Syracuse, New York

Vice President for Speech Technology; 1995 - 1999

Independent software vendor that pioneered the use of speech recognition in language learning software. Company acquired in 1998. Managed 5-person speech technology team responsible for implementation of speech recognition in over 16 educational CDROM software products, and introduction of electronic dictionaries in line of company products. Design, use case requirements, instruction tools and content for Language Connect University, an elearning language instruction platform and service.

Universidad de los Andes, Bogotá, Colombia

Professor, Graduate Program Coordinator (1991 – 1993) and Chair (1993 – 1995), Department of Electrical Engineering, 1989 – 1995

Top private university in Colombia. Graduate and undergraduate teaching and research in computer architecture and microelectronics. Managed 30-person staff and 16 faculty

members. Strengthened research activities and publications in the department with funding from the Colombian Science Foundation. Led preparation and university approval for Ph.D. Program in Electrical Engineering.

IBM Thomas J. Watson Research Center, Yorktown Heights, New York

Visiting Scientist, 1991, 1992

Developed natural language interface to an online calendar application.

Used lex & yacc unix utilities for source-to-source translation of over 30,000 lines of Prolog code of the LMT machine translation system.

Postdoctoral Researcher, Computer Sciences, 1987 – 1989

Research and development in natural language processing. Developed large scale computational grammar of English.

Syracuse University, Syracuse, New York

Research Assistant, Electrical Engineering. 1985 – 1987

Instructor, Computer Architecture (ECE-661 graduate; ECE-381 undergraduate), 1984

Research Associate, Speech Laboratory. 1981 – 1983

Graduate Student, Electrical Engineering. 1980 – 1987

Graduate Instructor, Research Associate and Research Assistant in the Department of Electrical Engineering.

Programming Skills	Data science and Machine learning; NumPy, Pandas, SciKit-Learn, TensorFlow, Keras. Convolutional and recurrent neural networks (CNNs and RNNs); OpenCV; NLTK, SpaCy. Python, Java, JSP, XML/XSL, SQL; C, Perl, PHP, Prolog. HTML, CSS, JavaScript, REST, Ajax. Semantic web; RDF, RDFS; PostgreSQL, MySQL; Apache and Tomcat web and application servers; Drupal content management system; iPython, Jupyter notebooks, Visual Studio, X-Code, Eclipse IDEs.
Patents and Disclosures	<p><i>Analysis Methods, Systems, and Computer Program Products for Editing Using an Interface</i>, with S. Basson, A. Genadik and D. Kanevsky, U.S. Patent No. 8,312,379, 2012; IBM Research Disclosure No. YOR820050619, 2007.</p> <p><i>Associative Memory Processor for Natural Language Parsing and Pattern Recognition</i>, U.S. Patent No. 5,619,718, 1997.</p> <p><i>Associative Memory Processor Architecture for the Efficient Execution of Parsing Algorithms for Natural Language Parsing and Pattern Recognition</i>, U.S. Patent No. 5,511,213, 1996.</p>
Courses	<i>Deep Learning Nanodegree (CNNs, RNNs, GANs, Reinforcement Learning)</i> , Udacity, 2018.

Foundations of Data Science: Data8.1x, Data8.2x, Data8.3x,
MIT EdX / BerkeleyX, 2018.

Patent Law and Evidence, U.S. Patent and Trademark Office, 2013.

Machine Learning, Stanford University, Andrew Ng, MOOC 2012.

Natural Language Processing, Stanford University, Chris Manning, MOOC 2012.

Software Engineering for SaaS, 2012, Coursera/Berkley, Armando Fox, 2012.

English-Spanish Translation, Medical Translation, Computer Assisted Translation, The Business of Translation, Principles of Management and Organization, 2008-2010
New York University, New York.

Finance for the Technical Executive, 1996
MIT Sloan School of Management, Cambridge, MA.

VLSI Design Techniques, 1989
International Centre for Theoretical Physics, Trieste, Italy.

Awards *U.S. Permanent Residency, Outstanding Researcher award*, U.S. INS/BCIS, 1998
Colombian Awards Program for Researchers. Colombian Science Foundation, 1993.
Who's Who Among Students in American Colleges and Universities, 1985.
Tuition Scholarship, Syracuse University, 1980.
Fulbright Scholarship; Fulbright Commission, 1980.

Languages English (bilingual); Spanish (native); German (intermediate); French (beginner).

Professional Societies Institute of Electrical and Electronics Engineers (IEEE)
Association Computing Machinery (ACM)
Association for Computational Linguistics (ACL)
New York Academy of Sciences (NYAS)

Consulting, Professional & Volunteer The Warner Library, Tarrytown, New York, Member Board of Trustees, 2010 – 2012.
Literacy Volunteers of the Tarrytowns, ESL tutor, Board member, President, 2009-2012.
Technical Reviewer, IBERChip Workshop on Microelectronics, 2002-2012.
Program Committee Member, IV Iberoamerican Conference on Artificial Intelligence (IBERAMIA), 1994.
Program Committee Member, Third Conference on Mathematics of Language, 1992.

United Nations Development Program (UNDP), Consultant, 2001.
Colombian Science Foundation, Colombian Connectivity Agenda, Consultant, 2000.
Colombian Science Foundation, Strategy Consultant, 1992.
Colombian Science Foundation, Proposal and Research Awards Reviewer, 1991-1995.

IEEE Region 9, Colombia Section, Board member, 1990-1994,
Professional Activities coordinator 1990-1993. President, 1994.

Publications Over thirty conference, patent, book chapter, and scientific journal publications.

Citizenship Dual U.S. and Colombian citizen.

References Available upon request.
