Nelson Correa, Ph.D.
Recent Talks and Publications
2022

Recent talks

Natural Language Processing and AI: Neural and Symbolic Approaches, Third Data Science, Analytics, and AI Conference 2020, Florida Atlantic University, Boca Raton, FL, November 14, 2020.
• Conference program: https://www.fau.edu/data/schedule/2020/

Deep Learning Architectures for Image Classification and Object Detection, Palm Beach Data Science Meetup, West Palm Beach, FL, July 18, 2019.
• Event program: https://www.meetup.com/Palm-Beach-Data-Meetup/events/262988444/

Weather and Electric Load Forecasting with Python Data Science Tools, PyData Miami, Jan. 19, 2019.
• Conference program: https://pydata.org/miami2019/schedule/

Publications

Patents and disclosures

"Analysis Methods, Systems, and Computer Program Products for Editing Using an Interface," with S. Basson, A. Genadik and D. Kanevsky, *U.S. Patent No. 8,312,379,* November, 2012.
IBM Research Disclosure YOR820050619, 2007.

"Associative Memory Processor for Natural Language Parsing and Pattern Recognition,"
U.S. Patent 5,619,718, April, 1997.

"Associative Memory Processor Architecture for the Efficient Execution of Parsing Algorithms for Natural Language Parsing and Pattern Recognition," *U.S. Patent 5,511,213*, April, 1996.

Ph.D. Dissertation

"*Syntactic Analysis of English with respect to Government-Binding Grammar*," Syracuse University, Department of Electrical and Computer Engineering, 1988, UMI ProQuest 8914562.
https://nelscorrea.github.io/pubs/NLP-1988-Correa-PhD_Dissertation_ProQuest_1595339639202.pdf

Journals and book chapters

"Attribute and Unification Grammar: A review and analysis of formalisms." *Annals of Mathematics and Artificial Intelligence*, Vol. 8, No. III, J.C. Baltzer, Zürich, 1993.

"Conceptual Structure and its Relation to the Structure of Lexical Entries."   With J. Kornfilt. *Knowledge and Language, Vol.2: Lexical and Conceptual Structure*; E. Reuland and W. Abraham, eds. Kluwer Academic Publishers, Dordrecht, Netherlands, 1993.

"Empty Categories, Chain Binding, and Parsing."   in *Principle-based Parsing: Computation and Psycholinguistics*, R. C. Berwick, C. Tenny, and S. Abney, eds.   Kluwer Academic Publishing, Dordrecht, Netherlands, 1991. Also M.I.T. Center for Cognitive Science, *Working Papers of the Center for Cognitive Science*, and I.B.M. Research Report RC14336, Yorktown Heights, New York.

"Prospective Study on High Technologies in Colombia: The case of microelectronics" -- in Spanish, *New Technologies for Development*, M. Henao and E. Neira, Colciencias-Tercer Mundo, Bogotá, 1993.

International congresses

 "A Fine-grained Evaluation Framework for Machine Translation System Development." *Proceedings of Machine Translation Summit IX*, New Orleans, Sept. 23-27, 2003.

"The Accent Coach: An English Pronunciation Training System for Japanese Speakers."   With S. Auberg, V. Locktionova, R. Molitor, and M. Rothenberg. *Proccedings of Speech Technology in Language Learning* (STILL-98), Marholmen, Sweden, May 25-27, 1998.

"Vowel and Intonation Training in an English Pronunciation Tutor." With S. Auberg, M. Rothenberg, and M. Shanahan. *Proccedings of Speech Technology in Language Learning* (STILL-98), Marholmen, Sweden, May 25-27, 1998.

"NLP: An Environment for Natural Language Processing." With H. Aponte. *Proceedings of Third South American Workshop on String Processing (WSP'96)*, Recife, Brazil, August 89, 1996.

"VLSI Architecture for the Efficient Execution of Vector Quantization Algorithms." With M. Guerrero. *Proceedings of the First IBERChip Workshop*, Cartagena, Colombia, Feb. 610, 1995.

"Lexical Conceptual Structure and the Structure of Lexical Entries."   With J. Kornfilt. *Third Iberoamerican Conference on Artificial Intelligence (IBERAMIA-94)*, Caracas, Venezuela, October 2528, 1994.

"ASIC Design and Implementation of an Associative Memory Processor for Context-free Language Recognition." With A. García, H. Burbano, and W. Ricaurte. *Proceedings of the Seventh IEEE ASIC Conference and Exhibit*, Rochester, New York, September 19-23, 1994.

"Automatic Sleep Staging Using Hidden Markov Models." With S. Sanabria. *World Congress on Medical Physics and Biomedical Engineering*, Rio de Janeiro, Brazil, August 19 23, 1994.

"FPGA Implementation of an Associative Memory Processor for Syntactic Recognition." With H. Burbano. *Proceedings of the VIII Congress of the Brazilian Microelectronics Society*, Campinas, Brazil, September 8-10, 1993.

"VLSI Design and Development of a Pure Static Associative Processor (SCAMANDES)." With A. García and W. Ricaurte. *Proceedings of the VIII Congress of the Brazilian Microelectronics Society*, Campinas, Brazil, September 8-10, 1993.

"Context-Free Language Recognition on a CAM." *Third Meeting on Mathematics of Language*, Austin, Texas, Nov. 20-21, 1992.

"An ASIC CAM Design for Associative Set Processors." With A. García, M. C. Duarte, and F. Gonzalez. *Proceedings of the Fourth IEEE ASIC Conference and Exhibit*, Rochester, New York, September 23-27, 1991.

"An Extension of Earley's Algorithm for S- and L-Attributed Grammars." *Proceedings of the International Conference on Current Issues on Computational Linguistics*, University Sains Malaysia, Penang, Malaysia, June 10-14, 1991.

"An Extension of Earley's Algorithm for S-Attributed Grammars." *Proceedings of the Fifth European Conference of the Association for Computational Linguistics*, Berlin, April 9-11, 1991.

"Logical Form in PLNLP-based Grammars." With W. Zadrozny. *Proceedings of I.B.M. Conference on Natural Language Processing*, Oct. 24-26, 1988, Thornwood, New York.

"A Binding Rule for Government-binding Parsing." *Proceedings of the 12th International Conference on Computational Linguistics*, August 22-27, 1988, Budapest, Hungary. Also I.B.M. Research Report RC13688, Yorktown Heights, New York.

"An Attribute Grammar Implementation of Government-binding Theory." *Proceedings of the 25th Annual Meeting of the Association for Computational Linguistics*, Stanford University, July, 1987, Stanford, California.

"Logic Programming as a Tool for Integrating Alternatives for Socialized Mass Housing in Third World Cities: Manila, Philippines -- A Case Example." With Bernardita P. Calinao. *1987 International Conference on Data Bases in the Humanities and Social Sciences*, Auburn University at Montgomery, Montgomery, Alabama. July 11-13, 1987.

"A Theory of Questions and Answers Applied to the Design of an Online Help System." Presented at the Help Systems Workshop. Syracuse University, May 12-13, 1986, Syracuse, New York.

"A Relational DBMS-Prolog System which Optimizes Calls to Extensional Predicates." Presented at *Minnowbrook Workshop on Database Machines*, Blue Mountain Lake, New York, July, 1985.

Foreign-language magazines

"Microelectronics and Content-Addressable Memory" With A. García and W. Ricaurte -- in Spanish. *Innovación y Ciencia*, Vol. 3, No. 4. Colombian Association for the Advancement of Science (A.C.A.C.), Bogotá, 1994.

"Linguistics and Cognitive Science." -- in Spanish, *Informática Educativa*, Vol. 6, No. 2. Bogotá, 1993.

"Application Specific Integrated Circuits (ASIC)." With A. García, O. Mazuera, G. Pardo and E. Sabogal -- in Spanish. *Revista ACIEM*, No. 61, July, 1990.

On the Internet

• Google Scholar: https://scholar.google.com/citations?user=WxKuWs8AAAAJ
• GitHub: https://nelscorrea.github.io
• LinkedIn: https://www.linkedin.com/in/ncorrea
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