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**Department of Psychology and Cognitive Science Program**  
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## **Education**

Indiana University	Postdoctoral Researcher January 2002-2003 Advisor: Linda B. Smith
Indiana University	Ph.D., December 2001 Joint degree: Computer Science and Cognitive Science Dissertation: A Connectionist Account of the Object-Substance Distinction in Early Noun Learning Advisors: Michael Gasser and Linda B. Smith
ITESM	M.Sc., Computer Science – Artificial Intelligence May 1994 Thesis: Generación de Diagramas de Representación Intermedia del Conocimiento a partir de Ejemplos. Advisor: José Luis Aguirre
ITESM	B.S., Computer Science December 1991

## **Fellowships and Awards**

Cognitive Science Outstanding Dissertation Award (2001)  
Cognitive Science Society Marr Prize for best student-authored paper (2000)  
College Of Arts and Sciences Travel Award (1999)  
AWIS-CIC Travel Award (1999)  
Indiana University Cognitive Science Fellowship (Summers 1997-2001)  
Conacyt scholarship for PhD (1994-1997)  
Conacyt scholarship for MSc(1992-1994)  
ITESM scholarship for BS (1987-1992)

## **Research Interests**

Cognitive development  
Language acquisition, Word learning  
Neural Networks, Connectionist modeling

# Papers

## Research Papers

- Smith, L.B., Jones, S. S., Yoshida, H., & Colunga, E. (in press) Whose DAM account? Attentional Learning explains Booth and Waxman. *Cognition*.
- Gasser, M. & Colunga, E. (in press) Pattern Learning in Infants and Neural Networks. In Quinlan, P (Ed.) *Connectionist Models of Development*. Psychology Press.
- Smith, L. B., Colunga, E. & Yoshida, H. (in press) Making an ontology: Cross-linguistic evidence. In Oakes, L. and Rakison, D. (Eds.) *Early Category and concept development: Making sense of the blooming buzzing confusion*. New York: Oxford University Press.
- Gasser, M., & Colunga, E., & Smith, L. B. (2001). Developing relations. In Emile van der Zee & Urpo Nikanne (Eds.), *Cognitive interfaces: Constraints on linking cognitive information*, (pp. 185-214). Oxford: Oxford University Press.
- Colunga, E., Smith, L.B. & Gasser, M. (under review) *Correlation versus prediction in children's word learning: Cross-linguistic evidence and simulations*. Developmental Science.
- Colunga, E., Smith, L.B. (under review) *A connectionist account of the object-substance distinction in early noun learning*. Psychological Review.
- Colunga, E, Smith, L.B. (under review) *The emergence of abstract ideas: Evidence from networks and babies*. Special issue on Abstraction on the Philosophical Transactions by the Royal Society.
- Gasser, M. & Colunga, E. (in preparation) *Micro-Relations*. Manuscript in preparation.
- Colunga, E. & Linda B. Smith (in preparation) *How words get special*. Manuscript in preparation.

## Conference Proceedings

- Colunga, E., Smith, L.B. (2002). What makes a word? *Proceedings of the Annual Conference of the Cognitive Science Society, 24*. 214—219.
- Colunga, E., Gasser, M. & Smith, L.B. (2002) Attention to different cues in noun learning: The effect of English vs. Spanish count/mass syntax.. *Proceedings of the 26th Annual Boston University Conference on Language Development*. 107--117
- Colunga, E., Smith, L.B. (2001) How words get to be names. *Proceedings of the 25th Annual Boston University Conference on Language Development*. 180—189.
- Gasser, M. & Colunga, E. (2001). *Learning relational correlations*. International Conference on Cognitive Modeling, 4, 91-96.
- Colunga, E., Smith, L.B. (2000). Committing to an ontology: A connectionist account. *Proceedings of the Annual Conference of the Cognitive Science Society, 22*, 89—94.

- Gasser, M. & Colunga, E. Babies, (2000) Variables and relational correlations, *Proceedings of the Annual Conference of the Cognitive Science Society*, 22. 182--187.
- Colunga, E., Smith, L.B. (2000). Learning to learn words: A cross-linguistic study of the shape and material biases. *Proceedings of the 24th Annual Boston University Conference on Language Development*. 197-207.
- Gasser, M. & Colunga, E. (1999). How babies learn to find words. *Proceedings of the International Conference on Cognitive Science*, 2, 277--281.
- Colunga, E. & Gasser, M. (1998). Linguistic relativity and word acquisition: a computational approach. *Proceedings of the Annual Conference of the Cognitive Science Society*, 20, 244--249.

### **Conference Presentations**

- Colunga, E. (under review). *Where is the cow hiding? A new method for studying the development of features*. Poster submitted to the biennial meeting of the Society for Research on Child Development, Tampa, FL.
- Colunga, E. (under review). *What is an object?* Paper submitted to the biennial meeting of the Society for Research on Child Development, Tampa, FL.
- Colunga, E., & Smith, L.B. (2001, August). Local vs. distributed representations: Implications for language learning. *Proceedings of the Annual Conference of the Cognitive Science Society*, 22.
- Colunga, E. (2001, April). *Are solid material terms easier to learn than non-solid material terms?* Presented at the biennial meeting of the Society for Research on Child Development, Minneapolis, MN.
- Colunga, E., Gasser, M. & Burns, K. (2001, April) *Children's novel noun generalizations: The effect of English vs. Spanish mass/count syntax*. Presented at the biennial meeting of the Society for Research on Child Development, Minneapolis, MN.
- Gasser, M., & Colunga, E. (1999). Babies, variables, and connectionist networks. *Proceedings of the Annual Conference of the Cognitive Science Society*, 21, 794.
- Colunga, E. (1999, April ) *The shape and material biases: crosslinguistic evidence and neural networks*. Presented at the biennial meeting of the Society for Research on Child Development, Albuquerque, NM.
- Gasser, M. & Colunga, E. (1998, July) *An architecture for the learning of perceptually grounded word meaning*. Workshop on Grounding Word Meaning. Madison, WI.
- Smith, L.B., Colunga, E., & Samuelson, L. (1998, July) *On how general learning processes create language-specific learning biases*. Workshop on Grounding Word Meaning, Madison, WI.

Colunga, E. & Gasser, M. (1997, December) *Linguistic relativity and word acquisition*. Workshop on Neural Models of Conceptual Learning, Neural Information Processing Systems Post-Conference Workshops, Breckenridge, CO.

Colunga, E., & Gasser, M. (1997). Where do relations come from? *Proceedings of the Annual Conference of the Cognitive Science Society, 19*, 890.

### Other

Gasser, M., & Colunga, E. (1998). *Where do relations come from?* Indiana University Cognitive Science Program, Technical Report #221. Bloomington, IN.

Gasser, M. & Colunga, E. (1997). *Playpen: toward an architecture for modeling the development of spatial cognition*. Indiana University Cognitive Science Program, Technical Report #195. Bloomington, IN.

Colunga, E. (1994). *Generación de Diagramas de Representación Intermedia del Conocimiento a partir de Ejemplos*. Unpublished master's thesis, ITESM, Monterrey, Nuevo León, México.

## **Employment History**

<b>Jan. 2002 -- to date</b>	Department of Psychology Postdoctoral fellow	Indiana University
<b>Aug. 1998 -- Dec. 2001</b>	Department of Psychology Research Assistant	Indiana University
<b>Summer 2001</b>	Department of Psychology Instructor P315 Developmental Psychology	Indiana University
<b>Jan. 1995 – May 1998</b>	Computer Science Department Assistant Instructor	Indiana University

### Classes:

**B351** Introduction to Artificial Intelligence and Computer Simulation (Spring 1998)

**B401, B501** Fundamentals of Computing Theory (Fall 1997)

**B403** Analysis of Algorithms (Spring 1997)

**C343** Data Structures (Fall 1996)

**A110** Introduction to Computers and Computing (Spring 1996)

**C211** Introduction to Computer Science (Fall 1995)

**A110** Introduction to Computers and Computing (Spring 1995)

**Jan. 1991 – July 1994**      Centro de Inteligencia Artificial      ITESM  
Research Assistant

**Projects:**

Expert System for the Coagulation and Coating areas at the Celorey plant of CyDSA. (March 1994 – July 1994)

Expert System for the diagnosis of printing problems at the Tultitlán plant of CyDSA (Jan. 1992 – May 1993)

Design of a high-level language for the definition of intelligent tutors (Jan. 1993 – Dec. 1993)

Expert System for the Viscose area at the Celorey plant of CyDSA. (Jan 1991 – Dec. 1991)

MANCO (Modelización de Alto Nivel del Conocimiento) representation diagrams for the modeling of high-level knowledge (Jan. 1992-July 1994)

- Design of a system that generates expert systems prototypes from knowledge represented as MANCO diagrams.
- Design and implementation of a system of reconstructive explanation for expert systems.
- Design and implementation of a machine learning system that generates MANCO diagrams from real-world readings.

**Sep. 1988 – July 1994**      Informática y Tecnología Avanzada  
Part-time teacher

Computer classes, mostly programming, for children 2<sup>nd</sup> to 7<sup>th</sup> grade at various private schools (Necali Centro Educativo, Centro Educativo Montessori, Instituto San Roberto, etc.)

Computer classes for adults (programming languages, data bases, data structures, etc.).

## **Affiliations**

Association for Computing Machinery

Cognitive Science Society

Society for Research in Child Development

## **References**

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