

# Aarre Laakso

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I help teams write.

## Education

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### University of California, San Diego

September 1991 — June 1999

*Doctor of Philosophy in Cognitive Science and Philosophy*

Dissertation: *The Significance of Spatial Representation* presented a novel mathematical technique for comparing representations in neural systems, backed by neural network simulations in a simulator custom-built in C++. Advisors: Patricia Churchland, Garrison Cottrell (Computer Science, Co-Chair), Paul Churchland, George Anagnostopoulos, V. S. Ramachandran (Psychology).

### University of North Carolina, Chapel Hill

August 1987 — May 1991

*Bachelor of Arts in Philosophy and Creative Writing, with Distinction*

Highest Honors in both Philosophy and Creative Writing and winner of the Robert House Award in creative writing. Senior Honors Thesis: *What is 'Mere Implementation'?*

*Implementing Symbolic Computation in Connectionist Systems* analyzed the relationships between traditional computers and neural networks. Advisors: Stan Munsat, William Lycan, Jay Rosenberg.

## Experience

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### Consultant

2004 — Present

*World Bank Group, Washington, DC*

- Contributed to and edited evaluations and technical reports on competitiveness, finance, innovation, the investment climate, trade, and other matters related to the private and financial sectors in Latin America, the Caribbean, Europe, Central Asia, and globally.
- Worked in teams to write cohesive and persuasive documents that comply with various requirements.
- Identified deficiencies (including errors, omissions, inconsistencies, and insufficient evidence) in written work and corrected them or brought them to the attention of the appropriate colleagues to ensure a compelling written product.
- Performed research to find information to support the arguments in written documents.
- Created illustrations, charts, tables, and text boxes to showcase key concepts where they are relevant within a longer document.
- Participated in formal and informal review processes.

### Part-Time Faculty

January 2022 — present

*Washtenaw Community College, Ann Arbor, MI, Psychology Department*

- Taught college courses on introductory psychology.

**Lecturer** *Fall 2008 — Winter 2012*

*University of Michigan, Dearborn, MI, Behavioral Sciences Department*

- Taught college courses on introductory psychology, cognitive psychology, and experimental psychology, including how to write research papers in psychology.
- Novel uses of information technology in teaching.
- Mentored undergraduate researchers on scientific research and writing.

**Adjunct Faculty** *Fall 2006 — Spring 2008*

*Indiana University, Bloomington, IN, Department of Psychology*

- Taught college courses on cognitive psychology.
- Novel uses of information technology in teaching.

**Postdoctoral Fellow** *Fall 2003 — Summer 2006*

*Indiana University, Bloomington, IN, Department of Psychology*

- Conducted scientific research on cognitive development and language acquisition in children under six.
- Wrote a software system in Python to search a database of 3.5 million+ words uttered between children and their caretakers and extract noun-verb combinations.
- Mentored undergraduates on scientific research and writing.

**Senior Consultant, Technology Services Division** *1997 — 2003*

*Silicon Space, Inc., San Diego, CA*

- Collected requirements for, designed, and led teams to build, test, and deploy secure intranet applications for Fortune 500 companies.
- Wrote and ensured the quality of custom-built mission-critical software (in Java and other languages) and the accompanying technical and user documentation.

**Teaching Assistant & Lecturer** *1991 — 1997*

*University of California San Diego, La Jolla, CA, Philosophy Dept. & Revelle Humanities*

- Assisted with teaching two-year college courses on writing and the humanities and one-quarter classes on ethics, the philosophy of psychology, and informal, inductive, propositional, and predicate logic.
- Taught a one-quarter class on the philosophy of psychology.

**Subject A Grader** *1992 — 1997*

*Educational Testing Service, Berkeley, CA*

- Scored University of California “Subject A” writing competency exams.

**Summer Intern** *1993*

*Marine Corps Tactical Software Support Activity (MCTSSA), Camp Pendleton, CA*

- Wrote software in C to support an unmanned battlefield awareness system.

**Summer Intern** *1990*

*Apple Computer, Cupertino, CA*

- Wrote and edited user manuals, including for Apple’s in-house supercomputer.

## Research Interests

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- Statistical Learning
- Structure of Semantic Memory

## Additional Teaching Competence

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- Experimental Psychology
- Cognitive Psychology
- Introduction to Psychology

## Other Honors & Awards

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- Ruth L. Kirschstein National Research Service Award (NRSA) Research Training Fellowship (2005 – 2007)
- Dissertation Fellowship, UCSD Philosophy (1994 – 1996)
- Tuition and Fee Grant, UCSD Philosophy (1991 – 1992)
- Phi Beta Kappa, UNC-CH (1991)
- Morehead Fellowship, UNC-CH (1987 – 1991)

## Publications

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Laakso, A., & Rubalcaba, L. (2023). [Service ontology](#). In Gallouj, F., Gallouj, C., Monnoyer, M.C., & Rubalcaba, L. (eds.) *Elgar Encyclopedia of Services*. Cheltenham, UK: Edward Elgar.

Rubalcaba, L., Rubalcaba, L., & Laakso, A. (2023). Big data, services and policy making. In Gallouj, F., Gallouj, C., Monnoyer, M.C., & Rubalcaba, L. (eds.) *Elgar Encyclopedia of Services*. Cheltenham, UK: Edward Elgar.

Rubalcaba, L., & Laakso, A. (2023). Public policies for service quality. In Gallouj, F., Gallouj, C., Monnoyer, M.C., & Rubalcaba, L. (eds.) *Elgar Encyclopedia of Services*. Cheltenham, UK: Edward Elgar.

Laakso, A. (2011). [Embodiment and development in cognitive science](#). *Cognition, Brain, Behavior*, 15(4), 409-425.

Maouene, J., Sethuraman, N., Laakso, A., & Maouene, M. (2011). [The body region correlates of concrete and abstract verbs in early child language](#). *Cognition, Brain, Behavior* 15(4), 449-484.

Laakso, A., & Calvo, P. (2011). How many mechanisms are needed to analyze speech? A connectionist simulation of structural rule learning in artificial language acquisition. *Cognitive Science*, 35(7), 1243-1281.

Sethuraman, N., Laakso, A., & Smith, L. B. (2011). Verbs and syntactic frames in children's elicited actions: A comparison of Tamil- and English-speaking children. *Journal of Psycholinguistic Research*, 40(4), 241-252.

Maouene, J., Laakso, A., & Smith, L. B. (2011). Object associations of early-learned light and heavy English verbs. *First Language*, 31(1), 109-132.

Maouene, J., Laakso, A., Maouene, M., & Smith, L. B. (2010). Distribution of object types of “light” and “heavy” early-learned English verbs. *Proceedings of the 9th IEEE International Conference on Development and Learning (ICDL-2010)*: IEEE.

Nutten, T. M., & Laakso, A. (2010). Meaning and understanding of messages received in face-to-face and computer-mediated communication. *Meeting of Minds: Journal of Undergraduate Research*, 12, 169-174.

Laakso, A. (2009). Development and learning. In J. Symons & P. Calvo (Eds.), *The Routledge Companion to Philosophy of Psychology* (pp. 430-449). New York: Routledge.

Laakso, A. & Calvo, P. (2008). A connectionist simulation of structural rule learning in language acquisition. In B. C. Love, K. McRae & V. M. Sloutsky (Eds.), *Proceedings of the 30<sup>th</sup> Annual Meeting of the Cognitive Science Society* (pp. 709-714). Austin, TX: Cognitive Science Society.

Calvo Garzón, P., Laakso, A., & Gomila, T. (2008). Dynamics and psychology. In P. Calvo Garzón, A. Laakso & T. Gomila (Eds.), *New Ideas in Psychology, Special Issue: Dynamics and Psychology* (Vol. 26, pp. 143-145).

Laakso, A., & Smith, L. B. (2007). Pronouns and verbs in adult speech to children: A corpus analysis. *Journal of Child Language*, 34, 725-763.

Laakso, A. & Cottrell, G. W. (2006). Churchland on Connectionism. In Brian Keeley (Ed.) *Paul Churchland: Contemporary Philosophy in Focus*. Cambridge University Press.

Laakso, A. & Smith, L. B. (2004). On a possible role for pronouns in the acquisition of verbs. In W. G. Sakas (Ed.) *Proceedings of the Workshop “Psycho-Computational Models of Human Language Acquisition” 20<sup>th</sup> International Conference on Computational Linguistics*.

Laakso, A. & Smith, L. B. (2004). Pronouns predict verb meanings in child-directed speech. In K. Forbus, D. Gentner & T. Regier (Eds.), *Proceedings of the 26<sup>th</sup> Annual Meeting of the Cognitive Science Society* (pp. 767-772). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Laakso, A. & Smith, L. B. (2004). A preliminary model of pronoun/verb cooccurrences in child-directed speech. In M. Lovett, C. Schunn, C. Lebiere & P. Munro (Eds.), *Proceedings of the Sixth International Conference on Cognitive Modeling* (pp. 136-141). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Laakso, A. (2004). Review of *What is Thought?* by Eric B. Baum. *Metapsychology*.

Laakso, A. & Cottrell, G. W. (2000). Content and cluster analysis: Assessing representational similarity in neural systems. *Philosophical Psychology* 13(1): 47-76.

Laakso, A. & Cottrell, G. W. (1998). How can I know what you think? Assessing representational similarity in neural systems. In *Proceedings of the Twentieth Annual Cognitive Science Conference*, Madison, WI, Mahwah: Lawrence Erlbaum (pp. 591-596).

Laakso, A. (1996). Has Hardcastle Located Consciousness? (Review of Valerie Gray Hardcastle (1995) *Locating Consciousness* Philadelphia: John Benjamins Publishing Company). *Psychology* 7(42).

Laakso, A. (1994). Review of *Cultivating Consciousness* by K. Ramakrishna Rao (Ed.). *Canadian Philosophical Reviews* 14(3): 206-8.

Laakso, A. (1994). Review of *The Body/Mind Conceptual Framework and the Problem of Personal Identity* by Albert Shalom. *Canadian Philosophical Reviews* 14(2): 137-9.

Laakso, A. (1993). Pigeons and the Problem of Other Minds. *Behavioral and Brain Sciences* 16(4): 652-3.

Laakso, A. (1993). Language Equals Mimesis plus Speech. *Behavioral and Brain Sciences* 16(4): 765-6.

## **Presentations**

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“A connectionist simulation of structural rule learning in language acquisition” Thirtieth Annual Cognitive Science Conference, Washington, DC, July 2008 (work with Francisco Calvo Garzón).

“The current state of the state space semantics debate” Invited talk presented at the Cognitive Science 200 colloquium, University of California, San Diego, October 18, 2007.

“Comments on the presentation by Rebecca Gomez” Brief commentary at the workshop “Dynamical Approaches to Development: Beyond the Metaphor” at the 9th European Conference on Artificial Life, September 10, 2007.

“On a possible role for pronouns in the acquisition of verbs” Invited talk presented at the University of Illinois, Urbana-Champaign Beckman Institute Language Processing Brownbag, September 30, 2004 (work with Linda B. Smith).

“On a possible role for pronouns in the acquisition of verbs” Workshop on “Psycho-Computational Models of Human Language Acquisition” at the 20<sup>th</sup> International Conference on Computational Linguistics (COLING 2004), Geneva, Switzerland, August 25, 2004 (work with Linda B. Smith).

“A model of verb generalization” Midwest Computational Linguistics Colloquium (MCLC), Bloomington, IN, June 25, 2004 (work with Nitya Sethuraman).

“The structure of consciousness” Invited talk presented at Universidad de Murcia, Universitat de Valencia, and Universitat Autònoma de Barcelona, Spain, April 2002.

“Reference as localization” Invited talk presented at Universidad de Murcia, Spain, April 2002.

“How can I know what you think? Assessing representational similarity in neural systems” Twentieth Annual Cognitive Science Conference, Madison, WI, August 1998 (work with Garrison Cottrell).

“Recent advances in state-space semantics” Invited talk presented at Sonoma State University, Rohnert Park, CA, 1998.

“Recent advances in state-space semantics” Invited talk presented at Carnegie-Mellon University, Pittsburgh, PA, 1997.

“Recent advances in state-space semantics” Invited talk presented at William Paterson College, Wayne, NJ, 1997.

“Qualia and cluster analysis: Assessing representational similarity between neural systems” Society for Philosophy and Psychology Annual Meeting, San Francisco, CA, June 1996 (presented by Garrison Cottrell).

“In defense of convention: Why Davidson’s objection won’t work” Southern Society for Philosophy and Psychology Annual Meeting, Atlanta, GA, April 1994.

## Posters

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“Lexical landmarks” Society for Research in Child Development (SRCD), Atlanta, GA, April 6, 2005 (work with Nitya Sethuraman and Linda B. Smith).

“A model of verb generalization” Society for Research in Child Development (SRCD), Atlanta, GA, April 6, 2005 (work with Nitya Sethuraman and Linda B. Smith).

“Pronouns predict verb classes in child-directed speech” Cognitive Science Society, Chicago, IL, August 8, 2004 (work with Linda B. Smith)

“A preliminary model of pronoun/verb co-occurrences in child-directed speech” International Conference on Cognitive Modeling (ICCM), Pittsburgh, PA, July 31, 2004 (work with Linda B. Smith).

## Grant Support

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2006 – 2009 Calvo Garzón, F. (PI), Laakso, A., & Gomila, A. *Aproximación dinámica a los conceptos de información, representación y computación, y a la inducción de estructuras gramaticales.* (Dynamical systems approaches to the concepts of information, representation and computation, and to the induction of grammatical structures.) Spanish Ministry of Education and Science. Research project number HUM2006-11603-C02-01 (27,000 Euros).

2010 – 2012 Calvo Garzón, F. (PI), et al. *Cognición y representación en enfoques*

*alternativos al simbólico en ciencia cognitiva: Analisis corporeizado de las nociones de computacion, algoritmo e implementacion, y de la induccion de estructuras gramaticales.* (Cognition and representation in alternative approaches to symbolic cognitive science: Embodied analysis of the notions of computation, algorithms and implementation, and of the induction of grammatical structure.) Spanish Ministry of Science and Technology. Research project number FFI2009-13416-C02-01 (86,700 Euros).

## Teaching

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### *Full Teaching Responsibility*

- UM-D Psychology 170, Intro. to Psychology as a Natural Science, Winter 2012
- UM-D Psychology 465, Experimental Psychology, Fall 2011
- UM-D Psychology 171, Intro. to Psychology as a Social Science, Fall 2011
- UM-D Psychology 465, Experimental Psychology, Winter 2011
- UM-D Psychology 170, Intro. to Psychology as a Natural Science, Winter 2011
- UM-D Psychology 171, Intro. to Psychology as a Social Science, Fall 2010
- UM-D Psychology 465, Experimental Psychology, Fall 2010
- UM-D Psychology 170, Intro. to Psychology as a Natural Science, Winter 2010
- UM-D Psychology 171, Intro. to Psychology as a Social Science, Winter 2010
- UM-D Psychology 465, Experimental Psychology, Fall 2009
- UM-D Psychology 171, Intro. to Psychology as a Social Science, Fall 2009
- UM-D Psychology 363, Cognitive Psychology, Winter 2009
- UM-D Psychology 170, Intro. to Psychology as a Natural Science, Winter 2009
- UM-D Psychology 363, Cognitive Psychology, Fall 2008
- UM-D Psychology 170, Intro. to Psychology as a Natural Science, Fall 2008
- IUB Psychology 335, Cognitive Psychology, Spring 2008
- IUB Psychology 335, Cognitive Psychology, Fall, 2007
- IUB Psychology 335, Cognitive Psychology, Summer, 2007
- IUB Psychology 335, Cognitive Psychology, Spring, 2007
- IUB Psychology 335, Cognitive Psychology, Fall, 2006
- UCSD Philosophy 149, Philosophy of Psychology, Fall 1997

### *Instructor & Mentor*

- UM-D Psychology 491/2, Individual Research, 2009 – 2012
- IUB Psychology 493/4/5, Independent Research & Readings, 2003 – 2008

### *Teaching Assistant*

- UCSD Revelle Humanities II, Rome & Christianity, Prof. Philip Kitcher, Spring 1998
- UCSD Revelle Humanities I, Israel & Greece, Prof. Charles Chamberlain (Lit.), Winter 1998
- UCSD Philosophy 12, Inductive Logic, Instructor Josh Jorgensen, Spring 1997
- UCSD Philosophy 12, Inductive Logic, Prof. Sandra Mitchell, Winter 1996
- UCSD Philosophy 110, Predicate Logic, Prof. Gila Sher, Fall 1995

- UCSD Philosophy 10, Propositional Logic, Prof. Patricia Churchland, Spring 1995
- UCSD Philosophy 110, Predicate Logic, Prof. Gila Sher, Winter 1995
- UCSD Revelle Humanities V, Modernity, Prof. George Hanson (Lit.), Spring 1994
- UCSD Revelle Humanities IV, Enlightenment, Prof. Patricia Kitcher, Winter 1994
- UCSD Revelle Humanities III, Renaissance, Prof. Steve Cox (Lit.), Fall 1993
- UCSD Revelle Humanities II, Rome & Christianity, Prof. David Crowne (Lit.), Spring 1993
- UCSD Revelle Humanities I, Israel & Greece, Prof. Richard Friedman (Lit.), Winter 1993
- UCSD Revelle Humanities, Teacher Training, Prof. Jonathan Saville (Drama), Fall 1992
- UCSD Philosophy 13, Introduction to Epistemology, Prof. Paul Churchland, Spring 1992
- UCSD Philosophy 27, Ethics & Society, Instructor Judith DiGennaro, J.D., Winter 1992
- UCSD Philosophy 11, Introduction to Ethics, Prof. Richard Arneson, Fall 1991

*Other Teaching & Mentoring Experience*

- Silicon Space, Inc., Technology Services Mentoring Program, 1997 – 2003
- Stanley Kaplan Educational Center, San Diego, Instructor, 1992 – 1997
- University of California Subject A Writing Competency Program, Grader, 1993 – 1998