

Tessa Verhoef

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Summary

Assistant professor "Computation x Creativity", active in the field of Language Evolution and Cognition, specializing in laboratory experiments and computational methods, with a special interest in the emergence of structure in human behavior. Broad interdisciplinary background with a BSc and MSc in Artificial Intelligence, a PhD in Language Evolution, extracurricular activities and international experience. Awarded with prestigious postdoctoral fellowships, prizes and travel grants. Active in science outreach and science exhibitions.

Education

UNIVERSITY OF AMSTERDAM. PH.D. — 2009 – 2013

Ph.D. at the Amsterdam Center for Language and Communication, under the supervision of Professor Bart de Boer and Professor Simon Kirby from the Language Evolution and Computation research unit of the University of Edinburgh.

— VISITING GRAD STUDENT:

Affiliation with the Center for Research in Language at the University of California, San Diego as a visiting scholar. I visited June-Oct 2010, Jan/Feb 2011 and Nov/Dec 2011 to work with Prof. Carol Padden.

— POST M.SC. EDUCATION:

Courses on American Sign Language (ASL), popular writing, academic communication, career planning, thesis coaching, research ethics and human subject protection. Summer Schools on Agent-based Models of Creativity (2013) and Embodied Language Games and Construction Grammar (2009).

UNIVERSITY OF GRONINGEN. M.SC. IN ARTIFICIAL INTELLIGENCE. — 2006 – 2008

Graduated Cum Laude. M.Sc. thesis research conducted at the Florida International University in Miami on Affective Computing.

UNIVERSITY OF GRONINGEN. B.SC. IN ARTIFICIAL INTELLIGENCE. — 2003 – 2007

Graduated With Honors. B.Sc. thesis research conducted on an agent based simulation of co-evolution and speciation.

Grants and Awards

VENI GRANT. - 2016: From the Netherlands Organization for Scientific Research for 3 years of postdoc research [€250,000].

FISP POSTDOCTORAL FELLOWSHIP. - 2016: Frontiers of Innovation Scholars Program at University of California, San Diego [\$25,000].

RUBICON GRANT. - 2013: From the Netherlands Organization for Scientific Research for a 2 year postdoc abroad [€127,690].

HURFORD PRIZE. - 2012: Prize for the best student oral presentation at the 9th EvoLang [£250].

PUBLICATION BONUS. - 2012: Financial bonus awarded for research output, Amsterdam Center for Language and Communication [€500].

ONDERZOEKSKREDIET ACLC. - 2012: Financial support to hire a student assistant for Science Live museum project [€980].

EVOLANG STUDENT TRAVEL SUPPORT. - 2012: Support for travel to the 9th EvoLang in Kyoto [¥60,000].

COGSCI STUDENT TRAVEL AWARD. - 2011: Sponsored by the Robert J. Glushko and Pamela Samuelson [\$800].

BEST POSTER AWARD. - 2009: International Summer School on Embodied Language Games and Construction Grammar.

UNIVERSITY OF GRONINGEN GRANT FOR EXCELLENT STUDENTS. - 2008: Financial support for M.Sc. thesis research in the US [€1000].

MARCO POLO FUND. - 2008: Financial support provided by the University of Groningen for research abroad [€500].

Publications

Ravignani, A. & Verhoef, T. (2018) Which melodic universals emerge from repeated signaling games. *Artificial Life*, 24(2)

Roberts, S. G., & Verhoef, T. (2016) Double-blind reviewing at EvoLang 11 reveals gender bias. *Journal of Language Evolution*, 1(2), 163-167.

Namboodiripad, S., Lenzen, D., Lepic, R. & Verhoef, T. (2016). Measuring conventionalization in the manual modality. *The Journal of Language Evolution* 1(2), 109-118.

Verhoef, T., Walker, E. & Marghetis, T. (2016) Cognitive biases and social coordination in the emergence of temporal language. In Papafragou, A., Grodner, D., Mirman, D., & Trueswell, J.C. (Eds.) (2016). *Proceedings of the 38th Annual Conference of the Cognitive Science Society*. (pp. 2615-2620) Austin, TX: Cognitive Science Society.

Verhoef, T., Padden, C. and Kirby, S. (2016). Iconicity, Naturalness And Systematicity In The Emergence Of Sign Language Structure. In S.G. Roberts, C. Cuskley, L. McCrohon, L. Barceló-Coblijn, O. Fehér & T. Verhoef (eds.) *The Evolution of Language: Proceedings of the 11th International Conference (EvoLang 11)*. Available online: <http://evolang.org/neworleans/papers/47.html>

- Namboodiripad, S., Lenzen, D., Lopic, R. and Verhoef, T. (2016). Measuring Conventionalization In The Manual Modality. In S.G. Roberts, C. Cuskley, L. McCrohon, L. Barceló-Coblijn, O. Fehér & T. Verhoef (eds.) *The Evolution of Language: Proceedings of the 11th International Conference (EVLANG11)*. Available online: <http://evolang.org/neworleans/papers/107.html>
- Verhoef, T., Kirby, S. & de Boer, B. (2015) Iconicity and the Emergence of Combinatorial Structure in Language. *Cognitive Science*. pp. 1–26.
- Verhoef, T., Roberts, S. G., Dingemanse, M. (2015) Emergence of systematic iconicity: Transmission, interaction and analogy. *Proceedings of the 37th Annual Conference of the Cognitive Science Society* (pp. 2481–2486) Austin, TX: Cognitive Science Society.
- Verhoef, T., Kirby, S. & de Boer, B. (2014) Emergence of combinatorial structure and economy through iterated learning with continuous acoustic signals. *Journal of Phonetics* 43C, pp. 57–68
- Verhoef, T. & de Boer, B. (2014) Iterated learning of sound systems and the emergence of tone categories. In *The evolution of language: Proceedings of the 10th international conference (evolangX)*. (pp. 545–546). Hackensack NJ: World Scientific.
- Verhoef, T. (2014) Cultural evolution, compression and the brain. In *The Past, Present and Future of Language Evolution Research* (pp. 22–30).
- Dingemanse, M., Roberts, S. & Verhoef, T. (2014) The role of iconicity in the cultural evolution of communicative signals. In *Workshops of the 10th international conference (evolangX)*, pp. 16–18
- de Boer, B. & Verhoef, T. (2014) Introduction to the workshop on signals, speech and signs. In *Workshops of the 10th international conference (evolangX)*, pp. 11–12
- Verhoef, T. (2013) *Efficient coding in speech sounds: Cultural evolution and the emergence of structure in artificial languages*. PhD Thesis, University of Amsterdam
- Verhoef, T., Kirby, S. & de Boer, B. (2013) Combinatorial structure and iconicity in artificial whistled languages. In M. Knauff, M. Pauen, N. Sebanz, & I. Wachsmuth (Eds.), *Proceedings of the 35th Annual Conference of the Cognitive Science Society* (pp. 3669–3674) Austin, TX: Cognitive Science Society.
- Verhoef, T. (2012) The origins of duality of patterning in artificial whistled languages. *Language and Cognition* 4(4), 357–380.
- Verhoef, T., de Boer, B., & Kirby, S. (2012) Holistic or synthetic protolanguage: Evidence from iterated learning of whistled signals. In *The evolution of language: Proceedings of the 9th international conference (evolang9)*. (pp. 386–375). Hackensack NJ: World Scientific.
- de Boer, B. & Verhoef, T. (2012) Language Dynamics in Structured Form and Meaning Spaces. *Advances in Complex Systems*, 15(3), 1150021–1–1150021–20
- Verhoef, T., Kirby, S. & Padden, C. (2011) Cultural emergence of combinatorial structure in an artificial whistled language. In L. Carlson, C. Hölscher & T. Shipley (Eds.), *Proceedings of the 33rd Annual Conference of the Cognitive Science Society* (pp. 483–488). Austin, TX: Cognitive Science Society.
- Verhoef, T. & de Boer, B. (2011) Cultural emergence of feature economy in an artificial whistled language. In E. Zee & W. Lee (Eds.), *Proceedings of the 17th International Congress of Phonetic Sciences* (pp. 2066–2069). Hong Kong: City University of Hong Kong.
- Verhoef, T., de Boer, B., del Giudice, A., Padden, C. & Kirby, S. (2011). Cultural evolution of combinatorial structure in ongoing artificial speech learning experiments. *CRL Technical Report*, 23(1), 3–11.
- Verhoef, T. & de Boer, B. (2011). Language acquisition age effects and their role in the preservation and change of communication systems. *Linguistics in Amsterdam*, 4(1), 1–23.
- Verhoef, T. & de Boer, B. (2010) The critical period and preservation of emerged vowel systems, In: Smith, A. D. M., Schouwstra, M., de Boer, B. & Smith, K. (Eds.) *The Evolution of Language, Proceedings of the 8th International Conference (evolang8)* (pp. 509–510) New Jersey: World Scientific
- Verhoef, T., Lisetti, C., Ortega, F., van der Zant, T. & Cnossen, F. (2009) Bio-sensing for emotional characterization without word labels, In: J.A. Jacko (Ed.): *Human-Computer Interaction, Part III, HCII 2009*, LNCS 5612, pp. 693–702

Edited volumes

- Cuskley, C., Flaherty, M., Little, H., McCrohon, L., Ravignani, A. & Verhoef, T. (Eds.) (2018) *The Evolution of Language: Proceedings of the 12th International Conference (EVLANGXII)*
- Roberts, S.G., Cuskley, C., McCrohon, L., Barceló-Coblijn, L., Fehér, O. & Verhoef, T. (Eds.) (2016) *The Evolution of Language: Proceedings of the 11th International Conference (EVLANG11)*
- McCrohon, L., Thompson, B., Verhoef, T. & Yamauchi, H. (2014) *The Past, Present and Future of Language Evolution Research*. Student Volume of the 9th International Conference on the Evolution of Language.

Teaching and supervision

TEACHING

Capita Selecta II: Non-human cognition - MSc course in Media Technology program, Leiden University 2018

Capita Selecta I: Language Evolution - MSc course in Media Technology program, Leiden University 2017

Evolution of Speech - MA course at University of Amsterdam 2011 (with Bart de Boer)

SUPERVISING STUDENT ASSISTANTS

Dorine Diemer - conducting experiments at UvA
Gisela Govaart - conducting experiments at UvA and Nemo Science Live project
Jared Markowitz - programming experiments at UCSD
Emma Watson - designing and running an experiment at UCSD
Amira Silver-Swartz - designing and running an experiment at UCSD
Alvin Chan - running and analyzing an experiment at UCSD
Katie Higham-Kessler - running and analyzing an experiment at UCSD
Brendon Taing - running and analyzing an experiment at UCSD
Emily Sereno - running and analyzing multiple experiments at UCSD
Astha Metha - running and analyzing multiple experiments at UCSD

THESIS/PROJECT SUPERVISION

Robert Grayson - MSc Brain and Cognitive Sciences at University of Amsterdam
Alessandro Lopopolo - MA Linguistics at University of Amsterdam (with Bart de Boer)
Ellen Maassen - MSc Cognitive Artificial Intelligence at Utrecht University (with Bart de Boer)
Rick Henneveld - MSc Media Technology at Leiden University (with Maarten Lamers)
Helena Frijns - MSc Media Technology at Leiden University (with Maarten Lamers)

GUEST LECTURES

Guest talk on building a Robotic Blimp in COGS8: Hands-On Computing, UCSD (Fall 2014, Spring 2015)
At various events teaching high school students about AI and related topics (2005-2006)

DESIGNING A M.SC. COURSE ON PERCEPTION & ATTENTION. — AUG 2007 – MAR 2008

Broad literature study combined with the design and planning of a course about Perception and Attention which became part of the curriculum of the M.Sc. Artificial Intelligence at the University of Groningen.

Employment

ASSISTANT PROFESSOR 'COMPUTATION X CREATIVITY'. LEIDEN UNIVERSITY. — JULY 2017 - NOW

Research at the Leiden Institute of Advanced Computer Science (LIACS) and teaching in the Media Technology master program.

POSTDOC. MAX PLANCK INSTITUTE FOR PSYCHOLINGUISTICS, NIJMEGEN. — FEB 2017 - JULY 2017

Postdoctoral research position as NWO (Dutch Science Foundation) VENI grant laureate.

POSTDOC. UNIVERSITY OF CALIFORNIA, SAN DIEGO. — DEC 2013 - FEB 2017

Postdoctoral research position as NWO (Dutch Science Foundation) Rubicon grant laureate and Frontiers of Innovation postdoc fellow.

ASSISTANT ACADEMIC STAFF. FREE UNIVERSITY OF BRUSSELS. — MAY 2013 - AUGUST 2013

Temporary research position. Writing articles, developing ideas for future experiments and supervising PhD students.

STAFF RESEARCH ASSOCIATE. UNIVERSITY OF CALIFORNIA, SAN DIEGO. — FEB 2013 - MAR 2013

Temporary research position. Writing grants and developing ideas for future experiments, computer simulations and analysis techniques.

PH.D. CANDIDATE. UNIVERSITY OF AMSTERDAM. — 2009-2012

Working towards a Ph.D. degree, employed as part of the research staff within the Amsterdam Center for Language and Communication.

RESEARCH ASSISTANT IN LINGUISTICS. UNIVERSITY OF GRONINGEN. — OCT 2007 - JAN 2008

Design, implementation and testing for a self-paced reading experiment with human test subjects.

STUDENT ASSISTANT. UNIVERSITY OF GRONINGEN. — DEC 2005 - FEB 2006

Creating e-learning material about language evolution, language processing and language acquisition for prospective students.

STUDENT ASSISTANT. UNIVERSITY OF GRONINGEN. — NOV 2005 - MAY 2006

Member of the AI Promo team. Served as consultant for prospective students of the AI program at the University of Groningen.

Selected academic presentations

SLE 2017: 50th Annual Meeting of the Societas Linguistica Europaea, "Cognitive biases and cultural evolution in the emergence of space-time mappings in language", Zurich, September 11 2017

Invited talk at workshop on Types of iconicity in language use, development and processing, "Iconicity and systematicity in the emergence of sign language structure", Nijmegen, July 7 2017

ICPS 2017: International Convention of Psychological Science, "Emergent patterns in gestural representation: experiments investigating cognitive biases and cultural evolution", Vienna, March 24 2017

Invited talk at symposium on Advancing Behavioral And Cognitive Understanding of Speech (ABACUS), "Experiments investigating the emergence of structure and meaning in language", Nijmegen, Jan 14 2017

Invited talk at UCMerced Mind, Technology, & Society talk series: "Experiments investigating the emergence of structure and meaning in language", Merced, Sept 12 2016

ISGS 7: Conference of the International Society for Gesture Studies, "Systematicity in iconic representation: From gesture to sign language", Paris, July 19 2016

Evolang I: 10th International Conference on the Evolution of Language, "Iconicity, Naturalness And Systematicity In The Emergence Of Sign Language Structure", New Orleans, Mar 23 2016

CogSci 2015: 37th Annual Conference of the Cognitive Science Society, "Emergence of systematic iconicity: Transmission, interaction and analogy.", Pasadena, July 24 2015

Sign Language Research Lab talk: "Iconicity and systematicity in artificial sign language learning and interpretation.", University of Haifa, Israel, June 3 2015

CSDL 12: Conceptual Structure, Discourse and Language Conference, "The role of cross-modal biases in cultural evolution of artificial languages", Santa Barbara, Nov 4 2014

Invited talk at workshop on Understanding the nature of human language: new methods, "Iterated learning and the emergence of structure in continuous signals", Edinburgh, Sept 2 2014

EvoLangX: 10th International Conference on the Evolution of Language, "Iterated learning of sound systems and the emergence of tone categories", Vienna, Apr 15 2014

EvoLangX: 10th International Conference on the Evolution of Language, "Musical and linguistic pattern emergence in the lab", Vienna, Apr 14 2014

EvoLangX: 10th International Conference on the Evolution of Language, "The role of iconicity in the cultural evolution of communicative signals.", Vienna, Apr 14 2014

Center for Research in Language (CRL) talk, "Studying the role of iconicity in the cultural evolution of communicative signals", University of California San Diego, Feb 25 2014

Lab talk at Laboratory for Language and Cognitive Neuroscience (LLCN), "Combinatorial structure and iconicity in transmitted artificial whistled languages", San Diego State University (SDSU), Feb 19 2014

Talk in Workshop on cultural evolution and the emergence of linguistic structure, "The emergence of combinatorial structure in transmitted artificial whistled languages", University of Amsterdam, Sept 26 2013

Invited talk. "The emergence of combinatorial structure in transmitted artificial whistled languages" Max Planck Institute for Psycholinguistics (MPI) Nijmegen, June 28 2013

Center for Research in Language (CRL) talk, "Combinatorial structure and iconicity in artificial whistled languages", University of California San Diego, Feb 26 2013

CogBio Seminar talk at the Cognitive Biology department, "Cultural transmission and the emergence of structure in artificial whistled languages", University of Vienna, Oct 15 2012

Language Evolution and Computation Research Unit (LEC) talk, "Does iconicity influence the emergence of combinatorial structure in artificial whistled languages?", University of Edinburgh, 22 May 2012

EvoLang9: 9th International Conference on the Evolution of Language, "Holistic or synthetic protolanguage: Evidence from iterated learning of whistled signals", Kyoto, 16 Mar 2012

ICPhS 2011: 17th International Congress of Phonetic Sciences, "Cultural emergence of feature economy in an artificial whistled language", Hong Kong, 18 Aug 2011

CogSci 2011: 33rd Annual Conference of the Cognitive Science Society, "Cultural emergence of combinatorial structure in an artificial whistled language", Boston, 21 Jul 2011

Language Evolution and Computation Research Unit (LEC) talk, "Cultural emergence of combinatorial structure in artificial sound systems", University of Edinburgh, 18 Jan 2011

Computational Linguistics Seminar (CLS) talk, "Cultural emergence of phonemic structure: agent-based modeling and artificial language learning experiments", University of Amsterdam, 27 Oct 2010

UC Berkeley Lunchtime seminar, "Cultural evolution and the emergence of combinatorial structure in artificial sound systems.", University of California, Berkeley, CA, 1 Oct 2010

EvoLang8 conference talk, "The critical period and preservation of emerged vowel systems", Utrecht, 16 Apr 2010

Committee work and other initiatives

MEMBER OF 'BRAINSCRATCH'. — 2017 - NOW

A collective of thinkers, makers, artists and communicators who have a passion for making science accessible to the bigger public through artistic and deeply immersive experiences. We focus on fun and engaging installations, demonstrations, and presentations that demonstrate interconnectedness and complexity in nature.

MEMBER OF EDITORIAL BOARD EVOLANG II CONFERENCE. — 2015 - NOW

Assisted in sending out call for papers, recruiting reviewers, assigning abstracts to reviewers, and making decisions about acceptance for the bi-annual international Evolution of Language conference.

TAAL IN DE REAGEERBUIJS ('LANGUAGE IN THE TEST TUBE'). — 2013 - NOW

Museum experiment/exhibit, appeared at the annual 'Discovery festival' in Amsterdam (2013), the Science Museum Utrecht (2013) and the Nacht van Kunst en Kennis (night of art and knowledge) in Leiden (2014). Collecting real data with event visitors as participants, combined with lectures and science communication, with Mark Dingemans and Sean Roberts (Max Planck Institute).

PINT OF SCIENCE. — 2014 AND 2015

Organizing committee for Pint of Science festival in the US, San Diego. This festival is part of an international organization that aims to celebrate and promote community interest in science through palatable talks in local pubs.

VOLUNTEER AND POSTER PRIZE JUDGE ISGS. — 2014

Volunteer and student poster prize judge at the 6th Conference of the International Society for Gesture Studies (ISGS).

WORKSHOP ON THE EVOLUTION OF SIGNALS, SPEECH AND SIGNS. — 2014

Co-organization (with Bart de Boer) of a workshop on the evolution of signals, speech and signs as part of the 10th international conference on the Evolution of Language (EvolangX) in Vienna.

WORKSHOP ON CULTURAL EVOLUTION AND THE EMERGENCE OF LINGUISTIC STRUCTURE. — SEPT 2013

Organization of a workshop with international speakers on the occasion of my PhD defense at the University of Amsterdam.

DISCUSSANT AT WORKSHOP ON EMERGING LANGUAGES. — JUN 2013

Discussant at the Minerva-Gentner symposium on Emerging Languages at the Max Planck Institute for Psycholinguistics, Nijmegen.

SCIENCE LIVE PROJECT IN SCIENCE CENTER 'NEMO'. — 2012

Conducting experiments in Science Center Nemo with museum visitors as participants. Communicating with a broad audience about my research and providing background information. Over 400 visitors enthusiastically participated.

MEMBER OF SELECTION COMMITTEE. — 2009

Selecting candidates for three Ph.D. positions at the Amsterdam Center for Language and Communication.

ORGANIZING COMMITTEE OF THE NAP-DAG. — 2009

A conference at the Amsterdam Center for Language and Communication where beginning Ph.D. students present their work.

AUTONOMOUS BLIMP PROJECT. — MAY 2007 - APR 2008

Extracurricular research project to explore the possibilities of an autonomous robotic blimp. The aim was to build a flying robot that could navigate and communicate on its own. The project was financially supported by the University of Groningen and the result was rewarded with 10 EC. (www.zeptheproject.nl)

EDITOR IN CHIEF 'DE CONNECTIE'. — 2007

Editor in chief of the national AI magazine 'De Connectie'. Responsible for publishing four editions of this Dutch magazine in 2007.

EDITOR 'DE CONNECTIE'. — 2005 - 2006

Editor of the national AI magazine 'De Connectie', representing the AI department of the University of Groningen.

Science popularization / in the media

Public lecture at 'Dirty Bird' festival as part of the BrainScratch Science lab, "Cultural Evolution of Language, Music, Art and Technology", Oct 7, 2017

Interviewed for "The Daily Orange", article published Sept 21, 2016

Interviewed for Austrian radio documentary on "Language and Evolution", broadcasted May 21, 2014

Talk at the international 'Pint of Science' festival which fosters community interest in science in local pubs. May 19, 2014

Interviewed for a Al Jazeera America news article: Michael Erard (2014) The discovery of a new language can help explain how we communicate (<http://america.aljazeera.com/articles/2014/4/17/inventing-a-language.html>)

Appearance in 'Zoek het uit! Klokhuisboek over wetenschap (book for children about science). Book published Oct 2013

Interviewed by VPRO Labyrint Radio about PhD thesis research. Broadcasted live on Sept 22, 2013

Interviewed for NRC Handelsblad/nrc.next newspaper about PhD thesis research. Sept 2013

Short lecture at the official faculty opening of the academic year in de Rode Hoed, Sept 6, 2012

Science Live project in Science Center Nemo: over 400 museum visitors participated and a news article about this appeared on Quest: "Hoe leer je een buitenaardse taal", Aug 3, 2012

Interviewed for Belgian television program 'Man over Woord', broadcasted on Dec 11, 2012

Appearance of my work in a Science Magazine news article: Dennis Normile (2012) Experiments Probe Language's Origins and Development, Science, 27, Vol. 336 no. 6080 pp. 408-411 (<http://www.sciencemag.org/content/336/6080/408.full>)

Short talk for a visit from the board of directors to the Faculty of Humanities (IP-tour) at the University of Amsterdam, Jun 13, 2012

Verhoef, T. (2011). Evoluerende fluittalen: het ontstaan van taal experimenteel onderzocht. Kennislink Vakpagina Taal & Spraak