WHITNEY R. FRIEDMAN

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RESEARCH INTERESTS

My work employs methodology from cognitive science, behavioral ecology, and ethology to study the process of cognition in non-humans as it emerges through interaction. This research is aimed to contribute to the growing understanding of the relationship between ecological, social, and cognitive complexity as well to analyses of evolutionary convergence and cognitive diversity.

RESEARCH GROUPS AND AFFILIATIONS

Distributed Cognition and Human-Computer Interaction Lab
Dept. of Cognitive Science, *UC San Diego*

CARTA
Center for Research and Training in Anthropogeny, *UC San Diego*

The Dolphin Alliance Project
UMass Dartmouth, University of Zürich, Murdoch University, UC San Diego

EDUCATION

University of California, San Diego *expected 2015*
Ph.D (*in progress*) in Cognitive Science, Specialization in Anthropogeny
Committee: Edwin L. Hutchins, James D. Hollan, Douglas A. Nitz, Christine M. Johnson, John Hildebrand (SIO), Charles Goodwin (UCLA), Richard C. Connor (UMass Dartmouth)
Thesis: Social Coordination: A distributed cognitive process among wild bottlenose dolphins (*Tursiops* sp). in Shark Bay, Western Australia

University of California, San Diego *March 2012*
M.S. in Cognitive Science
Committee: Edwin L. Hutchins, Christine M. Johnson, and James D. Hollan
Thesis: *Assessing the Socio-Cognitive Ecosystem of Eight Captive Elephants*

University of California, San Diego *June 2008*
B.S. in Cognitive Science with Distinction
Program of Concentration: Visual Arts
Advisors: Christine M. Johnson, Ann E. Bowles, and Edwin L. Hutchins
Thesis: *Steps Toward Modeling the Cognition of Odontocetes*

GRANTS, AWARDS & HONORS

CARTA Fellowship, UC San Diego	*2013-2014*
National Geographic Committee for Research & Exploration Grant	*2013*
Society for Marine Mammalogy Student Travel Grant	*2013*
Dean of Social Science Fellowship, UC San Diego	*2011, 2012*
Graduate Excellence Award, UC San Diego	*2011*
Robert J. Glushko and Pamela Samuelson Graduate Fellowship	*2011*
Cognitive Science Fellowship, UC San Diego	*2010, 2011*
Deans Award, UC San Diego	*2009*
Provosts Honors, UC San Diego	*2006–2008*

PUBLICATIONS

Friedman, W.R. Potter, S.J, Hutchins, E., Krützen, M, and Connor, R.C. (*in prep for submission to Marine Mammal Science*). The aerial advantage: a technical report on the use of three systems for obtaining low-range aerial video of sub-surface behavior among bottlenose dolphins (Tursiops sp.) in Shark Bay, WA.

Weibel, N., Fouse, A., Emmenegger, C., **Friedman, W.R.**, Hutchins, E., and J. Hollan. 2012. Digital Pen and Paper Practices in Observational Research. CHI 2012.

Piper, A.M., **Friedman, W.R.**, and J. Hollan. 2012 . Setting the Stage for embodied activity: scientific discussion around a multitouch tabletop display. Intl. Jour. Learning Technology.

Horback, K.M., **Friedman, W.R.**, and C.M. Johnson. 2010. The occurrence and context of s-posture display by captive belugas (*Delphinapterus leucas*). Intl. Jour. of Comparative Psychology, 23, 689-700.

ORAL PRESENTATIONS (SELECTED)

Friedman, W.R. Social Coordination among alliances of bottlenose dolphins (*Tursiops sp.*). UC Los Angeles, May 2014.

Hutchins, E., Johnson, C.M., **Friedman, W.R.**, Karnowski, J, and Reese, A. Dolphin Social Cognition. UCSD Cognitive Science Reunion, May 2014.

Friedman, W.R. Social Coordination among alliances of bottlenose dolphins (*Tursiops sp.*). CARTA Student Symposium, UC San Diego, April 2014

Friedman, W.R. Social Coordination: A distributed cognitive process among wild bottlenose dolphins *(Tursiops sp*). in Shark Bay, Western Australia. UCSD Cognitive Science Advancement Examination, June 2013.

Friedman, W.R. Social Coordination: A distributed cognitive process among wild bottlenose dolphins *(Tursiops sp*). in Shark Bay, Western Australia. UC Los Angeles, May 2013

Friedman, W.R. Distributed Cognition Among Wild Bottlenose Dolphins. Cognitive Science 3rd Year Graduate Talks. UC San Diego, June 2012.

Friedman, W.R. Assessing the socio-cognitive ecosystem of eight captive elephants (*Loxodonta africana*). Cognitive Science 2nd Year Graduate Talks. UC San Diego, June 2011.

Friedman, W.R. Steps towards studying the cognition of odontocetes: modeling the ontogeny of an ecology. Cognitive Science Undergraduate Honors Presentations. UC San Diego, June 2008.

Berys, C., Dhillon, N., **Friedman, W.R.**, and A. Kawas. Career Services Center Patio Design Proposal. Presentation given to the UCSD campus planning committee and UCSD Career Services Center administration. UC San Diego, February 2008.

Dhillon N., **Friedman, W.R.**, and K. Tew. Cognition at the forge: An ethnographic study of blacksmithing. Presentation given to Cogs 102B (Cognitive Ethnography). Department of Cognitive Science, UC San Diego, February 2007.

Suzuki, E. and **Friedman, W.R.** Gestural communication among beluga whales (Delphinapterus leucas). Video Analysis of Social Cognition in Non-Humans. Workshop at UC San Diego, 2007.

POSTER PRESENTATIONS

Friedman, W.R., Potter, S.J. Hutchins, E., Johnson, C.M., Krützen,, M., and Connor, R.C. Three aerial technologies for recording sub-surface behaviors among wild bottlenose dolphins (*Tursiops*

sp). 20th Biennial Conference on the Biology of Marine Mammals. Dunedin, New Zealand, December 2013.

Friedman, W.R., Horback, K.M., Johnson, C.M., Suzuki, E. (2007). The Occurrence and Context of S-Posture in Beluga Whales. First International Workshop on Beluga Whale Research, Husbandry and Management in wild and captive environments. Valencia, Spain, March 2007.

Suzuki, E., Johnson, C.M., and **Friedman, W.R.**. (2007). Gestural Communication in Beluga Whales. First International Workshop on Beluga Whale Research, Husbandry and Management in wild and captive environments. Valencia, Spain, March 2007.

REFEREE/REVIEWER

ACM, Aquatic Mammals

TEACHING

Cognitive Science 1: Introduction to Cognitive Science
Teaching Assistant, *Winter 2012*

Cognitive Science 102A: Distributed Cognition
Teaching Assistant, *Fall 2009, Fall 2010, Summer 2013*
Undergraduate Instructional Assistant, *Fall 2007*

Cognitive Science 102B: Cognitive Ethnography
Teaching Assistant, *Winter 2008*

Cognitive Science 102C: Cognitive Design
Teaching Assistant, *Spring 2012*

Cognitive Science 143: Animal Cognition
Undergraduate Instructional Assistant, *Spring 2007*

Cognitive Science 184: Modeling the Evolution of Cognition
Teaching Assistant, *Spring 2013*

Cognitive Science 199: Cognitive Ethology
Ran a 10-week internship on audio and video analysis of animal behavior, *Spring 2014*

RESEARCH EXPERIENCE

Dolphin Alliance Project 2010 - Present
Graduate Student Researcher, Manager of Field Operations *Shark Bay, Western Australia*

Since 2010 I have been collaborating with an international research organization directed by Dr. Richard C. Connor and Dr. Michael Krützen, to conduct behavioral studies of free ranging bottlenose dolphins (*Tursiops* sp.) in Shark Bay, WA. As a field manager, I oversee data collection and database management, equipment management and troubleshooting, and the safety and living needs of teams of up to 4 people. Outside of the field season I assist in funding applications, database maintenance, and organizing personnel and supplies for upcoming field seasons. Since 2010 I have implemented techniques for recording interactions between dolphins including pole-mounted underwater cameras, bow-mounted cameras, aerial cameras, and hydrophones for recording underwater behavior and acoustics. In 2012 and 2013, aided by a grant from the National Geographic Society, the seasons I ran were focused on collecting data on sub-surface interactions among adult male dolphins using aerial video and underwater acoustic recordings, in addition to maintaing long-term project records.

Useless Loop Dolphin Research Jul–Sept 2012
Manager of Field Operations *Shark Bay, Western Australia*

Field manager for Western Gulf / Useless Loop dolphin research project in Shark Bay, WA, directed by Dr. Michael Krtzen and Simon Allen. Lead daily research activities for a team of three including data collection, processing, and management of personnel and equipment. Maintained long term sighting records of individuals and piloted techniques for future study of the recently reported shelling behavior.

Digital Analysis of Pilot Activity 2010–2012
Graduate Student Researcher *UC San Diego & Boeing*

Collaborated with a team lead by Dr. Edwin L. Hutchins to develop tools for analyzing multi-modal data of airline pilot activity in training simulators. With Dr. Nadir Weibel, Adam Fouse, and Colleen Emmenegger, helped develop digital ethograms that replace current technology with digital pen and paper tools for seamless transition between recording activity and analyzing data. Participated in the instrumentation of wearable eye-glasses for recording gaze, video analysis, and integration with software developed by Adam Fouse, ChronoViz. (Weibel et al, 2012)

UC San Diego & San Diego Zoo 2010–2011
Graduate Student Researcher *San Diego, California*

For my Master's Thesis in Cognitive Science, I investigated the dynamics of a socio-cognitive ecosystem produced and maintained by eight captive elephants (*Loxodonta africana*) over the course of a five month study period (November 2010 - March 2011). A theoretical framework for investigation was considered in detail (Distributed Cognition), and its entailments for study were re-capitulated in the conduct of the investigation. Two discrete measures for assessing the relationships emergent of this system were compared: association by proximity, and negotiations around shared food re- sources. Using these measures, I addressed two framing questions (1) Do relationships mediate access to shared food resources? (2) How does this cognitive system respond (and re-organize) after the birth of a new baby? The structure and dynamics of this system were assessed via pooled analyses of asymmetry, linearity, and structural hierarchy, and divided analyses were conducted on networks of activity during three observation periods within the full study. I found the system in this investigation to be dynamic, and suggested that the socio-cognitive system of the elephants underwent a significant perturbation and re-organization during the course of this study period.

Distributed Cognition & Human Computer Interaction Laboratory 2008–2009
Research Assistant *UC San Diego, San Diego, California*

Worked with Dr. Edwin Hutchins, Dr. Jim Hollan and graduate students Adam Fouse, Anne Marie Piper, and Gaston R. Cangiano on projects relating to Human Computer Interaction, including event segmentation with Fouse, context reinstatement with Cangiano, and large-scale digital displays for learning with Piper (Piper et al 2012).

2D Image Recognition and Social Transmission in Bottlenose Dolphins 2009
Graduate Student Researcher *UC San Diego & Sea World, San Diego CA*

Wild Dolphin Project Jul 2009
Field Assistant *R/V Stenella, Little Bahama Bank*

UC San Diego & Hubbs Sea World Research Institute 2008
Undergraduate Researcher *San Diego, California*

UC San Diego & Hubbs Sea World Research Institute 2007
Undergraduate Research Assistant *San Diego, California*

UC San Diego & Hubbs Sea World Research Institute 2006
Undergraduate Research Assistant *San Diego, California*

UC San Diego & San Diego Zoo 2006–2008
Undergraduate Research Intern *San Diego, California*

COMMUNITY PARTICIPATION

St. Mark's Nursery School April 2014
Visiting Scientist, What is an Ecosystem? *San Diego, CA*

Hands on presentation given to pre-school students about marine ecosystems.

National Geographic BioBlitz March 2014
Inventory Lead *Golden Gate National Parks, CA*

Lead a team of community participants in an inventory of local on- and near- shore marine mammals during a 24-hour species count.

Monkey Mia Community Center 2010–2013
Lecturer, Research Seminar for Monkey Mia Visitors *Shark Bay, WA*

Twice weekly seminar to visitors on current and past dolphin research and marine ecosystems, including one kids night and one night for general audiences.

Useless Loop Community Center Sept 2012
Visiting Scientist, Useless Loop & Shark Bay Dolphin Research *Shark Bay, WA*

Seminar presented to local community members about the dolphin research conducted off Useless Loop in Shark Bay, WA.

Useless Loop Elementary School Aug 2012
Visiting Scientist, The Shark Bay Ecosystem & Dolphin Foraging Tactics *Shark Bay, WA*

Hands on presentation given to elementary school students about the local ecosystem and dolphins

Social Science Supper Club May 2012
Graduate Student Presenter *UC San Diego*

A brief research presentation to UC San Diego supporters and San Diego community members.

Hi Tech Elementary School Mar 2012
Visiting Scientist, Community Ecology for First Grade *Chula Vista, CA*

Hands on presentation given to first-graders learning about marine ecosystems and conservation.