New for Fall 2019! I400/590 Introduction to Animal-Computer Interaction Methods

INFO 400 - 34722 (Registration for this class requires permission of the instructor: cmartin@indyzoo.com)

INFO 590 – 34723 (Both courses meet together)

Meets Mondays, 6:30 PM – 9:00 PM in BH 246

Instructor: Dr. Christopher Martin, Department of Informatics and Indianapolis Zoo

Animals can use computers too. The emerging field of Animal Computer Interaction (ACI) explores conceptual and practical aspects of how animals interact with modern technology. Primates in captivity, for example, often participate in computer touch-panel tasks for research and enrichment purposes. In developing such kinds of computer tasks, it is necessary to create a User Experience (UX) that targets the physical and mental capabilities of a given species, and to build hardware and software that is informed by relevant research findings from the fields of animal behavior and cognition. This course will introduce cutting-edge Animal-Computer Interaction (ACI) methods with a focus on how they are used to enhance animal welfare, enrichment, husbandry, and cognitive research opportunities in domestic, wild, agricultural, and zoo, sanctuary, and university settings. It will also take a critical approach and consider key challenges relating to access, ethics, implementation, scale, and evaluation of ACI methods. The curriculum is designed for students to assist them in developing strategies and technological skills to work amid the rapidly evolving landscape of animal care, research, conservation, and management. Students can expect a hands-on and interactive learning environment with a variety of examples from organizations that are engaged in using technology to provide better animal stewardship.

Dr. Chris Martin is a research scientist and software developer with ten years of experience designing and running computer touch-panel tasks with great apes. In 2012 he received a PhD degree in Biology from Kyoto University, where he worked daily with a group of 14 chimpanzees that were experts at computer tasks. His doctoral thesis examined how chimpanzee pairs utilize game theory while playing competitive games over interconnected touch-panel screens. He has held Research Scientist positions at Primate Research Institute of Kyoto University and The Indianapolis Zoo, where he currently chairs the zoo's research committee and conducts cognitive studies with orangutans, dolphins, and macaques. In 2017 he founded Zenrichment, a company that designs and builds primate touch-panel systems and software used daily by primates at multiple zoos and research institutions in the United States and Japan.

Selected Publications

Martin CF, Biro D, Matsuzawa T (2013) The Arena System: A novel shared touch-panel apparatus for the study of chimpanzee social cognition and interaction. *Behavior Research Methods*, doi: 10.3758/s13428-013-0418-y

Martin CF, Bhui R, Bossaerts P, Matsuzawa T, Camerer C (2014) Chimpanzee choice rates in competitive games match equilibrium game theory predictions. *Scientific Reports* 4, 5182, doi:10.1038/srep05182

Martin CF, Biro D, & Matsuzawa T (2017) Chimpanzees spontaneously take turns in a shared serial ordering task. *Scientific reports*, 7(1), 14307. doi: 10.1038/s41598-017-14393-x

Martin, CF. Shumaker, RW. Computer Tasks for Great Apes Promote Functional Naturalism in a Zoo Setting. In Proceedings of ACI18, December 4–6, 2018, Atlanta, GA, USA DOI: https://doi.org/10.1145/3295598.3295605