Human-Animal Interaction Research Initiative (HAIRI)

Understanding and promoting the health and wellbeing of both human and non-human animals in symbiotic relationships

Concept Statement

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Background
The relationship between humans and non-human animals (hereafter simply “animals”) is a rapidly growing focus of multidisciplinary research and clinical application. Most of this growing interest is focused on domesticated pet animals (especially mammals like dogs and cats) and select other species (especially horses) who have been our steady companions and important to our survival for thousands of years.

Some Recent Research Findings...

Dogs are ‘Probiotics’, Help Immune System: As one indicator of our long symbiotic relationship, recent studies show that pet owners and their dogs (but not cats) share as much of their skin and gut microbiome as do cohabiting married couples. If, as it seems, your dog Fido is a probiotic, then having a dog in your home could affect immune functioning and inflammation-related diseases, including depressive illness.
Song et al., (2013). Cohabiting family members share microbiota with one another and with their dogs. eLife April issue, pp. 1-22.

Pets in Families Help Children: Pets play a significant role in the lives of young children, perhaps aiding their emotional development and socialization. In this study, over 50% of children talked to their pets and a third even confided in their pets, believing that their pets knew how they felt. As they would to their friends, while over one in three confided in their pets. Single children and youngest siblings in a family formed a particularly strong attachment to their pets.

Dogs Attached to Companions, Not Food: Apparently dogs truly love their owners. fMRI scans of dog brains show activation in brain areas in response to their owner’s return after absence or their smell. The same brain areas are activated in people when they experience positive emotions, such as love or pleasure.

Guinea Pigs Benefit Children with Autism Spectrum Disorder: Children with ASD increased their positive social interactions and increased positive affect with peers in the presence of guinea pigs. The presence of toys did not have this effect.

Grass-feeding is Good for Cattle and Humans: Cattle kept in pastures on a diet of natural grasses produce better quality meat (largely because of healthy fatty acid composition) than cattle fed commercial feed. In effect, pasture fed cattle are likely to lead improved lives and yield benefits for human nutrition!
Growing understandings of the mutual benefits of the human-animal relationship for health and well-being is driving new funding for basic research and its therapeutic applications, and stimulating the growth of institutes or academic programs of study in universities, medical schools, and schools of veterinary science nationally and internationally. This proposal provides a broad overview of such academic and therapy programs and outlines the purpose, vision and potential benefits of HAIRI for the University of Arizona and the state more generally.

The Tucson region is a “hotbed” for animal-assisted therapy (e.g., treatments for depression, physical disabilities, drug abuse, and autism) and other animal-facilitated clinical and learning programs. Following are some examples in and around Tucson:

**Equine Programs**
- TROT (equine physical therapy)
- Sierra Tucson (equine therapy)
- EPONA (equine emotional therapy)
- Cottonwood (equine substance abuse/addiction)
- Miraval (equine emotional awareness)
- UA Medical students-Hamilton (equine emotional awareness/communication)
- TRAK (equine and other domesticated animals for emotional support for mature adults and hospital patients)
- Whisper's Sanctuary (equine emotional therapy for military PTSD)
- Therapy Animals of Southern Arizona
- Horses with Wings (therapeutic riding and equine assisted learning) partnered with Angels in Autism (education and therapy services for autistic children)

**Canine Programs**
- Delta Society/Pet Partners
- Wolfhound Project (for veterans with PTSD)
- Pima library “Read to a Dog” program
- “Pet a Pooch” program on UA campus

While many private organizations provide some form of animal-assisted therapy, it has become clear that there is as yet relatively little solid scientific support for the claimed benefits of such programs nor an understanding of the bio-psychological mechanisms or processes underlying claimed therapeutic effects. Indeed, in recognition of this lag in scientific study, and to inspire “evidence-based” practices, the NIH’s National Institutes Child Health & Development (NICHD) has created a new “Human-Animal Interaction” funding initiative. Likewise the American Psychological Association dedicated a new membership section and journal to this area of interest. And for the same reason, a number of research centers have sprung up nationally and internationally in and outside academic institutions, as well as professional organizations and peer-reviewed journals dedicated to human-animal interaction research and clinical practice.
Following are examples of such organizations and professional journals:

- International Society for Anthrozoology, *Anthrozoos* journal
- *Between the Species* - online journal for the study of philosophy and animals
- *Humanimalia* - journal of human/animal interface studies (online, peer reviewed)
- Minding Animals International - organization to support conferences, animal protection
- *Animals* journal (MDPI-Multidisciplinary Digital Publishing Inst., Switzerland; open access)
- American Psychological Association—Section on Human-Animal Interaction Research & Practice
- *Journal of Human-Animal Interaction*
- *Journal for Critical Animal Studies*
- *Society for Companion Animal Studies Journal*
- IAHAIO (Int. Assoc. of Human-Animal Interaction Organizations)

Following are examples of academic institutions and programs dedicated to research on human-animal interaction:

- Brock U. Ontario, Canada-- The Institute for Critical Animal Studies (ICAS) -- offers concentration or minor for Sociology majors in CAS.
- Univ. of Pennsylvania School of Vet. Med.--Center for the Interaction of Animals and Society (CIAS) as it relates to psychology, e.g., animals & interpersonal violence, human-animal bond.
- Wesleyan U.--Animal Studies program
- Prescott College -- MA in Counseling Psychology with specialty in Equine Assisted Mental Health
- Humane Society University-- online degrees in Animal Studies etc.
- U. of Denver Grad Sch. of Social Work -- Inst. for Human-Animal Connection; offers online certificate in “Animals and Human Health”
- University of Redlands (CA)-- undergrad minor in Human-Animal Studies
- Canisius College (Buffalo, NY) Institute for the Study of Human-Animal Relationships (ISHAR)—interdisciplinary Masters degree in Anthrozoology and undergraduate minor in Anthrozoology.
- Virginia Commonwealth U. School of Medicine --Center for Human Animal Interaction; boasts of being only med school in country with such a program
- Washington State University, College of Veterinary Medicine’s Center for the Study of Animal Well-Being (CSAW) -- developing a certificate in Human-Animal Interaction
Purpose and Vision

Purpose

HAIRI uses an interdisciplinary approach to understand and promote the health and well-being of both human and non-human animals in symbiotic* relationships through research, education, and outreach.

Vision

We envision HAIRI as a leading authority in human-animal interactions, advancing mutualistic relationships in families and industry. Further, we envision HAIRI as internationally recognized by academic and industry practitioners as one of the top 3 research and education centers in the field of human-animal interaction, with a logo that is highly regarded and trusted by pet owners and animal businesses.

Through collaborative research, education, and outreach HAIRI will—to our mutual benefit—enhance understanding of our connection to nonhuman animals, especially those species with whom we have co-evolved, developed a co-dependence, or that provide companionship for us today. Following are examples of research areas, and educational and outreach activities, some of which are in progress, as noted below:

Research

- Therapeutic effects of pet animals (horses, dogs) on human health and well-being of elderly adults, special needs individuals (e.g., autism), or individuals with mental or emotional disabilities (e.g., depression, anxiety, PTSD). In progress.
- Role of pet animals in family households (e.g., nature of attachment processes and impact of attachment in diverse family structures)
- Utility of “robotic” pets as human companions (e.g., ‘study-buddy’ for college students or ‘constant-companion’ for socially isolated, mature adults)
- Evolution of and variation in attitudes and use of animals (e.g., significance of early experience, culture or personality in attitude or moral standing of animals). In progress.
- Matching dog or horse personality and cognitive attributes to owners or trainers (e.g., successful pairing to reduce returned adopted pets, give horses an advantage on the racetrack, or make better therapy partners)
- Emotional awareness and mentalizing capacities in the sign-language-trained gorilla Koko. In progress.

Education

- Develop courses and curricula, as needed, advancing the study of animal behavior, cognition (e.g., levels of awareness), emotions, and biology (“ethology”) in order to

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* Symbiosis is a close relationship between two different kinds of organisms that are interdependent. The nature of the relationship can be characterized as: Mutualism- mutually beneficial to both organisms; Commensalism- one organism benefits and the other isn’t affected much at all; Parasitism- one organism benefits and the other is harmed. HAIRI seeks to understand all these kinds of human-animal relationships, with particular emphasis on Mutualism.
better understand the mechanisms and effects of human-animal interaction on human health and wellbeing.

- Develop courses and curricula, as needed, that further the health and well-being of nonhuman animals by expanding knowledge of the human-animal relationship, including exploration of legal and ethical implications for human use of animals in research, education or entertainment (e.g., zoos, circus), and wildlife-human conflict.†
- Develop undergraduate interdisciplinary minor and/or certificate in “Animal-Human Relationships” and subsequently Graduate Interdisciplinary minor in same.
- Work with CALS Career and Academic Services to develop career-focused learning, directed towards employment opportunities in animal and health industries (e.g., social services, health services, livestock or pet product marketing and development).
- Develop curriculum content for faculty who wish to include a module on human-animal interactions in their courses (e.g., attachment theory and the role of pets in families; wild primate commensalism issues). In progress.

**Outreach**

- Work with university private partners and donors (e.g., PetSmart) to develop customized pet products (e.g., toys, activities) that match pet personality and cognitive style, via UA’s Tech Launch program.
- Establish a Research to Practice Action Committee, partnering researchers and practitioners in animal assisted therapy to develop science-based “Best Practices”.
- Serve on boards and advisory committees of organizations active at the interface of animals and human welfare.

**Benefits to the U of A**

There is at present no initiative or program similar to the one proposed here within the state of Arizona. Faculty and students from a number of academic units could benefit from the proposed initiative through new funding of interdisciplinary research collaborations, and new academic programs (undergraduate minor, GIDP) that would attract students to participating colleges. Professional certifications (including through Continuing Education), in human-animal interaction or animal-assisted therapy, for example, could be developed as a new revenue stream. The following academic units and interest groups come to mind:

- **COLLEGE of AGRICULTURE and LIFE SCIENCES**: Norton School of Family and Consumer Sciences (Family Studies & Human Development/McClelland Inst. - Lang lab-science of social relations and health; Retail- marketing to Pet Parents); School of Natural Resources (human-wildlife conflict, wildlife rehabilitation); New Veterinary School program; 4-H programs.
- **COLLEGE of MEDICINE**: Dept. of Psychiatry, Center for Integrative Medicine,
- **COLLEGE of SOCIAL & BEHAVIORAL SCIENCE**: School of Anthropology, Dept. of Philosophy
- **COLLEGE of SCIENCE**: Psychology (Ethology & Evolutionary Psychology); Clinical Psychology
- **COLLEGE of LAW**: (Environmental law, wildlife, lab animal, and pet laws)

† Whenever possible, courses will be cross-listed in Animal/Veterinary Science, Anthropology, Family Studies & Human Development, Psychology, Medical School, Natural Resources, Law
The proposed initiative will also foster new or build upon connections to industry (e.g., PetSmart, Waltham, professional horse industry groups--AQHA, etc.) and university animal facilities (e.g., Cooperative Extension Farm, Al-Marah Arabian horse ranch, VBarV Ranch). As well, HAIRI will be in keeping with the university’s new vision (“Never Settle”) to build strong interdisciplinary collaborations. Importantly, too, HAIRI will prominently tie the study of human health (physical and mental) to the Norton School.

**Benefits to Humans and Animals**

Examples of human and animal beneficiaries and benefits:

<table>
<thead>
<tr>
<th>Improving the Welfare of Humans</th>
<th>Improving the Welfare of Animals</th>
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<tbody>
<tr>
<td>• Distressed, handicapped, elderly, socially ostracized (receiving animal assisted therapy or benefitting from pets as companions)</td>
<td>• Animals in agricultural industry</td>
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<tr>
<td>• Pet parents &amp; families</td>
<td>• Sport or performance animals (e.g., race horses)</td>
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<td>• Homeless (benefit by having a pet)</td>
<td>• Lab animals, animals used in science</td>
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<tr>
<td>• At-risk youth (benefit by having a pet)</td>
<td>• Pets</td>
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<td>• Those seeking to grow/develop communication or emotional awareness</td>
<td>• Zoo animals</td>
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<td>• Veterinarians seeking to aid pet parents/families</td>
<td>• Wildlife (in conflict with humans)</td>
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<tr>
<td>• Medical/veterinary students seeking to improve their “bedside” manners</td>
<td>• Pound/SPCA animals</td>
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<td>• Adults struggling with PTSD (e.g., veterans), depression and anxiety</td>
<td>• Animal Rehabilitation Centers</td>
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<td>• Stress reduction for university students (e.g., robotic or live “study buddies”)</td>
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<td>• Children with reading difficulties (e.g., “read to a dog”)</td>
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**Start-Up**

**Research**

Extramural funding is being sought for a “demonstration research project”. Such a project would highlight the interdisciplinary collaboration that is possible at U of A, as well as the applications to health or animal industry. Possible collaborative pilot projects include:

- **Probiotic Dogs**: This project would test the impact of dogs as home companions for mature adults on composition of gut microbiome and measures of physical and mental health.
- **Horse Therapy for Depression**: This project would test the effectiveness of horse-human interaction as a therapeutic intervention on the alleviation of depressive illness in comparison to other therapeutic interventions. It would make use of the research design and experimental protocols presently used in Dr. Raison’s lab.

The results of a demonstration project would be used to secure additional research funding.
Faculty and Staff
The initiative would not require additional faculty nor staff lines. However, some increment in FTE for existing faculty/staff will likely be necessary to compensate for coordination of critical start-up activities, including the recruitment of affiliate faculty, development of an interdisciplinary undergraduate minor with career-focused learning, and exploring new product marketing with the pet industry (especially PetSmart) and UA Tech Launch.

**HAIRI people** (possible affiliate U of A faculty)

**COLLEGE of AG and LIFE SCIENCE**
- Dieter & Netzin Steklis (FSHD)
- Chuck Raison (FSHD/Psychiatry)
- Melissa Curran (FSHD)
- Ann Mastergeorge (FSHD)
- PetSmart Chair—unoccupied (RCSC)
- Michael Staten (CALS-CASS)
- Robert Shaw (Natural Resources)
- Ed de Steiguer (Natural Resources)
- Shane C Burgess (Veterinary Science and Microbiology)
- Charles R. Sterling (Veterinary Science and Microbiology)
- Elaine Marchello (Veterinary Science and Microbiology)

**COLLEGE of MEDICINE**
- Chuck Raison (FSHD/Psychiatry)
- Richard Lane (Psychiatry)
- Karen Weihs (Psychiatry)
- Alexander Hamilton (Neurosurgery)
- Richard Wahl (Pediatrics)
- Anne Baldwin (Physiology)

**COLLEGE of SOCIAL & BEHAVIORAL SCIENCE**
- Stacey Tecot (Anthropology)
- David Schmidtz (Philosophy)

**COLLEGE of SCIENCE**
- Jim King (Psychology)
- AJ Figueredo (Psychology)
- Gary Schwartz (Psychology)

**COLLEGE of LAW**
- Sara Dent (Adjunct Faculty)