International Society for Neuroethology

Newsletter
March 2008

International Society for Neuroethology
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ISN Officers

This Issue Includes

President's Column

Martin Heisenberg (heisenberg@biozentrum.uni-wuerzburg.de) Theodor-Boveri-Institut für Biowissenschaften der Universität Würzburg, Germany

Dear friends and ISN members:

Do you notice the new style of the Newsletter? The voice of the society has changed from tenor to soprano. Ian Meinertzhagen has handed over the Secretary's office and with it the editorial duties for the Newsletter, to Katalin Gothard. Less apparent but equally important, at the end of January the new Treasurer Fred Delcomyn has taken over all the accounts and signature authority from Peter Narins, his predecessor.

This gives me the opportunity to once again thank the past officers for their time and thoughts, -precious gifts- they donated over the years to the society, and to welcome Kati and Fred to our forthcoming collaborations.

In my previous column I had suggested that Neuroethology could profit from an "authoritative" textbook, something like Lewin's 'Genes' or what here in the lab is the Kandel (ER Kandel, JH Schwartz, TM Jessel: Principles of Neural Science). I still believe this could be useful for teaching and for explaining to a journalist or politician what Neuroethology actually is. In my experience, many people outside the field and even some Neuroscientists do not understand the word Neuroethology. (Some even read it as Neurotheology.)

In this remark I mentioned as an example of what we already have, a book that happened to come to my mind. Promptly, I received an email pointing out to me that I had been partial in mentioning just only one book on Neuroethology although there actually exist (at least) three. Indeed, these are, in alphabetical order:

1. Carew, T. J. "Behavioral Neurobiology" (2000, Sinauer Ass.)
2. Simmons, P. & Young, D. "Nerve cells and animal behaviour" (2nd Ed. 1999, Cambridge University Press)
3. Zupanc, G. K. H. "Behavioural Neurobiology" (2004, Oxford University Press).

It is my pleasure to now mention them all here in the new Newsletter. I regret not to have known two of them earlier. All three are excellent introductions to Neuroethology. Each one impresses me by its scholarliness, its enthusiasm for the field and its personal outlook on it. Günther Zupank's book is the most recent one. Following the current trend in Neuroethology, it is nearly exclusively devoted to vertebrate systems. What I like in particular is that it gives extensive credit to the pioneers in the respective fields. The book of Peter Simmons and David Young is already in the 2nd edition, indicating how well the first one was received. As its title says, it emphasizes the role of individual neurons in behavior biasing it towards small (mostly invertebrate) systems. Being the shortest of the three, it keeps the style of an introduction. Tom Carew in his book treats "…in depth a select number of distinctive and often remarkable forms of natural behavior that are understood well enough in cellular terms to provide fundamental insights into key principles underlying the neural basis of behaviour". All three are great books. None of them would be dispensable, even once a full sized textbook was available.

Glancing through the books it occurs to me, that conceptually all three are Sherringtonian. That is, they expand on the reflex theory of behaviour: Sensory input drives motor output. Or, in a more sophisticated version: (a) Sensory integration, (b) motor programming, (c) behavioural modulation. However, in the light of evolution and genetics one might want to take a different approach. Start with the enormous degree of autonomy of an animal constituting its 'self', then consider its need of homeostasis, next discuss its mobility in space, then the diversification of motor activity and the imperative of suppressing most of it most of the time. This would set the stage for behavioural modulation, with sensory processing as one kind of modulation, with goals, desired values of homeostatic variables, with states, desired states and intentionality, with the bargaining of behavioural options, and finally with cognition, the quest for consistency in the construction of the "world". Following this path one might eventually arrive at a behavioural model of the brain. I would like to see an 'authoritative' textbook organized along these lines.

First IBRO Advanced School on Neuroethology; Latin American Neuroethology on the Move

Martin Giurfa (giurfa@cict.fr)
Centre de Recherches sur la Cognition Animale, CNRS - Université Paul Sabatier-Toulouse III.

The first IBRO (*International Brain Research Organization*) Advanced School on Neuroethology took place in Buenos Aires and San Clemente del Tuyú Argentina during 12-29 November 2008. Thanks to the generous support of IBRO (through its Latin American Regional Committee) and the inexhaustible efforts of the local organizers, **Lidia Szczupak** and **Daniel Tomsic**, this exciting new School included lectures by overseas and local faculty members, field work, and laboratory experiences.

Local organizers Lidia Szczupak and Daniel Tomsic together with faculty member Martin Giurfa (France) at San Clemente, recalling the times when they were all students at the University of Buenos Aires and the fabulous experience of IBRO schools were not yet available

A motivated group of 20 students from Argentina, Brazil, Chile, Colombia, Cuba and Uruguay was selected by the local organizers from among a high number of applicants and given opportunities to discover diverse facets of neuroethological research. The students' own research covered a broad spectrum ranging from electro-localization in fishes and echolocation in bats to learning in toads, crabs and stingless bees.

George Pollak (University of Texas, Austin) explained the principles and organization of peripheral and central auditory systems in mammals and focused on echolocation and social communication in bats. George explained the properties of different neuronal populations along the auditory circuit of bats in an attempt to understand what is unique (and what is not) in an echolocator.

The School started in San Clemente, a small city situated at the seaside where the Rio de la Plata river meets the Atlantic Ocean. San Clemente, a favorite summer destination of Argentineans, provided a perfect scenario for the first week of the School, as it unified a beautiful surrounding landscape and a calm atmosphere, typical of springtime. Students were exposed there to an intensive program of lectures, brainstorming sessions, and round tables in which foreign faculty members, invited especially to teach in this School, shared with them various aspects of their research, career experiences, and personal recollections.

Bill Kristan (University of California, San Diego) inaugurated the course with a lecture comparing the fields of systems neurophysiology and neuroethology, concluding that both have their strengths and weaknesses, and that the most creative neuroscientist will take advantage of what each approach has to offer. Bill also spoke about his work on decision-making in leeches, showing that there are neuronal mechanisms used to decide among various behaviors: feeding, shortening, bending, swimming, and crawling.

Jochen Zeil (Australian National University, Canberra) introduced the topics of vision and navigation demonstrating how the ecology and lifestyle of animals have shaped the design of their visual systems and determine their navigational knowledge base. In this way, he provided a thorough introduction to sensory ecology and showed how very simple field experiments can be used to identify some of the mechanisms underlying animal navigation.

Peter Narins (University of California, Los Angeles) focused on animal communication and presented morphological, physiological, and behavioral adaptations in a wide variety of taxa that appear to have evolved specifically to tailor and sculpt intraspecific communication systems. He focused on frogs and golden moles as models due to the exquisite diversity of their sensory capacities and their potential for testing adaptational hypotheses of the neuroethology of animal communication.

John Hildebrand (University of Arizona, Tucson) presented his studies on the neuroethology of olfactory detection of and orientation to hosts and mates by moths. He introduced the insect olfactory system and explained its role in controlling these specific behaviors in the moth *Manduca sexta.* John analyzed in detail how odors are represented in the central nervous system. He explained which features of odors are extracted and encoded in terms of neural activity and which parameters of neural activity encode which odor characteristics.

Martin Giurfa (University of Toulouse, CNRS, France) spoke about learning and memory in honeybees, distinguishing elemental vs. non elemental problem solving in these insects. His presentation underlined the enormous richness of experience-dependent behavior in honeybees, its flexibility, and the fact that it is possible to formalize and characterize at the neural level in controlled laboratory protocols basic and higher-order cognitive processing using an insect as a model.

Finally, **Jan Hemmi** (Australian National University, Canberra) spoke about color vision and the ecology of information processing. He explained the functional principles of color vision, how to prove its presence in an animal, and how to perform appropriate color measurements both in the laboratory and in the field. He illustrated the concept of an information processing ecology by focusing on how fiddler crabs organize their behavior in order to optimize the availability of information and deal with the effects of limited information in the context of burrow defense and of predator avoidance.
The week in San Clemente finished with two days of field work performed in the 'cangrejales', the particular ecosystem close to the sea in which two species of crabs *Uca uruguayensis* (fiddler crabs) and *Chasmagnatus granulata* coexist. Guided by Jochen Zeil and Jan Hemmi, students and faculty members spent these days observing several aspects of the crabs' territorial and mating behavior and performing experiments on habituation and predator avoidance.

The School continued in Buenos Aires, where local faculty members delivered a series of lectures to the students covering aspects ranging from communication in bees and the neural basis of song communication in birds to visual processing and memory in crabs, motor control in leeches, and circadian rest activity in fruit flies. In addition to the main organizers, Lidia Szczupak and Daniel Tomsic, the speakers included **Hector Maldonado, Ana Silva (Uruguay) Gabriel Mindlin, Fernanda Ceriani, Arturo Romano** and **Walter Farina**. Meanwhile, each day the students had a different laboratory experience involving neuroanatomical, electrophysiological, and behavioral techniques.

Faculty member Ana Silva (Uruguay) and students Ariadna Cobo-Cuan (Cuba) and Esteban Beckwith (Argentina) recording responses in electric fishes at the University of Buenos Aires

The course was wonderfully rich and successful. It was a unique experience not only for the Latin American students who participated, but also for the local and overseas faculty members, owing to the enthusiastic atmosphere created by Lidia and Daniel. They deserve all the credits for achieving a splendidly successful enterprise. It is hoped that this will be just the first of a series of similar IBRO events helping to promote neuroethology in countries with developing scientific endeavors.

Neuroethological studies in freely-behaving echolocating bats: past, present, and future

Nachum Ulanovsky (nachum.ulanovsky@weizmenn.ac.il)
Department of Neurobiology, Weizmann Institute of Science, Rehovot 76100, Israel.

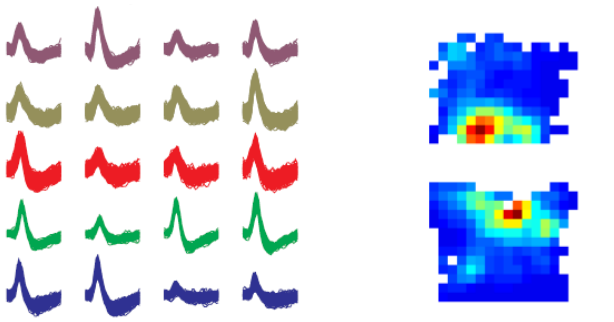
A few months ago, after telling a stranger that I am studying bats, he exclaimed: "Bats! These creatures must the pinnacle of evolution!". It remains debatable whether indeed bats are the pinnacle of evolution, or perhaps we are – or none of the above – but certainly bats have captivated the imagination of people, scientists and non-scientists alike. Mammals that can fly; can navigate and avoid obstacles in complete darkness; can live almost ten times longer than rats or mice – the biology of bats is a fascinating topic. Neuroethologists have also been fascinated by these animals, and have studied extensively the neural basis of their extraordinary behavioral capabilities; this endeavor resulted in some of the greatest achievements of neuroethology, as can be witnessed by opening any neuroethology textbook.

One could argue that the "holy grail" of neuroethology is to elucidate the neural basis of behavior in freely-behaving animals. However, in bats, as in many other model animals of neuroethology, much of the research was done in freely-behaving animals, but rather in animals that were restricted not to move. The stimuli used were also oftentimes not entirely natural: for example, when studying the neural basis of the bat sonar system, most studies (with a few notable exceptions) utilized artificially produced pulse-echo pairs, rather then letting the bat vocalize and recording the response to the actual returning echo. This situation – of studying the neural basis of behavior in non-behaving animals – has two underlying reasons, each of them a very good one: First, the technical difficulty of performing electrophysiological recordings of single neurons in freely behaving animals (this still remains much of a problem when studying invertebrates). Second, the difficulty of controlling the behavior in a freely-behaving animal. Certainly using a restrained animal allows overcoming both of these difficulties. Nevertheless, the second issue can be overcome by training the animal to perform a carefully designed and well-controlled behavioral task, as has been done in monkeys and in rats for decades. In this article, I would like to argue that, at least in the case of bats, the first problem can

also be overcome: we are now at a stage when the technical difficulty of recording in freely behaving bats (and indeed in many other vertebrates) does not constitute a fundamental problem anymore.

Bat species used as a model animal in the lab: the Egyptian fruit bat, Rousettus aegyptiacus. Photo courtesy of M. Brock Fenton.

Having earned a B.Sc. in Physics, and a Ph.D in neural computation – doing electrophysiological recordings in cat auditory cortex (Ulanovsky et al., 2003) – I, too, was fascinated by the biology and physics of bats. My first studies in bats were field studies, where we demonstrated for the first time the existence of a jamming avoidance response (JAR) in two closely-related bat species in Israel and in the US: these studies showed that, similar to JAR in *Eigenmannia* and some other species of weakly electric fish, bats shifted their sonar call frequency to avoid overlap with the frequency of conspecific calls (Ulanovsky et al., 2004; Gillam, Ulanovsky, McCracken, 2007). My true passion, however, was in actually conducting recordings of neural activity in freely-behaving bats, in order to understand the neural basis of behavior – more specifically, the neural basis of learning and memory in one of the brain's most fascinating areas, the hippocampus. The hippocampus is crucial for spatial memory in animals and humans, and bats constitute a wonderful animal model for hippocampal studies, since they possess an outstanding spatial memory, covering many spatial scales: from > 1000-km annual migrations in some bat species, down to three-dimensional (3-D) spatial memory on a 1-cm scale, in lab conditions. To achieve this goal, I went to do a postdoc at Cindy Moss's BatLab at the University of Maryland, where I took head-on the technical difficulties of recording neural activity in a tiny animal like the big brown bat (*Eptesicus fuscus*), which weighs 15 g: to this end, I adapted tetrode-recording techniques to studies of neural activity in the hippocampus of crawling bats (as to flying bats, see below).



Spike waveforms of five pyramidal neurons recorded simultaneously in bat hippocampal area CA1

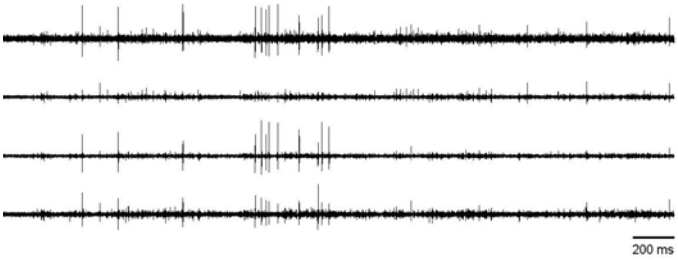
Place fields of bat hippocampal place cells

Figure 1. Neural recordings from bat hippocampus. Left: spike waveforms of five simultaneously-recorded neurons from bat hippocampal area CA1, recorded using a tetrode. Rows show the five neurons (five colors), columns show the four channels of the tetrode: one can clearly see the different spike amplitudes on the different tetrode channels, which forms the basis of the spike-sorting technique for tetrode data. Shown are all the spike waveforms that were recorded with this tetrode during a 2-hour recording session with all waveforms superimposed (several thousand waveforms in total). Right: Place fields of two place cells, red = maximum activity of the neuron. From Ulanovsky and Moss (2007).

Tetrodes are bundles of wires with four recording points at the end; putting four tetrodes (sixteen recording channels altogether) into a 2.1-gr microdrive, allows high-fidelity recordings of single-neuron activity from several simultaneously-active neurons. Tetrodes allow recording spiking activity from freely behaving animals with quality and stability that regular electrode techniques do not allow (the basic principle of spike-sorting of tetrode data relies on using the relative amplitudes of the spikes recorded on the four channels of each tetrode, as illustrated in Fig. 1).

These recordings showed that the bat hippocampus contains "place cells" similar to rodent hippocampus: these are neurons that become active when the animal passes through a restricted region of the environment, termed the "place field", and are thought to be crucial for spatial memory and navigation. The place cells that we found in the bat hippocampus (e.g. Fig. 1, right) were as common, as spatially-selective and as stable as place cells in rat hippocampus. Some other aspects of the neural activity in bat hippocampus, such as the theta oscillation, turned out to be surprisingly different than in rodents – but for details I will refer the readers to the article that we published recently on these first recordings of neural activity from bat hippocampus (Ulanovsky and Moss, 2007). Instead, I want to turn to describing some of the future plans for my new lab at the Department of Neurobiology of the Weizmann Institute of Science.

(Figure 3 and the literature cited in on page 6)



Spikes recorded from bat hippocampus using a custom radio-telemetry system (the four traces show the four channels of one tetrode)

Figure 2. High-quality spike recordings from bat hippocampus using a specialized neural-telemetry system.

Literature

Gillam EH, Ulanovsky N, McCracken GF (2007) Rapid jamming avoidance in biosonar. Proc R Soc Lond B 274:651-660.

Knierim JJ, McNaughton BL (2001) Hippocampal place-cell firing during movement in three-dimensional space. J Neurophysiol 85:105-116.

Knierim JJ, McNaughton BL, Poe GR (2000) Three-dimensional spatial selectivity of hippocampal neurons during space flight. Nat Neurosci 3:209-210.

Ulanovsky N, Moss CF (2007) Hippocampal cellular and network activity in freely moving echolocating bats. Nat Neurosci 10:224-233.

Ulanovsky N, Las L, Nelken I (2003) Processing of low-probability sounds by cortical neurons. Nat Neurosci 6:391-398.

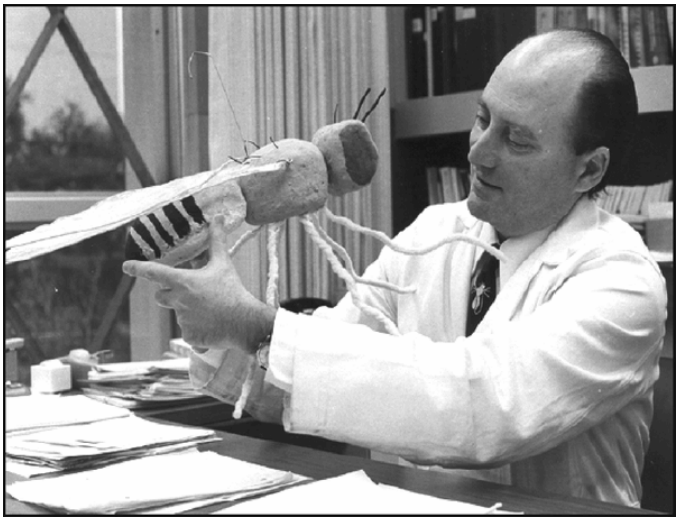
Ulanovsky N, Fenton MB, Tsoar A, Korine C (2004) Dynamics of jamming avoidance in echolocating bats. Proc R Soc Lond B 271:1467-1475.

Obituary

Seymour Benzer

Seymour Benzer, - late J. G. Boswell Professor of Neuroscience at the California Institute of Technology, Pasadena, born Oct. 15, 1921 in New York City, died Nov. 30, 2007.

Sixty years of path breaking research in biology have made Seymour a legend already during his lifetime. No single person in the 20th century has taught us as much about genes as he has. His laboratory, at times, had the air of a magician's show: Some of his discoveries were much against any likelihood, his achievements seemed effortless, and the results were beautiful. His profound curiosity and uncompromising focus on scientific inquiry made him immune against the seductions of political power and publicity. His work on bacteriophage in the first 20 years of his scientific life has long become general textbook knowledge. He defined the smallest unit of mutation and the smallest unit of recombination by mapping the fine structure of one particular gene down to the level of the single nucleotides. In this way he linked the abstract concept of the hereditary unit to Physics and Chemistry.



In the second part of his scientific life Seymour became the founder of Neurogenetics. In 1967, when he started this new endeavour, the relations between genes, brain and behaviour were still little understood. Quantitative trait methods were used to measure the hereditary component in behavioural variation. Seymour proposed to use single-gene variants for dissecting the behaviour of *Drosophila*, just like metabolic pathways had been dissected in biochemistry. Since then, Seymour, his students and his students' students have applied this approach to the most diverse aspects of animal life. Many profound insights have emerged: the mechanism of the biological clock, the first molecular underpinnings of memory and the first glimpses of the genetic program generating the optical precision of the compound eye, to name only a few. Today we know, at least in principle, how genes relate to brains: They provide the properties of neurons, glia and humoral factors. The single-gene approach has dispelled the fog surrounding the role of individual genes for the human fate, by disproving simplistic concepts such as the 'memory gene', 'obesitygene', 'homosexuality gene' or 'language gene'. Seymours influence has helped to steer the field away from such catchy exaggerations. There was enough fun in science.

Those who met Seymour will remember his gentle smile of disagreement, his delight in oddities, and his calm, observing eye for his fellow humans. In the hall of fame of Science Seymour has a central place.

Martin Heisenberg
Biozentrum
97074 Wuerzburg
Germany

2007 ISN Annual Financial Report

Peter Narins, ISN Treasurer (pnarins@ucla.edu)
University of California at Los Angeles, Los Angeles, California, USA

Following is a statement of the Society's financial affairs as of 12/31/07.

Total Assets as of 12/31/06		**$352,871.06**
Cash Assets	$71,810.90	
Investment Assets	$281,060.16	
Cash Revenues in 2007		**$301,358.94**
Membership Dues	$27,645.00	
Investment Income (Net)	$3,544.94	
Savings Interest	$26.50	
Donations	$1,185.00	
Conference	$268,890.25	
Other	$67.25	
Investment Portfolio Gain/Loss (Market Value)		
Year to Date		**$18,293.32**
Cumulative Since Inception (1994)		**$186,873.01**
Expenses in 2007		**$257,749.47**
Operating Expenses	$29,833.69	
Conference Expenses	$227,915.78	
Revenues minus Expenses		**$43,609.47**
Total Assets as of 12/31/07		**$413,668.29**
Cash Assets	$138,859.75	
Investment Assets	$274,808.54	

Gordon Conference on Neuroethology

August 10-15, 2008 Magdalen College, Oxford, UK.

The 2008 Fourth Neuroethology Gordon Research Conference will be held during the week of August 10-15, 2008 in Oxford, at beautiful Magdalen College. The meeting is being organized by Paul Katz pkatz@gsu.edu and Catherine Carr cecarr@umd.edu and promises to be a wonderful experience. Please see the conference website for further information:

http://www.grc.org/programs.aspx?year=2008&program=neuroetho

On the website the organizers describe the motivation for the meeting as follows: This conference will focus on the evolution of neural circuits underlying species-specific behavior. In the spirit of the Gordon Conferences, the meeting is meant to foster intense discussion with the intent to push the frontiers of the field. Each speaker is being asked to speak for 20 minutes, leaving 10 minutes for discussion. These will not be conventional data-driven talks; rather, the speakers have been asked to address the central questions of the session using their own work and the work of others in their field to illustrate their ideas.

Students and postdoctoral fellows are especially invited to register also for the two-day Graduate Research Seminar "Neuroethology 2050"

http://www.grc.org/programs.aspx?year=2008&program=grad_neuro

This unique venue, which will be held in Oxford on August 9-10, 2008, the weekend prior to the main Neuroethology Gordon Research Conference, provides an opportunity for the

next generation of scientists to imagine what the field will look like in the year 2050. Students and post-docs who are accepted to "Neuroethology 2050" will be accepted into the main Gordon Conference provided that they apply to both.

The main Gordon Conference will start with dual keynote talks on aspects of decision making by Joshua Gold and Michael Platt. The next day will have two sessions on the fundamentals - current views of the origin of nervous systems and structure function relationships of neural circuitry. There will be a sessions on homology, homoplasy, and divergence in neural circuits to discuss whether evolution always yields a common solution to similar problems of neural coding. Another session will discuss animal models of human characteristics and ask if we are anthropomorphizing or whether there are common substrates for human traits such as love, dreaming, and social climbing? We will also discuss the evolution and development of neural circuits in order to ask how much can we learn about the function of neural circuits from developmental rules. We will devote a session to discuss variability and homeostasis. Our final session is a round table discussion on uncovering general principles in neuroethology. In addition, two poster sessions will permit all participants to contribute. There will also be an ad hoc session in which speakers will be chosen from the poster presenters.

The meeting agenda is on the website and you will see many neuroethologists among the list as presenters, discussants and organizers. Check your calendars and see if you can find the time to join us in Oxford for this unique meeting! The application deadline is July 20, 2008 and there will be room for poster presentations.

Royal Institute of Navigation Orientation &Navigation in Birds, Humans, and Other animals

2-4 April 2008, University. of Reading, UK

The conference will bring together research scientists from the wide range of research disciplines that relate to animal navigation, including orientation, migration, neurobiology, ethology, ecology, entomology and sensory physiology.

Programme:

- Sensory aspects of orientation and navigation
- Use of clues and cues
- The role of spatial memory in migration and homing
- Genetics of orientation and migration
- Long distance navigation and short distance homing
- The role of learning computer modeling
- Application of animal navigation techniques

For detailed information about the conference and to learn amore about the Royal Institute for Navigation please visit:

http://www.rin.org.uk

Integrative Biology of Scatter Hoarding: Biology, Ecology, Psychology, and Neuroscience

8-9 August 2008, Cornell University Ithaca, NY, USA

2008 brings us the 30th anniversary of Andersson & Krebs's 1978 paper entitled "On the evolution of hoarding behaviour". This paper has had a profound influence on the study of scatter-hoarding animals, from and evolutionary, ecological, psychological and neurobiological perspective. In celebration of this anniversary, we are organizing a meeting which will bring together everybody working on scatter hoarding in any organism and from any level of analysis. The workshop will take place right before the International Society for Behavioral Ecology meeting at Cornell University in Ithaca, NY. Everybody is welcome. Further details will follow in the new year, but please mark your calendars now.

For more information in the future, please bookmark
http://www.staff.ncl.ac.uk/tom.smulders/scatterhoarding.htm
or contact tom.smulders@ncl.ac.uk.

Adaptive Motion of Animals and Machines (AMAM 2008)

June 1-6, 2008 at Case Western Reserve University in Cleveland, Ohio, USA.

This meeting will bring together an equal representation of engineers and biologists who are interested in movement. You can visit the following AMAM web site or going to http://amam.case.edu/ to look at information on previous meetings. AMAM 2008 will expand to add representation from researchers in functional electrical stimulation (FES), since their efforts seek interfaces between animals and machines.

The web site lists our invited speakers. Also, it now has instructions for submission of abstracts for contributed oral presentations, posters and the robot zoo. Abstract submission is now open and will be so until January 21. Please note that there have been some changes, additions and corrections since the last call. Two page abstracts (rather than 350 words as originally indicated) are invited and will be published digitally in or conference proceedings collection. Online registration will be set up shortly. We anticipate early registration to be $400 for the week. This includes admission to our conference banquet. Students will be able to register for half that price. We will provide inexpensive housing in the new award winning Village at 115 Residence Hall. The price should be $45 per night plus an extra cost for occasional linen service. A link for arranging housing will be up soon.
If you have questions please contact **Roy Ritzmann** at roy.ritzmann@case.edu.

Neuroethology in Scholarpedia

Scholarpedia.org is an online Wikipedia-style encyclopedia that features peer-reviewed articles by the experts in the field. The articles in Scholarpedia serve as authoritative reviews that can be kept perpetually up-to-date. After an article is accepted for publication, the author becomes the curator of that article. The public can suggest changes and updates to the article, but in the end, it is the person who wrote the article, who vouches for the content in it. There are currently excellent articles on model systems such as Lymnaea by Paul Benjamin
http://www.scholarpedia.org/article/Lymnaea,

Electrolocation by Maurice Chacron
http://www.scholarpedia.org/article/Electrolocation,

and Gastropod Reproduction by Ronald Chase
http://www.scholarpedia.org/article/Gastropod_reproductive_behavior

These articles are citable:
Paul R. Benjamin (2008), Scholarpedia, 3(1):4124.
Maurice Chacron (2007), Scholarpedia, 2(1):1411.
Ronald Chase (2007), Scholarpedia, 2(9):4125.
Paul Katz is the editor for Invertetebrate Neuroscience on Scholarpedia
http://www.scholarpedia.org/article/Category:Invertebrate_Neuroscience

If you are interested in writing an article on your invertebrate model system, please contact him.
Scholarpedia needs an editor for Neuroethology. It would be of tremendous benefit to the Neuroethology community to have an on line encyclopedia of Neuroethology. This can be used as a text book for Neuroethology classes that will always be up to date. It also helps to make neuroethological research more accessible to the world.

If you are interested in serving as an editor, please contact Paul Katz (pkatz@gsu.edu).

POSITIONS AVAILABLE

Postdoctoral Position - Tryba Lab

Join the Tryba lab (http://www.phys.mcw.edu/fac_tryba.htm) in studying neural network, cellular and ionic mechanisms underlying respiratory rhythm generation in mammals; this rhythmic activity is necessary for breathing and essential to sustain life. For these studies, we use brain slice preparations from wildtype and mutant mice to understand rhythmic activity during normal breathing as well as irregular breathing patterns in Rett Syndrome, SIDS and sleep apnea. We also study another rhythm: cortical rhythmic activity underlying human pediatric epilepsy in which we use cortical tissue removed from patients with intractable epilepsy. This translational research is instrumental in helping several young patients with seizures and reveals new insights in our understanding of pediatric epilepsy. To apply, please send CV, contact information and 3 recommendation letters to : Andrew K. Tryba, Ph.D., Medical College of Wisconsin, Dept. of Physiology, 8701 Watertown Plank Road, Milwa
ukee, WI 53226, email: atryba@mcw.edu Phone: 414-456-4975

Department of Zoology at the University of Cambridge, UK

Applicants are invited for a 3 year BBSRC funded postdoctoral position in the Department of Zoology at the University of Cambridge, UK. The project concerns the functional organisation of corollary discharge mechanisms in an acoustically communicating insect. The host group works on the neurobiological basis of sensory processing and sound producing in crickets. The project builds on their recent description of a corollary discharge pathway that modulates auditory processing during singing. The candidate should have a strong interest in neurobiology, especially in motor pattern generation and sensory processing. He/she should be familiar with intracellular recording/staining techniques and quantitative data analysis.

The appointment will be for up to three years and will be subject to a probation period of six months. The successful candidate will work with the Group Head, Dr. Berthold Hedwig.

From the ISN Secretary

Dear Neuroethologists,

Please take a few minutes and write a short article on something that you would share with a colleague talking for a few minutes in the hallway, with a cup of coffee in your hand. Did something exciting, unexpected, or funny happen in your lab? Did you read a good book? Did your animals do something strange that made you reconsider an idea? When we get together the stories are endless but they live only in the minds of the few that were lucky to hear them. Think of our Newsletter as our shared hallway – stop by for a chat and tell me "what's happening"?

Thank you,

Kati Gothard

Add our Link to Your Website!

Adding a link to ISN (http://neuroethology.org) on your website helps raise our profile in the scientific community.

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