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COEN ELEMANS, PhD
ALL SINGING, ALL DANCING: THE EMBODIED MOTOR CONTROL OF THE ANIMAL

Friday, 21.02.2020, 13:00 at CogBio Seminar Room

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COEN ELEMANS, PhD
ALL SINGING, ALL DANCING: THE EMBODIED MOTOR CONTROL OF THE ANIMAL

Communication by sound is the fastest, most accurate, and information-rich modality for all vertebrates, with human speech at the pinnacle of its complexity. Although we have a basic understanding of the physics of the human voice, we know surprisingly little about the complex motor control and learning strategies of voice production. However, a promising alternative approach is to look how other animals produce and learn their often spectacular vocal gymnastics.

In this talk I will present recent discoveries of exciting mechanisms of sound production in birds, mice, frogs and whales that provide new insights how these vocal artists communicate their messages of love, hate and food. What do these animal voices have in common with our own voice and what can we learn from this.

Coen Elemans received his PhD at Wageningen University, the Netherlands in 2004. After a postdoc at the University of Utah and Buenos Aires he was attracted by a grant from the Carlsberg Foundation to start a lab at the University of Southern Denmark. He is currently heading the Sound Communication and Behavior Group with about 20 people.

The Elemans lab studies the neural and biomechanical basis of vocal behavior in vertebrates. We strive to build an integrated model of vocal motor control in songbirds. Our work therefore lies at the fascinating interface of neuroscience, biomechanics, muscle physiology, morphology and evolution. Although our research focuses primarily on vocal motor control in songbirds, we are broadly interested in how animals transform neural code into extremely precise behaviors using the fastest muscles evolved.

We use an integrative, high-tech experimental approach combining comparative laboratory and computational model studies. Several innovative experimental setups have been developed to study voice production and muscle physiology from in vitro and ex vivo (whole organ) to in vivo.

www.celemans.com