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Gips-Schüle Foundation funds new research group in Konstanz

Collective behaviour and early career researcher Dr Ariana Strandburg-Peshkin begins her work as the first Gips-Schüle Junior Research Group Leader at the University of Konstanz with long-term funding from the foundation

What do humans in agent-based computer models, “squishy matter” in the form of splashing drops, slime mould cell growth in laboratories, mud fiddler crabs with blue streaks between the eyes and the collective behaviour in fish schools and baboon troops have in common?

All were analysed by Dr Ariana Strandburg-Peshkin on her remarkable scientific journey to not only becoming a principal investigator in the current research area and proposed Cluster of Excellence “Collective Behaviour”, but also the first Gips-Schüle Junior Research Group Leader at the University of Konstanz.

With the generous funding of EUR 875,000 from the Gips-Schüle Foundation disbursed over a five-year period, Dr Strandburg-Peshkin will now build and lead the new research group “Animal Social Networks” at the Department of Biology. The aim of the foundation is to promote not only science and research, but also early career researchers and teaching, which are all essential drivers for economic stability and social progress in Baden-Württemberg.

Dr Stefan Hofmann, chairman of the Gips-Schüle Foundation’s management board, is pleased to support Dr Ariana Strandburg-Peshkin as the first Gips-Schüle Junior Research Group Leader at the University of Konstanz: “We are more than happy to be able to help fund her team's interdisciplinary research at the University of Konstanz on topics such as acoustic communication, social relationships, and collective decision-making in animal groups. I am also very excited to be able to support the university - my alma-mater - as it competes in the German Excellence Strategy competition”.

In the beginning there was Collective Behaviour
“My interest in complex systems and collective behaviour developed over time, even before my bachelor studies”, says the 29-year old post-doctoral researcher in her new office at the University of Konstanz.

Ariana remembers the time she skipped school to pursue this interest. She had a very good excuse for not attending her high school classes that day in 2005: Ariana went to see Iain Couzin – at that time a Royal Society University Research Fellow at the Department of Zoology at the University of Oxford, UK – who gave a talk on collective animal behaviour at Northwestern University in Illinois, USA.

“I was curious about systems where you have lots of interacting parts and you have some kind of emergent behaviour at the group level, whether in the field of biology or in other areas”, recalls Ariana.

Individual animals interacting with each other build such complex systems, which in turn can be analysed in terms of their emergent properties – complex, coordinated, collective behaviour.

Ariana – now with a PhD in Quantitative and Computational Biology from Princeton University and a colleague of Iain Couzin at the University of Konstanz – intends to characterize and understand these systems using quantitative tools, and, in the process, contribute to collective behaviour research at the University of Konstanz.

An interdisciplinary and collaborative experience

How did Ariana Strandburg-Peshkin – with a Bachelor’s degree in physics from Swarthmore College in Pennsylvania, USA – become the first Gips-Schüle Junior Research Group Leader in the Department of Biology at the University of Konstanz in Germany?

Ariana is quick to remind you that research on collective behaviour is an interdisciplinary experience and that both physics and biology play a role in this field. “My physics background has actually been really helpful for collaborating in the field of Collective Behaviour. It’s important to have quantitative and programming skills to carry out research in this area”.

She realized her desire to engage in interdisciplinary collaborative research at the beginning of her academic career. During her Bachelor’s studies, Ariana carried out research at several different universities with scientists in the fields of Economics (Santa Fe Institute in New Mexico, USA), Physics (University of Chicago and Cornell University, USA), and Marine Biology (Swarthmore College, USA).

During her PhD studies at Princeton, Ariana collaborated with behavioural ecologist and evolutionary anthropologist Dr Margaret Crofoot from the University of California in Davis, USA as well as with zoologist Dr Damien Farine (now at the Department of Collective Behaviour, Max Planck Institute for Ornithology in Konstanz) in order to study how baboons in Kenya make collective movement decisions and to collect 3D data on their habitats.

“This collaboration really shaped my career trajectory, especially in regard to collaborating with field biologists and studying collective behaviour in the wild”, says Ariana. “It made me realize that in order to make progress in this research area, field and computational biologists really need to work together.”

Her current research plans include long-term and highly collaborative research projects (with stints in the field) on other animal groups in Africa, including spotted hyenas in Kenya and meerkats in South Africa. With the support from the Gips-Schüle Foundation, she now looks forward to continuing her work at the University of Konstanz with the support of new doctoral and postdoctoral team members, and at the same time, to further developing collaborations both in Germany and abroad.

Ariana has gotten off to a fast start in Konstanz. She recently co-taught a new Master’s course in Quantitative Field Biology, where she joined her students and co-instructor Alex Jordan, as well as 16 other researchers from various academic fields during the fieldwork phase of the programme on the island of Corsica.

Ariana values these opportunities to collaborate across disciplines. Thanks to her new position as the first Gips-Schüle Junior Research Group Leader at the University of Konstanz, the early career researcher is taking the next big step on her professional journey: “If you’re interested in collective behaviour and collaboration with excellent colleagues, Konstanz is a great place to be”.

Facts:

- University of Konstanz receives funding from the Gips-Schüle Foundation; Dr Ariana Strandburg-Peshkin will to become the first Gips-Schüle Junior Research Group Leader at the University of Konstanz.

- The collective behaviour researcher will utilise funding in amount of EUR 875,000 over the next five years to build and lead the new research group “Animal Social Networks”.

- The research focus will be on collective decision-making regarding movement in animal groups and how acoustic communication and social relationships influence movement dynamics.

- Dr Strandburg-Peshkin brings her expertise in mathematical and computational biology to interdisciplinary and collaborative research projects involving experts in fieldwork.

- The aim of the Gips-Schüle Foundation is to promote not only science and research, but also early career researchers and teaching, which are all essential drivers for economic stability and social progress in Baden-Württemberg.

Note to editors:
You can download a photo here:

Photo Link: https://cms.uni-konstanz.de/fileadmin/pi/fileserver/2018/Bilder/Gips-Schuele-Stiftung_Strandburg-Peshkin.jpg
Caption: Dr Ariana Strandburg-Peshkin
Photo: Ariana Strandburg-Peshkin

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