Postdoctoral Researcher (f/m/d): Global, multispecies comparative analyses of animal movement processes

The Center for Advanced Systems Understanding (CASUS) is a German-Polish research center for data-intensive digital systems research. We combine innovative methods from mathematics, theoretical systems research, simulations, data science, artificial intelligence, and computer science to provide solutions for a range of disciplines – materials science under ambient and extreme conditions, earth system research, systems biology and medicine, and autonomous vehicles.

CASUS was jointly founded in August 2019 by the Helmholtz-Zentrum Dresden-Rossendorf (HZDR), the Helmholtz Centre for Environmental Research (UFZ), the Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG), the Technical University of Dresden (TUD) and the University of Wroclaw (UWr). CASUS is located in the heart of Görlitz at the border between Germany and Poland. The CASUS start-up phase is hosted by the Helmholtz-Zentrum Dresden-Rossendorf and is financed by the Federal Ministry of Education and Research (BMBF) and the Saxon State Ministry for Higher Education, Research and the Arts (SMWK).

The Calabrese lab in the department of Earth System Science is looking for a postdoctoral researcher interested in global-scale analyses of a large multispecies animal tracking dataset. The position can begin immediately and the contract will be limited to 31 March 2022. Extension beyond this period is possible pending available funding and satisfactory performance.

The Scope of Your Job

The successful candidate will be part of an established animal movement analytics research team. Building on a long-term research program in animal movement analytics (e.g., Fleming et al. 2015, Calabrese et al. 2016, Fleming & Calabrese 2017, Noonan et al. 2019), this position will focus on leveraging an existing multispecies tracking dataset to: 1) understand species- and location-specific variation in animal movement processes, and 2) compare and contrast alternative methods for quantifying animal space use. This position requires advanced statistical and programming skills.

Your Tasks

- Examine how various aspects of movement behavior vary with body size, across different habitat types, and as a function of other covariates;
- Use the multispecies dataset to demonstrate and quantify differences between classes of space use estimators;
- Work with our team to identify appropriate empirical examples for demonstrating the performance of novel analytical methods.
- Publish results in academic, peer-reviewed journals;
- Present results at scientific meetings.

Your Qualifications

- Ph.D. in quantitative ecology, statistics, data science, or a related field;
- Excellent programming skills in R;
- Advanced data analysis and statistical modeling skills;
- Excellent communication skills in English in a professional context (presentation of research results at scientific meetings, colloquial discussions, writing of manuscripts);

- Evidence of the ability to publish results in top peer-reviewed journals;
- Experience with animal movement analysis is advantageous but not required.

What We Offer

- A vibrant research community in an open, diverse, and international work environment;
- Scientific excellence and broad national and international science networks;
- Salary according to the German Collective Wage Agreement for the Civil Service (TVöD E13);
- Comprehensive benefits package (30 vacation days per year, company pension plan [VBL], flexible working hours, in-house health management, relocation assistance).

Review of applications will begin on 24 August 2020, but consideration of candidates will continue until the position is filled. Please submit your application (including a one-page cover letter, CV, academic degrees, transcripts, etc.) online on the HZDR application portal:
https://www.hzdr.de/db/Cms?pNid=490&pOid=61569&pContLang=en

Deadline:

Rolling application – open until filled.

For details please contact:

Dr. Michael Bussmann, E-Mail: m.bussmann@hzdr.de

Prof. Dr. Justin Calabrese, E-Mail: j.calabrese@hzdr.de

CASUS – Center for Advanced Systems Understanding
Helmholtz-Zentrum Dresden-Rossendorf e.V. (HZDR)
Untermarkt 20
D-02826 Görlitz
www.casus.science

Literature Cited:

Calabrese, J.M., Fleming, C.H., Gurarie, E., 2016. ctmm : an R package for analyzing animal relocation data as a continuous-time stochastic process. Methods Ecol Evol 7, 1124–1132. https://doi.org/10.1111/2041-210X.12559

Fleming, C.H., Calabrese, J.M., 2017. A new kernel density estimator for accurate home-range and species-range area estimation. Methods Ecol Evol 8, 571–579. https://doi.org/10.1111/2041-210X.12673

Fleming, C.H., Fagan, W.F., Mueller, T., Olson, K.A., Leimgruber, P., Calabrese, J.M., 2015. Rigorous home range estimation with movement data: A new autocorrelated kernel density estimator. Ecology 96, 1182–1188. https://doi.org/10.1890/14-2010.1

Noonan, M.J., Tucker, M.A., Fleming, C.H., Akre, T.S., Alberts, S.C., Ali, A.H., Altmann, J., Antunes, P.C., Belant, J.L., Beyer, D., Blaum, N., Böhning-Gaese, K., Cullen, L., Paula, R.C., Dekker, J.,

Drescher-Lehman, J., Farwig, N., Fichtel, C., Fischer, C., Ford, A.T., Goheen, J.R., Janssen, R., Jeltsch, F., Kauffman, M., Kappeler, P.M., Koch, F., LaPoint, S., Markham, A.C., Medici, E.P., Morato, R.G., Nathan, R., Oliveira-Santos, L.G.R., Olson, K.A., Patterson, B.D., Paviolo, A., Ramalho, E.E., Rösner, S., Schabo, D.G., Selva, N., Sergiel, A., Xavier da Silva, M., Spiegel, O., Thompson, P., Ullmann, W., Zięba, F., Zwijacz-Kozica, T., Fagan, W.F., Mueller, T., Calabrese, J.M., 2019. A comprehensive analysis of autocorrelation and bias in home range estimation. Ecol Monogr 89, e01344. https://doi.org/10.1002/ecm.1344