Dear recipient,

I'm an AI scientist with over 15 years of research experience looking for transformative scientific challenges outside academic environment. I have a track record of leading AI research in generative AI, dynamical systems and Bayesian methods with over 30 publications in top AI conferences (NeurIPS, ICLR, ICML, AISTATS, UAI), and over 15 publications in life science journals. My research has been highly impactful with H-index of 27.

I am an effective principal investigator, manager and team worker, and have lead collaborations across academia and pharmaceutical industry, with over 100 unique co-authors and 40 multi-paper co-authors. My wide inter-disciplinary AI experience gives me perspective to find the most effective approach for problems of statistics, deep learning or biosciences, no matter how big or small.

My research centers on understanding dynamical systems of flows, neural ODE/SDE/PDEs, diffusion models and their physics-inspired applications such as weather prediction (top 4% ICLR'24 oral presentation) or molecule generation. I am deeply intrigued by the parallels between deep learning and physical dynamics. In diffusion models I have pursued to understand their foundations by proposing heat-based diffusion, and diffusive classification (AISTATS'19 best paper award). Another research passion of mine is Bayesian learning and uncertainty: how to make models explicate what they know and what they don't know for calibrated AI outcomes that we can trust and act on. I have developed practical Bayesian deep learning that is realistic to deploy on large-scale, pre-trained systems (top 10% ICML'22 oral presentation).

I would love to work on challenging, transformative and impactful problems, and have no doubt that my experience and skills are a great match for the position.

I'm an EU national and open to relocation.

Markus Heinonen, PhD
Aalto University, Finland
markusheinonen.github.io