Looking for periodicity in sampled data requires that periods (lags) of different length are represented in the sampling plan. We here present a method to assist in planning of temporal studies with sparse resources, which optimizes the number of observed time lags for a fixed amount of samples within a fixed time window given a maximum time lag of interest. The method can also optimize the temporal sampling specifically for situations where samples are at risk of being rescheduled due to otherwise unpredictable events such as weather, faulty equipment, etc. The method is based on the framework of simulated annealing in which we have defined an energy function to be minimized. We compare the calculated sampling plan with a random plan and a cyclic design and demonstrate how our calculated plan provides the most information about temporal autocorrelation.

General information
State: Published
Organisations: Department of Informatics and Mathematical Modeling, National Veterinary Institute, Section for Epidemiology, Mathematical Statistics
Contributors: Græsbøll, K., Christiansen, L. E.
Pages: 745-755
Publication date: 2013
Peer-reviewed: Yes

Publication information
Journal: Biological Rhythm Research
Volume: 44
Issue number: 5
ISSN (Print): 0929-1016
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 0.66 SJR 0.242 SNIP 0.377
Web of Science (2017): Impact factor 0.699
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 0.63 SJR 0.254 SNIP 0.436
Web of Science (2016): Impact factor 0.624
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 0.79 SJR 0.323 SNIP 0.478
Web of Science (2015): Impact factor 0.695
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 0.77 SJR 0.276 SNIP 0.512
Web of Science (2014): Impact factor 0.919
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 0.65 SJR 0.209 SNIP 0.392
Web of Science (2013): Impact factor 1.216
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 0.71 SJR 0.258 SNIP 0.406
Web of Science (2012): Impact factor 0.471
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 0.68 SJR 0.174 SNIP 0.411
Web of Science (2011): Impact factor 0.44
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1