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UPWr Base of Knowledge - link:	https://bazawiedzy.upwr.edu.pl/info/author/UPWr0b20a261b6864df1b93c3a1feb84e5cc?tab=main&conversationPropagation=begin&sort=&title=Person%2Bprofile%2B%25E2%2580%2593%2BJoanna%2BSzyda%2B%25E2%2580%2593%2BWroc%25C5%2582aw%2BUniversity%2Bof%2BEnvironmental%2Band%2BLife%2BSciences&lang=en&pn=1
Researchgate:	https://www.researchgate.net/profile/Joanna-Szyda
Personal website / Working group website:	theta.edu.pl
Participation in projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	PI: Tytuł w języku polskim: Bioinformatyczne modelowanie wpływu suplementacji probiotycznej na mikrobiomy stawów hodowlanych i układu pokarmowego karpia (Cyprinus carpio) Tytuł w języku angielskim: Bioinformatic modelling of the impact of probiotic supplementation on microbiomes of breeding ponds and of digestive tract of the Common carp (Cyprinus carpio) Nr rejestracyjny: 2021/41/B/NZ9/01409 Źródło(a) finansowania: NCN Nazwa konkursu: OPUS-21 Kwota: 1 184 760 PLN PI: Tytuł w języku polskim: Bioinformatyczna analiza cech opisujących jakość nóg i racic bydła ze szczególnym uwzględnieniem epistazy Tytuł w języku angielskim: A bioinformatic analysis of leg and hoof disease in cattle with the emphasis on epistasis Nr rejestracyjny: 2015/19/B/NZ9/03725 Źródło(a) finansowania: NCN Nazwa konkursu: OPUS-10 Kwota: 362 900 PLN RF: Tytuł: Biodiversity within and between European Red dairy breeds – conservation through utilization Nr rejestracyjny: 696231 Źródło(a) finansowania: Horizon 2020 (ERANet - SusAn programme) Kwota: 1 790 000 EUR Podmiot realizujący: Kiel University, Kiel, Germany Data rozpoczęcia realizacji: 2017-09-01 Data zakończenia realizacji: 2021-09-30 RF: Tytuł: European Network on Livestock Phenomics Nr rejestracyjny: European Network on Livestock Phenomics Źródło(a) finansowania: CA22112 Kwota: 125 000 EUR Podmiot realizujący: University of Bologna Data rozpoczęcia realizacji: 2023-07-01 Data zakończenia realizacji: 2027-06-30 W trakcie realizacji
PhD topic:	Statistical aspects of Genomeweide Association Studies based on Whole Genome Sequence Data
Research discipline in Doctoral School:	Biological Sciences
Short description of the research problem to be solved in the PhD (minimum 1000 characters):	Nowadays, whole genome sequence data gain increasing availability and thus importance in genomic research. Still, from a statistical modelling perspective, this is a typical example of p>>n problem, meaning that the number of available individuals (n) is much smaller than the number of explanatory variables (p). The aim of the project is to analyse existing and then to develop new methods to deal with the problem. This will be conducted based on the in silico (simulated) data as well as on the real data set. The analysed models will comprise (i) models fitting all features (polymorphic variants) simultaneously, (ii) models fitting a preselected number of several variants, and (iii) a series of single variant models. All the models will be compared in terms of their statistical properties such as type I and type II errors, as well as their computational efficiency. Apart from the technical, i.e. statistical perspective, an important issue is the biological explainability of the results in view of the meaningful selection and annotation of significant variants that are often difficult to separate from one another due to very high correlation that arises because of high linkage disequilibrium between variant pairs. Thus, the selection of significant variants and their biological explainability will constitute the second important part of the project.
Professional skills for PhD candidate (e.g. master program, specializations, softwares, language, analytical techniques, minimum 500 characters):	The candidate should graduate from bioinformatics, biotechnology, computer science, or mathematics and posses above average programming skills in R and Python. Programming knowledge in C or Fortran is an additional asset. Moreover, fluent skills of working in the command line of the Linux operating system including strong skills in developing Bash scripts is important. Besides, fluent English language skills in speaking and writing are required, as well as the ability and interest to cooperate with the team in participating in additional group projects.
a) Project title:	0
b) Agreement number:	0
c) Number of months in the project to support PhD student (in months; starting from 1st of October 2024):	0
Project website:	