DS 2024: Nudi Reactors Repository

Raw data, data analysis and manipulation

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nudi-reactors: Directed Study Group Repository

Welcome to the **nudi-reactors** repository:

Purpose

This repository will be used for storing and sharing data for our fall 2024 directed studies project at BMSC. our project looks into the effects of temperature on the chemosensory abilities of the nudibranch Hermissenda crassicornis. Throughout our study we use many different statistical analyses on R Studio, all of which will be found in this repository along with our graphs and tables. Information on our methods and results can be found in our paper *Temperature-induced shifts in chemosensory responses of Hermissenda crassicornis to predator and conspecific cues*

main analyses that were preformed were: a gamma model comparing nudibranch speed to temperature and body size a binomial model that compares nudibranch movement based on the chemical cue to temperature treatment and again body size.

Folders

a quick note - most files will begin with Meyknecht_Over_Parker_MRNE475_2024_ this is to help with organization at BMSC this can be ignored, what is after this is the file name.

tables - in this folder you will find the printed pngs of each table found in our paper as well as the data that was used to create them.

velocity_model_table.png this is the table that demonstrates the results and significance of the velocity model.

model_binom_table.png this is the table that demonstrates the results and significance of the binomial model.

avgmean_vel_table.png this is the table that demonstrates the mean average mean velocity per temperature group along with the standard error.

mean_vel.csv this was the data used for the average mean velocity table

excel_velocity.xlsx this was the file used for the velocity model table

binom_excel.xlsx this was the data used to make thebinomial model table

raw_data - in this folder you will find the raw data we collected and uploaded into R.

rawtrialdata.csv this is the data that was directly collected in our experiemental trials

rawpred.csv this is the data that we got after running our trial results thorugh Image J for the predators.

rawcons.csv this is the data that we got after running our trial results through Image J for the conspecific.

nudisizeraw thsi is the data that we got from Image J with body size information for thenudibranchs

plots_circle - here you will find all he printed images of our angular direction graphs, these are not used in our paper but further description of them is found in fionas_scripts > Fiona's_graphs.

angular direction graphs all these graphs show the average angular direction for each nudibranch in its temperature trial. they are seperated by conspecific and predator treatments. some have been shrunk down in size.

four_panel_plot_pred_resultssmall.png four_panel_plot_cons_resultssmall.png four_panel_plot_pred_results.png four_panel_plot_cons_results.png

luca_scripts - here you will find all the code and plots for the velocity model.

statistics_velocity.Rmd this R file contains the process to getting the gamma model for the velocity.

perfectplot.png - boxplot of the mesn velocity for different treatment groups + average of mean velocity. Plot we actually use in the paper.

nudi_gamma_factor_times_coefficients.csv- exported gamma model summary into csv table. This table was altered to use it in our table.

lm_length_vel2.png - linear model mean vel and avg length with points and error polygon, used in paper.

goodboxplot.png - boxplot without the avg mean velocity, did not use this one in the paper

boxplot_nudi.pdf - same boxplot without avg mean vel: not used because it is a pdf and not png

boxplot_jitter_nudi.pdf - not used, boxplot with jitter, saved as pdf

clean_script_luca.rmd this contains a clean and well annotated code for the entire velocity model and all its graphs.

Fiona_scripts

fionatables.Rmd - here you will find the code for all the tables used in the paper.

Fiona's_graphs.Rmd - here you will find all the code for the angular direction plots.

fiona_models.Rmd - here you will find all the code for creating "combinedraw" a data set used in the models.

clean_data - here you will find all the data we cleaned in R Studio

combinedraw.csv - this is a common data set we use it contains mean values and some raw data.

combinedraw_no_spaces.csv - this is the same data set however without the space issue present in the first

bri_code - here you will find all the code use to make and graph the binomial model in our paper.

plot_rxn_probs.png - plots the proportion of nudibranchs that went towards and away from cues for each treatment.

binom_table.csv - altered table of results from the binomial model

binom_table.xlsx - sane table but excel format, used to make the table seen in the paper

nudireactors_bmodel_wgraphs.Rmd - contains the clean code forthe binomial model and all the graphs

reaction_binom_model.Rmd - contains the process of getting the binomial model, not a clean code

all the following are part of the process for getting the mean angular direction graphs *pred_trials_individualanglecirc.Rmd pred_trials_anglegg.Rmd pred_trials_anglebar.Rmd pred_trials_anglecirc.Rmd*