

## Supplementary material

Evaluating enrichment use in group-housed rhesus macaques (*Macaca mulatta*): A machine learning approach

Giulia Ciminelli <https://orcid.org/0000-0002-3773-0643><sup>1</sup>, Claire Witham <https://orcid.org/0000-0003-1182-0074><sup>2</sup>, Melissa Bateson<sup>1</sup>

<sup>1</sup> Institute of Bioscience, Faculty of Medical Sciences, Henry Wellcome Building, Framlington Place, Newcastle University, Newcastle NE2 4HH, UK

<sup>2</sup> Centre for Macaques at Harwell, Medical Research Council, Salisbury, UK

Author for correspondence: Giulia Ciminelli, email: [giuliaciminelli88@gmail.com](mailto:giuliaciminelli88@gmail.com)

The R and Python scripts used for detecting enrichment items, extracting interaction data, and performing statistical analyses, along with the necessary Excel files containing relevant information, are available at [AutomatedMacaqueBehaviour](#).

In the GitHub repository there are two folders of interest:

- Enrichment\_Yolcat: This folder contains Python and R scripts designed to extract movement data using a YOLACT-based model trained to recognize an enrichment item. Additionally, it includes an Excel file with feeding time data, which is required for the R script and subsequent statistical analyses.
- Enrichment\_Yolo: This folder contains Python and R scripts for extracting data on the number of macaques interacting with an enrichment puzzle. The YOLO-based model is located in the 'Model' sub-folder. Additionally, there is an Excel file with group information, including size and type, which is required for the statistical analyses performed by the R script.