Reading a Research Paper Part 2

# Reading a Research Paper

Reading a research paper, particularly in a field in which you are not an expert, can be challenging. The trick is to skim the paper for the most relevant information, and skip over technical details that are not essential to understanding the key take-aways. The questions below will guide you to the most important sections in the paper by Tuan et al.

# The Abstract and Introduction

A good place to start is often with the Abstract and Introduction, which allow you get an overview of the paper, and usually don’t contain too many technical details. The Abstract is more succinct than the Introduction, but it also provides less motivation. When the Introduction is long, you may want to skim for key details.

Read the **Abstract** and **Introduction**. Then answer the following questions.

1. Why is it important for the researchers to build a model to detect dengue in hospital patients?
2. What is the specific purpose of the research study?

# Study Participants

Potential research subjects must meet certain criteria, defined by the researchers, to participate in a study. Inclusion criteria define requirements for inclusion in the study (e.g., a target age range or social group), while exclusion criteria are reasons a subject would be asked not to participate (e.g., certain medical conditions).

1. What are the inclusion/exclusion criteria for this study?

# Data Collection and Analysis

Now that we know who was studied, we want to know what data was collected about each participant, and how it was analyzed. Read the *Clinical and laboratory investigations on the day of enrolment* and *Statistical methods* subsections of the **Methods**. Then answer the following questions.

1. Which variables were recorded for the patients in the study?
2. Which types of statistical methods were used to model the relation between the explanatory variables and whether the patient had dengue? (It is okay if you’re not familiar with all these methods!)
3. How did the researchers choose which variables to include in their logistic regression model?
4. Which threshold did the researchers use when converting their predicted probabilities into binary predictions?

# Results

Finally, let’s see what the researchers concluded from their statistical models! Read the *Early Dengue Classifier* subsection of the **Results**, then answer the following questions.

1. Which variables did the researchers include in their final logistic regression model?
2. Were there other models that performed as well as the model that the researchers chose? If so, why were these other models not selected?
3. What does it mean that the model had a “sensitivity” of 74.8% for correctly classifying dengue?