Confusion Matrix

```r
library(gt)
```

Warning: package 'gt' was built under R version 4.5.1

```r
library(dplyr)
```

Attaching package: 'dplyr'

The following objects are masked from 'package:stats':

    filter, lag

The following objects are masked from 'package:base':

    intersect, setdiff, setequal, union

```r
library(gtExtras)
```

Warning: package 'gtExtras' was built under R version 4.5.1

```r
library(katex)
```

Warning: package 'katex' was built under R version 4.5.1

```r
library(tidyverse)
```

Warning: package 'readr' was built under R version 4.5.1

```
-- Attaching core tidyverse packages ----------------------- tidyverse 2.0.0 --
v forcats   1.0.0     v readr     2.1.5
v ggplot2   3.5.2     v stringr   1.5.1
v lubridate 1.9.4     v tibble    3.3.0
v purrr     1.0.4     v tidyr     1.3.1
```

```
-- Conflicts ------------------------------------------ tidyverse_conflicts() --
x dplyr::filter() masks stats::filter()
x dplyr::lag()    masks stats::lag()
i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```r
conf_matrix <- tibble::tibble(
  `UCLA SWE Change` = c("Negative change", "Non-negative change"),
  `ROS Event` = c("True Positive (TP)",
                  "False Positive (FP)"),
  `No ROS Event` = c("False Negative (FN)",
                     "True Negative (TN)"),
  Metric = c("$\\frac{\\text{TP}}{\\text{TP}+\\text{FN} }$<br>**True Positive Rate (TPR)**",
             "$\\frac{\\text{FP}}{\\text{FP}+\\text{TN} }$<br>**False Positive Rate (FPR)**")
)

ros_conf_matrix <- conf_matrix %>%
  gt(rowname_col = "UCLA SWE Change") %>%
  tab_header(
    title = md("**Example of a Confusion Matrix for UCLA SWE Change and a ROS Detection Algorithm**")
    subtitle = "How well does a given ROS algorithm predict a negative change in UCLA SWE?"
  ) %>%
  tab_spanner(
    label = "ROS Detection Algorithm",
    columns = c("ROS Event", "No ROS Event")
  ) %>%
  tab_stubhead(label = "UCLA SWE change") %>%
  fmt_markdown(columns = everything()) %>%
  cols_align(align = "center", columns = everything()) %>%
  cols_width(
    `ROS Event` ~ px(120),
    `No ROS Event` ~ px(120),
    Metric ~ px(130),
    everything() ~ px(100)
  ) %>%
  opt_row_striping() %>%
  tab_footnote(
    footnote = "TPR: Proportion of negative SWE change that was detected as a ROS event",
    locations = cells_body(columns = Metric, rows = 1)
  ) %>%
  tab_footnote(
    footnote = "FPR: Proportion of non-negative SWE change that was detected as a ROS event",
    locations = cells_body(columns = Metric, rows = 2)
  ) %>%
  # Add vertical line (right border) to Negative column
  tab_style(
    style = cell_borders(
      sides = "right",
      color = "black",
```

```r
      weight = px(2)
    ),
    locations = cells_body(columns = `No ROS Event`)
  ) %>%
  # Color TP and TN cells green
  tab_style(
    style = cell_text(color = "black", weight = "bold"),
    locations = cells_body(
      columns = `ROS Event`, rows = 1
    )
  ) %>%
  tab_style(
    style = cell_text(color = "black", weight = "bold"),
    locations = cells_body(
      columns = `No ROS Event`, rows = 2
    )
  ) %>%
  # Color FP and FN cells red
  tab_style(
    style = cell_text(color = "red", weight = "bold"),
    locations = cells_body(
      columns = `ROS Event`, rows = 2
    )
  ) %>%
  tab_style(
    style = cell_text(color = "red", weight = "bold"),
    locations = cells_body(
      columns = `No ROS Event`, rows = 1
    )
  ) %>%
  tab_options(
    table.width = pct(90),
    table.align = "center"
  )
```

```r
ros_conf_matrix %>%  gtsave(filename = "ros_conf_matrix_ex.png")
```

file:///C:/Users/MATTMU~1/AppData/Local/Temp/RtmpOe04gO/file5a505667412b.html screenshot completed