

MiniRocket Vis

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Visualize dataset info

```
dataset_info_old <- read_csv("results_all.csv")
```

```
## Warning: Missing column names filled in: 'X1' [1]
```

```
##
## -- Column specification -----
## cols(
##   X1 = col_double(),
##   trial_id = col_double(),
##   transformer_name = col_character(),
##   dataset_name = col_character(),
##   classifier_score = col_double(),
##   time_transform_train = col_double(),
##   time_transform_test = col_double(),
##   time_train = col_double(),
##   time_total = col_double(),
##   size_train = col_double(),
##   size_test = col_double(),
##   len_train = col_double(),
##   len_test = col_double(),
##   n_classes = col_double()
## )
```

```
dataset_info <- read_csv("results_new.csv")
```

```
## Warning: Missing column names filled in: 'X1' [1]
```

```
##
## -- Column specification -----
## cols(
##   X1 = col_double(),
##   trial_id = col_double(),
##   transformer_name = col_character(),
##   dataset_name = col_character(),
##   classifier_score = col_double(),
##   time_transform_train = col_double(),
##   time_transform_test = col_double(),
##   time_train = col_double(),
##   time_total = col_double(),
##   size_train = col_double(),
##   size_test = col_double(),
##   len_train = col_double(),
```

```
## len_test = col_double(),
## n_classes = col_double()
## )

dataset_info_correct <- read_csv("results_correct.csv")

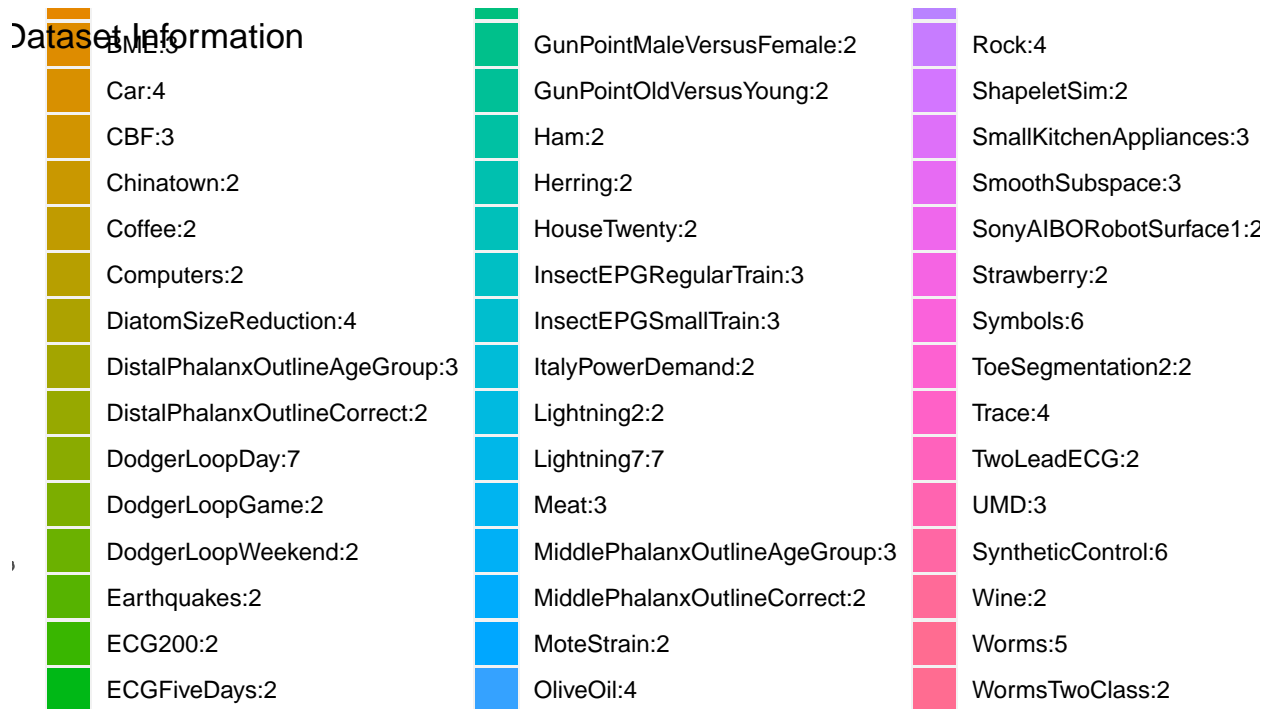
## Warning: Missing column names filled in: 'X1' [1]

##
## -- Column specification -----
## cols(
##   X1 = col_double(),
##   trial_id = col_double(),
##   transformer_name = col_character(),
##   dataset_name = col_character(),
##   classifier_score = col_double(),
##   time_transform_train = col_double(),
##   time_transform_test = col_double(),
##   time_train = col_double(),
##   time_total = col_double(),
##   size_train = col_double(),
##   size_test = col_double(),
##   len_train = col_double(),
##   len_test = col_double(),
##   n_classes = col_double()
## )
```

Dataset information

```
x_labels_with_class_num <- dataset_info %>%
  select(dataset_name, n_classes) %>%
  mutate(x_labels=str_c(dataset_name, ":", n_classes)) %>%
  pull(x_labels) %>%
  unique()

dataset_info_correct %>%
  arrange(size_train) %>%
  filter(transformer_name=="minirocket") %>%
  ggplot() +
  geom_bar(aes(x=dataset_name, y=size_test, fill=dataset_name), stat='identity') +
  geom_bar(aes(x=dataset_name, y=size_train, alpha=0.3), stat="identity") +
  # scale_x_discrete(labels=x_labels_with_class_num) +
  scale_fill_discrete(labels=x_labels_with_class_num) +
  scale_alpha(labels = "training size") +
  ggtitle("Dataset Information") +
  labs(x="Dataset name", y="Testing size and training size in alpha", fill="Dataset:classes", alpha="Alpha") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```



Alpha

r training size

Visualization of the results with some datasets

Transformation time with training data (our Mini Rocket vs our Rocket)

```
dataset_info_correct %>%
  mutate(transformer_name = factor(transformer_name, levels=c("sktiminirocket", "minirocket", "sktime")))
  select(dataset_name, transformer_name, time_transform_train, time_transform_test) %>%
  filter(transformer_name %in% c("minirocket", "rocket")) %>%
  # mutate(group = if_else(str_detect(transformer_name, pattern="minirocket"), "type_minirocket", "type_rocket"))
  ggplot() +
  geom_col(aes(x=dataset_name, y=time_transform_train, fill=transformer_name), stat='identity', position='dodge') +
  scale_fill_manual(values=c("#01BFC4", "#F9766D")) +
  ggtitle("Transformation time with training data") +
  labs(x="Dataset name", y="Transformation time", fill="Transformer name") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```

```
## Warning: Ignoring unknown parameters: stat
```



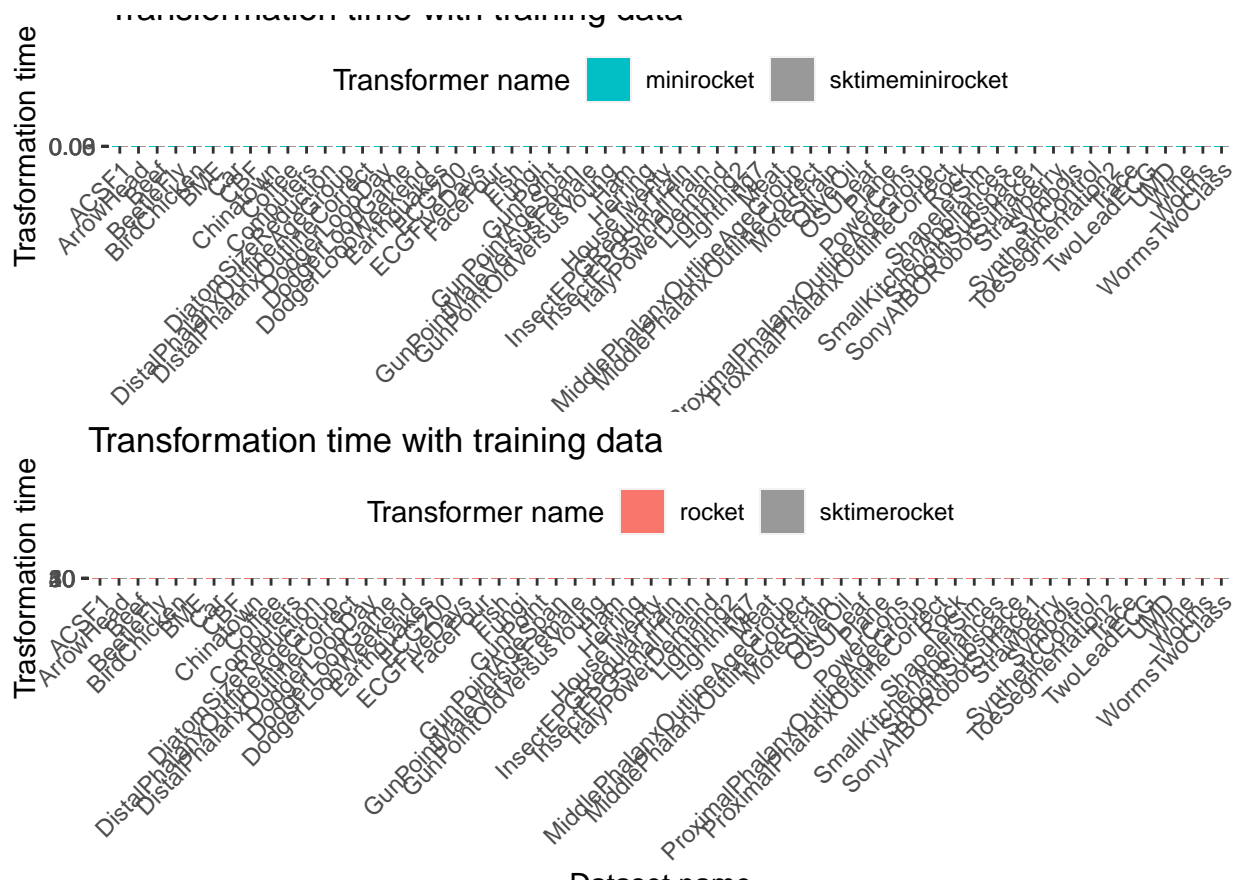
Transformation time with training data (our models vs the original models)xs

```
g1 <- dataset_info_correct %>%
  filter(transformer_name %in% c("minirocket", "sktimeminirocket")) %>%
  mutate(transformer_name = factor(transformer_name, levels=c("minirocket", "sktimeminirocket"))) %>%
  select(dataset_name, transformer_name, time_transform_train, time_transform_test) %>%
  ggplot(mapping=aes(x=dataset_name, y=time_transform_train, fill=transformer_name)) +
  geom_col(stat='identity', position=position_dodge(0.8), width=0.8) +
  scale_fill_manual(values=c("#01BFC4", "gray60")) +
  # scale_y_continuous(limits = c(0, 50)) +
  ggtitle("Transformation time with training data") +
  labs(x="Dataset name", y="Trasformation time", fill="Transformer name") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1), legend.position="top")
```

Warning: Ignoring unknown parameters: stat

```
g2 <- dataset_info_correct %>%
  filter(transformer_name %in% c("rocket", "sktimerocket")) %>%
  mutate(transformer_name = factor(transformer_name, levels=c("rocket", "sktimerocket"))) %>%
  select(dataset_name, transformer_name, time_transform_train, time_transform_test) %>%
  ggplot(mapping=aes(x=dataset_name, y=time_transform_train, fill=transformer_name)) +
  geom_col(stat='identity', position=position_dodge(0.8), width=0.8) +
  scale_fill_manual(values=c("#F9766D", "gray60")) +
  ggtitle("Transformation time with training data") +
  labs(x="Dataset name", y="Trasformation time", fill="Transformer name") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1), legend.position="top")
```

```
## Warning: Ignoring unknown parameters: stat
plot_grid(g1, g2, labels=c("", ""), ncol=1, nrow=2)
```



Transformation time with training data (Mini Rocket family)

```
g1 <- dataset_info_correct %>%
  filter(transformer_name %in% c("rocket", "minirocket")) %>%
  mutate(transformer_name = factor(transformer_name, levels=c("minirocket", "rocket"))) %>%
  select(dataset_name, transformer_name, time_transform_train, time_transform_test) %>%
  ggplot(mapping=aes(x=dataset_name, y=time_transform_train, fill=transformer_name)) +
  geom_col(stat='identity', position=position_dodge(0.8), width=0.8) +
  scale_fill_manual(values=c("#01BFC4", "#F9766D")) +
  # scale_y_continuous(limits = c(0, 50)) +
  ggtitle("Transformation time with training data") +
  labs(x="Dataset name", y="Transformation time", fill="Transformer name") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1), legend.position="top")
```

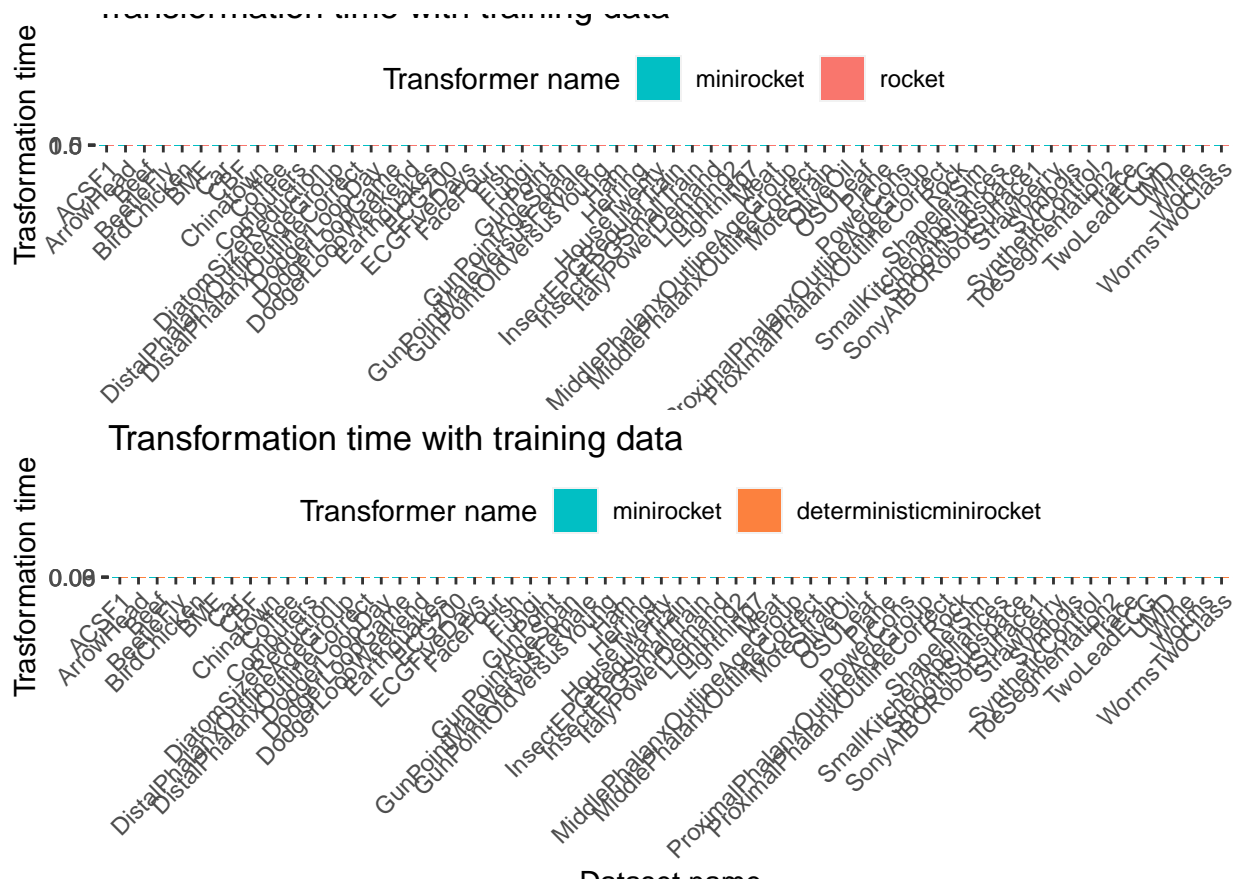
```
## Warning: Ignoring unknown parameters: stat
```

```
g2 <- dataset_info_correct %>%
  filter(transformer_name %in% c("minirocket", "deterministicminirocket")) %>%
  mutate(transformer_name = factor(transformer_name, levels=c("minirocket", "deterministicminirocket"))) %>%
  select(dataset_name, transformer_name, time_transform_train, time_transform_test) %>%
  ggplot(mapping=aes(x=dataset_name, y=time_transform_train, fill=transformer_name)) +
  geom_col(stat='identity', position=position_dodge(0.8), width=0.8) +
  scale_fill_manual(values=c("#01BFC4", "#FC813E")) +
```

```
# scale_y_continuous(limits = c(0, 50)) +
ggtitle("Transformation time with training data") +
labs(x="Dataset name", y="Transformation time", fill="Transformer name") +
theme(axis.text.x = element_text(angle = 45, hjust = 1), legend.position="top")
```

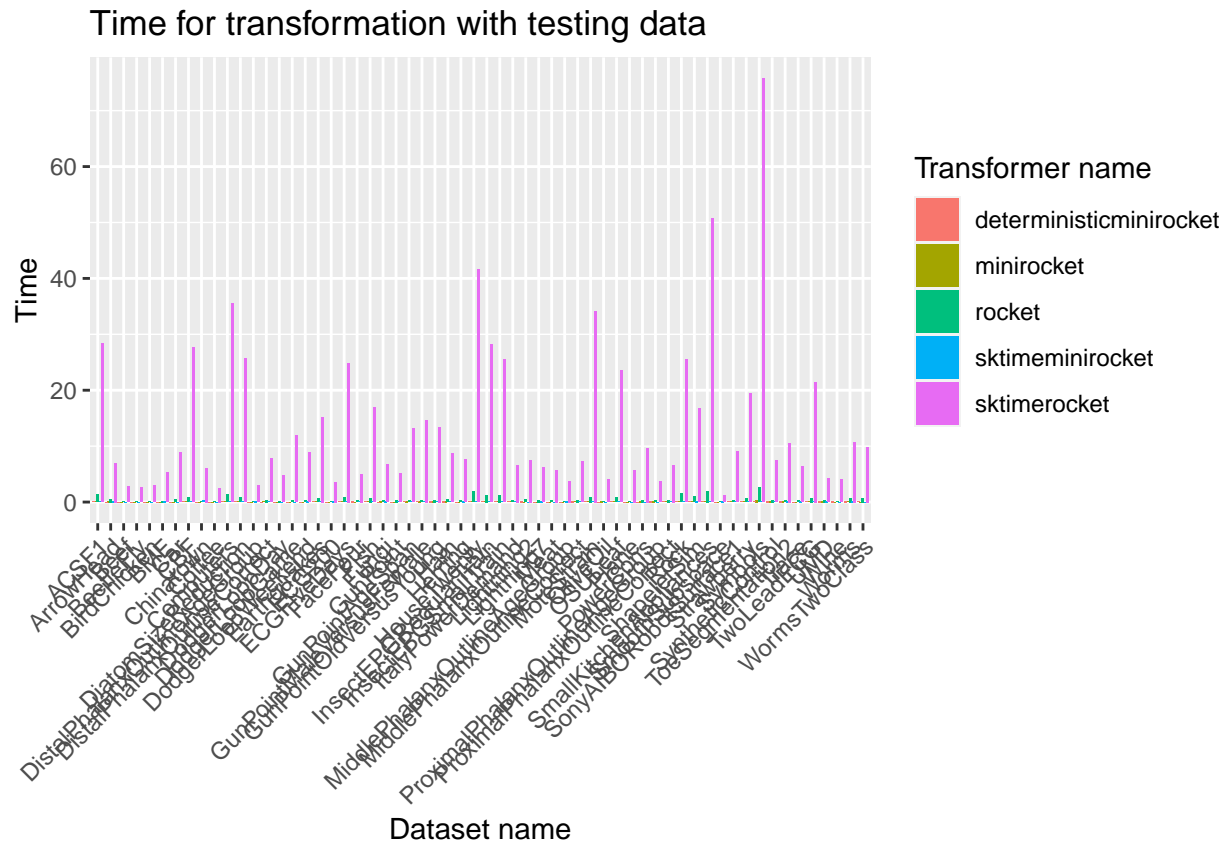
```
## Warning: Ignoring unknown parameters: stat
```

```
plot_grid(g1, g2, labels=c("", ""), ncol=1, nrow=2)
```



Transformation time with testing data

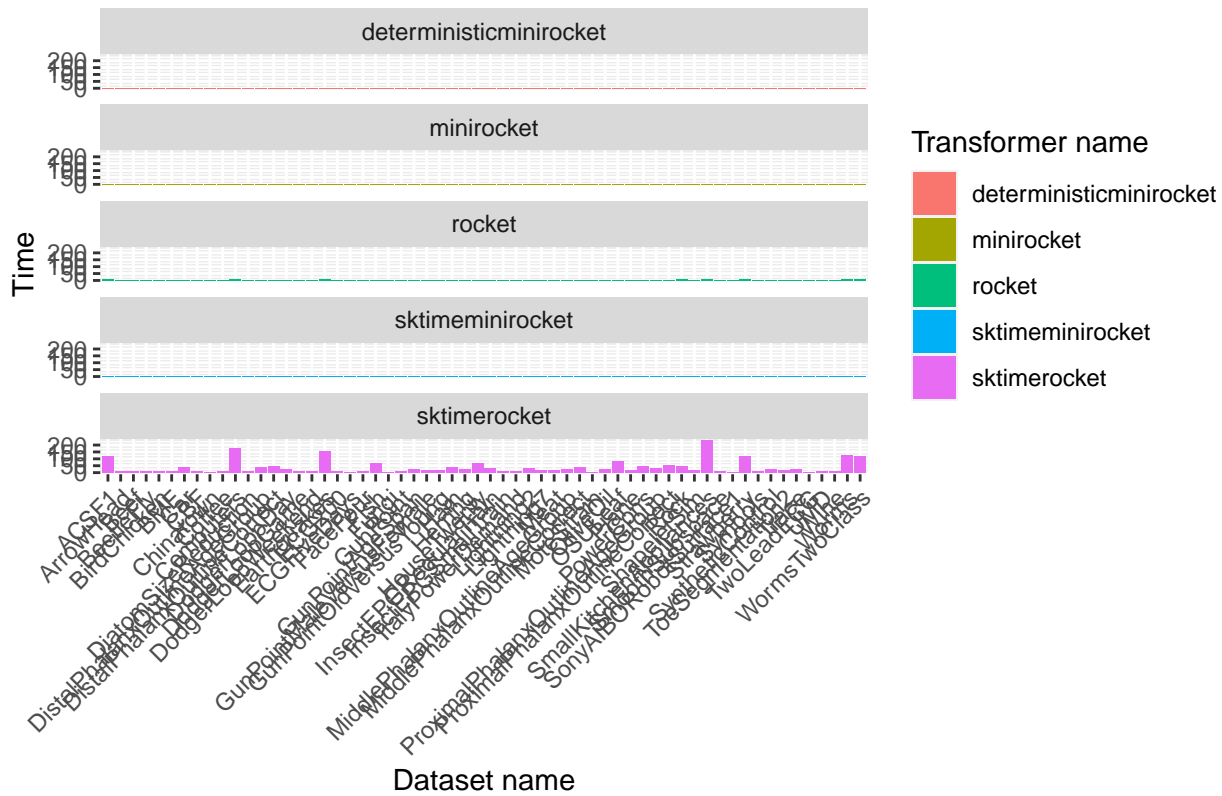
```
dataset_info_correct %>%
  select(dataset_name, transformer_name, time_transform_train, time_transform_test) %>%
  ggplot() +
  geom_bar(aes(x=dataset_name, y=time_transform_test, fill=transformer_name), stat='identity', position=
  ggtitle("Time for transformation with testing data") +
  labs(x="Dataset name", y="Time", fill="Transformer name") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```



Transformation time with training data 2

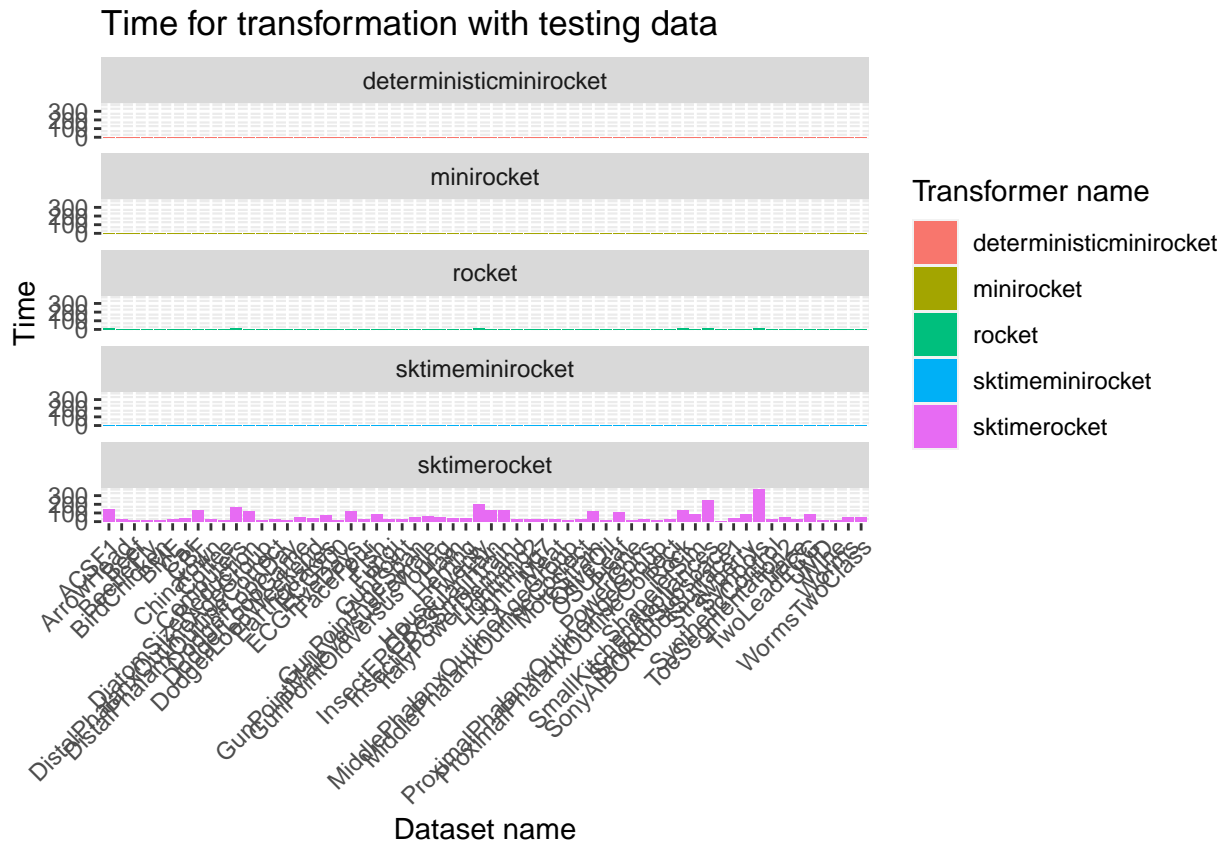
```
dataset_info_correct %>%
  select(dataset_name, transformer_name, time_transform_train, time_transform_test) %>%
  ggplot() +
  geom_bar(aes(x=dataset_name, y=time_transform_train, fill=transformer_name), stat='identity') +
  # geom_bar(aes(x=dataset_name, y=time_transform_test, fill=transformer_name), stat='identity', position='dodge')
  ggtitle("Time for transformation with training data") +
  labs(x="Dataset name", y="Time", fill="Transformer name") +
  facet_wrap(~transformer_name, ncol=1)+
  # facet_grid(dataset_name ~ .)
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```

Time for transformation with training data



Transformation time with testing data 2

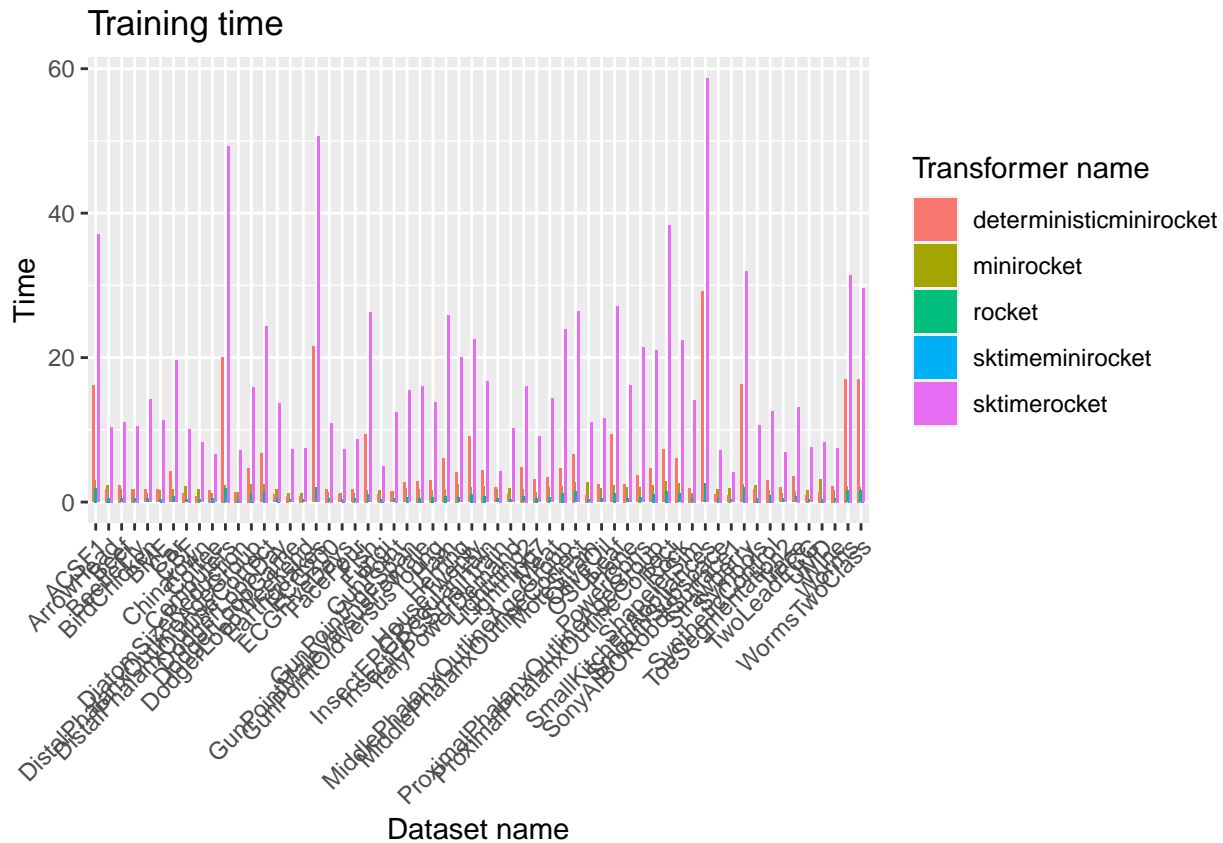
```
dataset_info_correct %>%
  select(dataset_name, transformer_name, time_transform_train, time_transform_test) %>%
  ggplot() +
  geom_bar(aes(x=dataset_name, y=time_transform_test, fill=transformer_name), stat='identity') +
  # geom_bar(aes(x=dataset_name, y=time_transform_test, fill=transformer_name), stat='identity', position='stack')
  ggtitle("Time for transformation with testing data") +
  labs(x="Dataset name", y="Time", fill="Transformer name") +
  facet_wrap(~transformer_name, ncol=1)+
  # facet_grid(dataset_name ~ . )
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```

Training time

```
dataset_info_correct %>%
  select(dataset_name, transformer_name, time_transform_train, time_transform_test, time_train, time_test) %>%
  ggplot() +
  # geom_bar(aes(x=dataset_name, y=time_total, fill=transformer_name), stat='identity') +
  geom_col(aes(x=dataset_name, y=time_train, fill=transformer_name), stat='identity', position=position_stack()) +
  ggtitle("Training time") +
  labs(x="Dataset name", y="Time", fill="Transformer name") +
  # facet_wrap(~transformer_name, ncol=1)+
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```

Warning: Ignoring unknown parameters: stat



```
g1 <- dataset_info_correct %>%
  mutate(transformer_name = factor(transformer_name, levels=c("sktimeminirocket", "minirocket", "sktime
  select(dataset_name, transformer_name, time_train) %>%
  mutate(group = if_else(str_detect(transformer_name, pattern="minirocket"), "type_minirocket", "type_r
  filter(group == "type_minirocket") %>%
  ggplot(mapping=aes(x=dataset_name, y=time_train, fill=transformer_name)) +
  geom_col(stat='identity', position=position_dodge(0.8), width=0.5) +
  scale_fill_manual(values=c("gray60", "#01BFC4")) +
  # scale_y_continuous(limits = c(0, 65)) +
  ggtitle("Training time") +
  labs(x="Dataset name", y="Training time", fill="Transformer name") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```

```
## Warning: Ignoring unknown parameters: stat
```

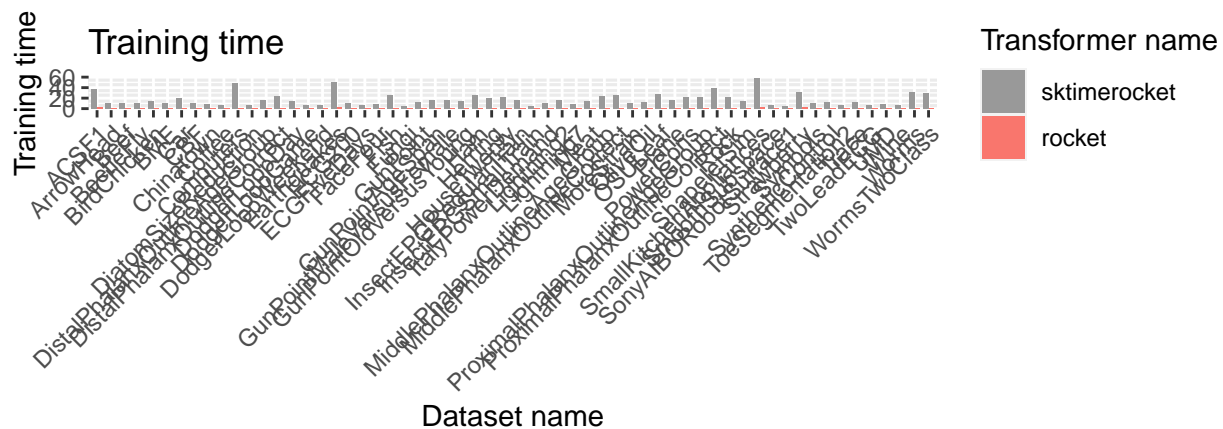
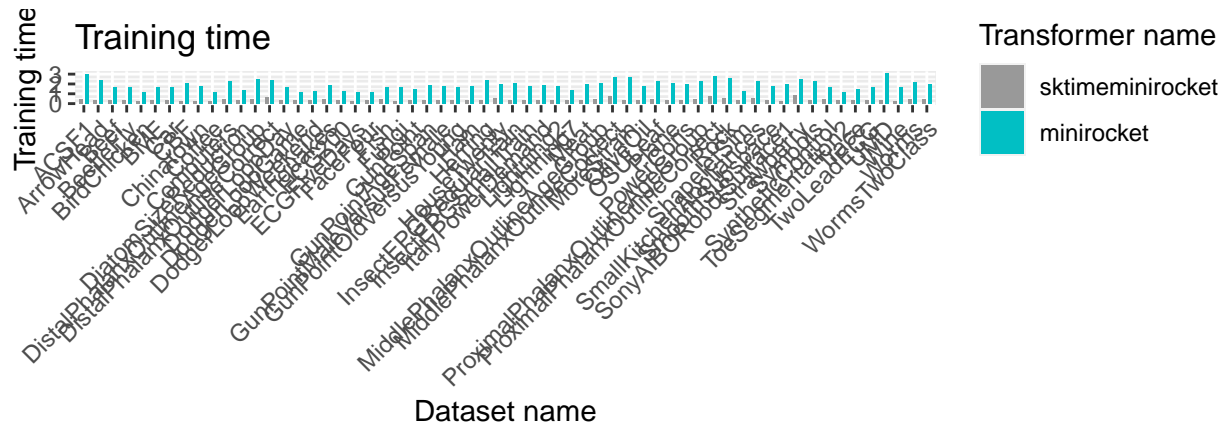
```
# theme(axis.title.x = element_blank(), axis.text.x = element_blank())

g2 <- dataset_info_correct %>%
  mutate(transformer_name = factor(transformer_name, levels=c("sktimeminirocket", "minirocket", "sktime
  select(dataset_name, transformer_name, time_train) %>%
  mutate(group = if_else(str_detect(transformer_name, pattern="minirocket"), "type_minirocket", "type_r
  filter(group == "type_rocket") %>%
  ggplot(mapping=aes(x=dataset_name, y=time_train, fill=transformer_name)) +
  geom_col(stat='identity', position=position_dodge(0.8), width=0.8) +
  scale_fill_manual(values=c("gray60", "#F9766D")) +
  # scale_y_continuous(limits = c(0, 65)) +
  ggtitle("Training time") +
  labs(x="Dataset name", y="Training time", fill="Transformer name") +
```

```
theme(axis.text.x = element_text(angle = 45, hjust = 1))
```

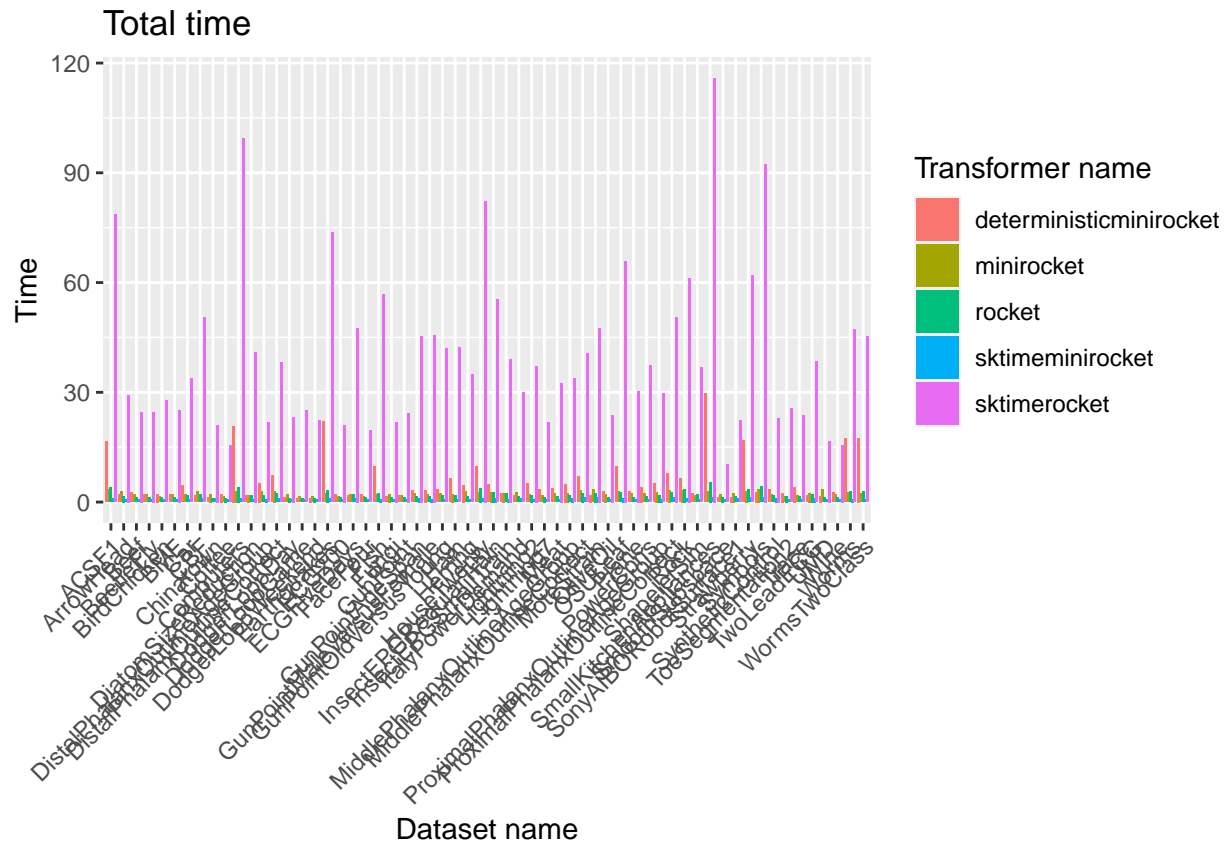
```
## Warning: Ignoring unknown parameters: stat
```

```
plot_grid(g1, g2, labels=c("", ""), ncol=1, nrow=2)
```



Total time

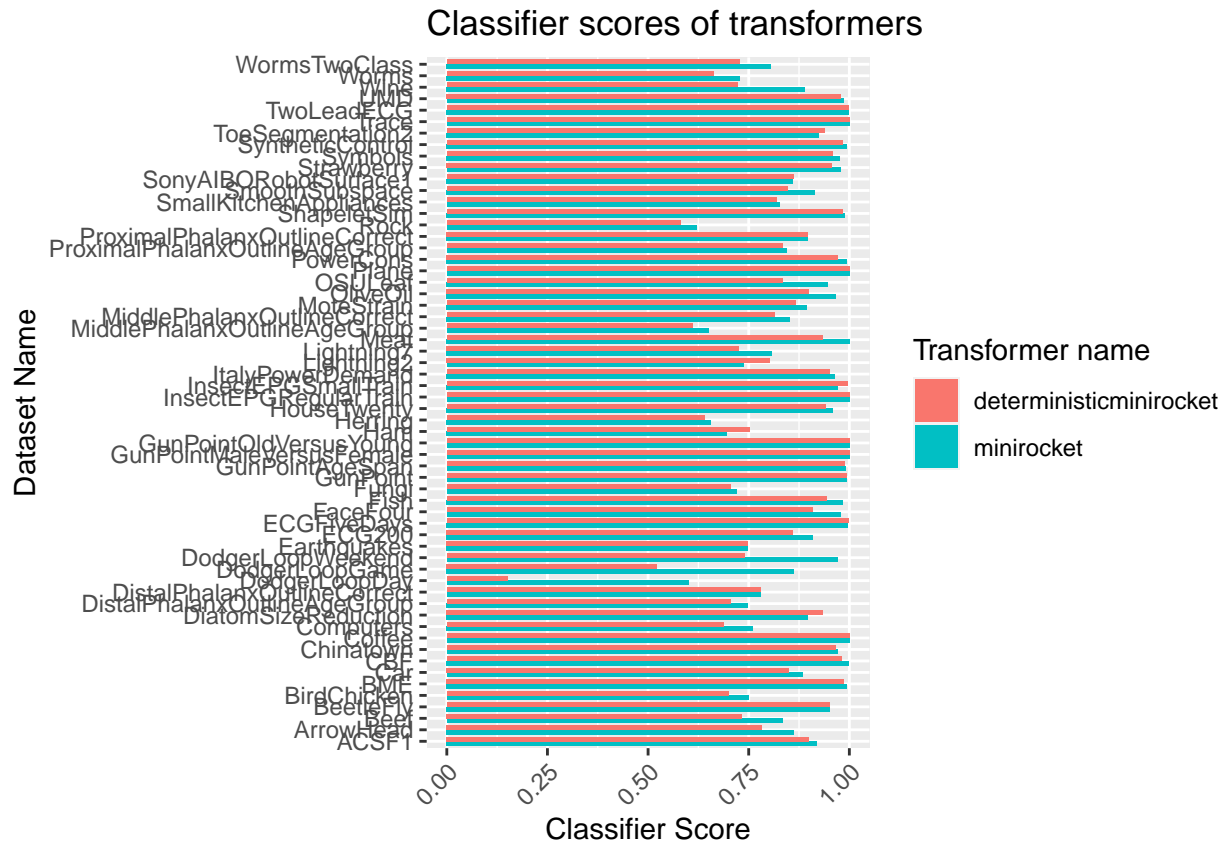
```
dataset_info_correct %>%
  select(dataset_name, transformer_name, time_transform_train, time_transform_test, time_train, time_test) %>%
  ggplot() +
  # geom_bar(aes(x=dataset_name, y=time_total, fill=transformer_name), stat='identity') +
  geom_bar(aes(x=dataset_name, y=time_total, fill=transformer_name), stat='identity', position=position_stack()) +
  ggtitle("Total time") +
  labs(x="Dataset name", y="Time", fill="Transformer name") +
  # facet_wrap(~transformer_name, ncol=1)+
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```



Classifier Score

```
dataset_info_correct %>%
  mutate(transformer_name = factor(transformer_name, levels=c("sktimeminirocket", "minirocket", "sktime
  select(dataset_name, transformer_name, classifier_score) %>%
  # filter(transformer_name %in% c("minirocket", "rocket")) %>%
  filter(transformer_name %in% c("deterministicminirocket", "minirocket")) %>%
  ggplot() +
  geom_col(aes(x=dataset_name, y=classifier_score, fill=transformer_name), stat='identity', position=po
  scale_fill_manual(values=c("#01BFC4", "#F9766D")) +
  guides(fill=guide_legend(reverse = TRUE)) +
  ggtitle("Classifier scores of transformers") +
  labs(x="Dataset Name", y="Classifier Score", fill="Transformer name") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1)) +
  coord_flip()
```

```
## Warning: Ignoring unknown parameters: stat
```



```
g1 <- dataset_info_correct %>%
  mutate(transformer_name = factor(transformer_name, levels=c("sktimeminirocket", "minirocket", "sktime:
  mutate(group = if_else(str_detect(transformer_name, pattern="minirocket"), "type_minirocket", "type_ro
  filter(group == "type_minirocket") %>%
  select(dataset_name, transformer_name, classifier_score) %>%
  ggplot() +
  geom_col(aes(x=dataset_name, y=classifier_score, fill=transformer_name), stat='identity', position=po
  scale_fill_manual(values=c("gray60", "#01BFC4", "gray60", "#F9766D")) +
  guides(fill=guide_legend(reverse = FALSE)) +
  ggtitle("Classifier score of transformers") +
  labs(x="Dataset Name", y="Classifier Score", fill="Transformer name") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1), legend.position="top") +
  coord_flip()
```

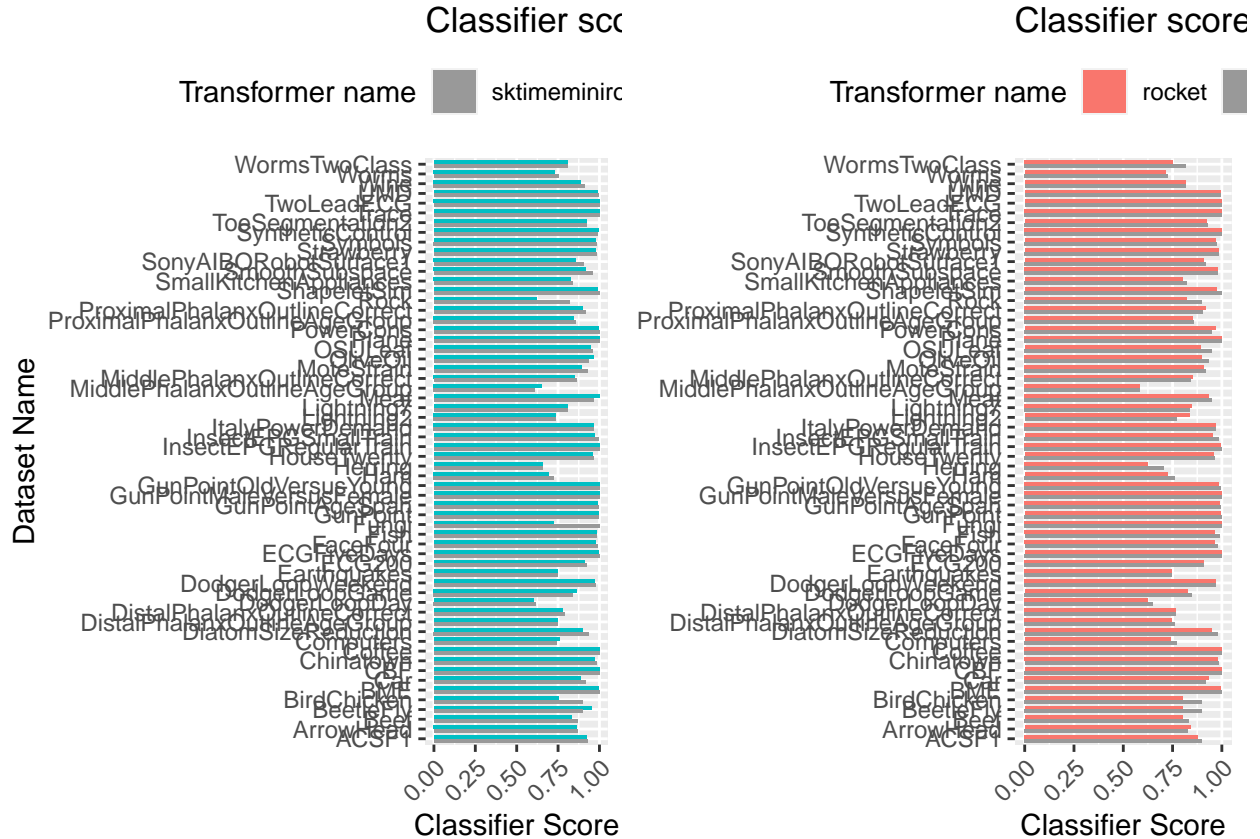
Warning: Ignoring unknown parameters: stat

```
g2 <- dataset_info_correct %>%
  mutate(transformer_name = factor(transformer_name, levels=c("sktimeminirocket", "minirocket", "sktime:
  mutate(group = if_else(str_detect(transformer_name, pattern="minirocket"), "type_minirocket", "type_ro
  filter(group == "type_rocket") %>%
  select(dataset_name, transformer_name, classifier_score) %>%
  ggplot() +
  geom_col(aes(x=dataset_name, y=classifier_score, fill=transformer_name), stat='identity', position=po
  scale_fill_manual(values=c("gray60", "#F9766D")) +
  guides(fill=guide_legend(reverse = TRUE)) +
  ggtitle("Classifier score of transformers") +
  labs(x="Dataset Name", y="Classifier Score", fill="Transformer name") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1), axis.title.y = element_blank(), legend.posit
```

```
# theme(axis.text.y = element_blank(), axis.title.y = element_blank(), legend.position="top") +
coord_flip()
```

```
## Warning: Ignoring unknown parameters: stat
```

```
plot_grid(g1, g2, labels=c("", ""), ncol=2, nrow=1)
```



```
score_rocket_minirocket <- dataset_info_correct %>%
  mutate(transformer_name = factor(transformer_name, levels=c("sktimeminirocket", "minirocket", "sktime:
# mutate(group = if_else(str_detect(transformer_name, pattern="minirocket"), "type_minirocket", "type
# filter(group == "type_minirocket") %>%
filter(transformer_name %in% c("rocket", "minirocket")) %>%
select(dataset_name, transformer_name, classifier_score) %>%
ggplot() +
  geom_col(aes(x=dataset_name, y=classifier_score, fill=transformer_name), stat='identity', position=pos
scale_fill_manual(values=c("#01BFC4", "#F9766D")) +
guides(fill=guide_legend(reverse = FALSE)) +
ggtitle("Classifier score of transformers") +
labs(x="Dataset Name", y="Classifier Score", fill="Transformer name") +
theme(axis.text.x = element_text(angle = 45, hjust = 1), legend.position="top", axis.title.y = elemen
coord_flip()
```

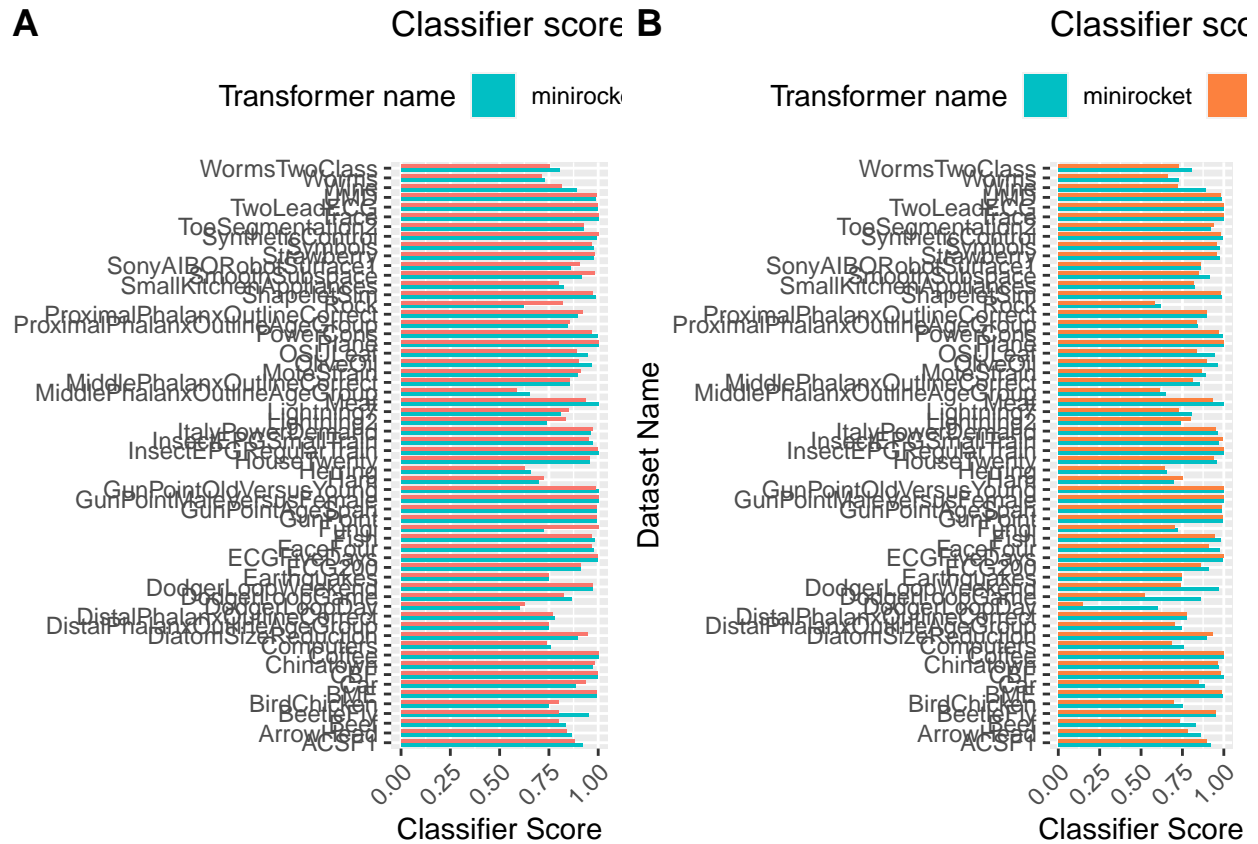
```
## Warning: Ignoring unknown parameters: stat
```

```
score_deter_mini <- dataset_info_correct %>%
  mutate(transformer_name = factor(transformer_name, levels=c("sktimeminirocket", "minirocket", "sktime
filter(transformer_name %in% c("deterministicminirocket", "minirocket")) %>%
select(dataset_name, transformer_name, classifier_score) %>%
```

```
ggplot() +
  geom_col(aes(x=dataset_name, y=classifier_score, fill=transformer_name), stat='identity', position=position_stack()) +
  scale_fill_manual(values=c("#01BFC4", "#FC813E")) +
  guides(fill=guide_legend(reverse = FALSE)) +
  ggtitle("Classifier score of transformers") +
  labs(x="Dataset Name", y="Classifier Score", fill="Transformer name") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1), legend.position="top") +
  coord_flip()
```

```
## Warning: Ignoring unknown parameters: stat
```

```
plot_grid(score_rocket_minirocket, score_deter_mini, labels=c("A", "B"), ncol=2, nrow=1)
```



```
size_train <- dataset_info %>%
  filter(transformer_name == "minirocket") %>%
  select(size_train)

dataset_name <- dataset_info %>% filter(transformer_name == "minirocket") %>% select(dataset_name)

time_transform_minirocket <- dataset_info %>%
  filter(transformer_name == "minirocket") %>%
  rename(y = time_transform_train) %>%
  select(y)

time_transform_sktimeRocket <- dataset_info %>%
  filter(transformer_name == "sktimeRocket") %>%
  rename(x = time_transform_train) %>%
```



```

select(x)

time_transform_deterministicminirocket <- dataset_info %>%
  filter(transformer_name == "deterministicminirocket") %>%
  rename(x = time_transform_train) %>%
  select(x)

time_transform_rocket <- dataset_info %>%
  filter(transformer_name == "rocket") %>%
  rename(x = time_transform_train) %>%
  select(x)

a <- data.frame(x=time_transform_rocket, y=time_transform_minirocket, size_train = size_train) %>%
  mutate(is_better = if_else( y < x, TRUE, FALSE))
dummy <- data.frame(-10, -10, 200, FALSE)
names(dummy) <- c("x", "y", "size_train", "is_better")
a <- rbind(a, dummy)

ggplot(data=a, aes(x=x, y=y)) +
  geom_point(aes(size=size_train, color=is_better), alpha=0.3) +
  scale_color_manual(values=c("red", "blue"), labels=c("False", "True"), drop=FALSE, name="Mini Rocket") +
  xlim(0, 30) + ylim(0, 30) +
  # xlim(0, 3) + ylim(0, 3) +
  geom_abline(slope=1, intercept=0) +
  ggtitle("Transformation time with training data") +
  labs(x="Transformation time of our Rocket", y="Transformation time of our Mini Rocket", size="Training time")

## Warning: Removed 1 rows containing missing values (geom_point).

```