

Package: ravedash (via r-universe)

July 17, 2024

Type Package

Title Dashboard System for Reproducible Visualization of 'iEEG'

Version 0.1.3.32

Description Dashboard system to display the analysis results produced by 'RAVE' (Magnotti J.F., Wang Z., Beauchamp M.S. (2020), R analysis and visualizations of 'iEEG' <[doi:10.1016/j.neuroimage.2020.117341](https://doi.org/10.1016/j.neuroimage.2020.117341)>). Provides infrastructure to integrate customized analysis pipelines into dashboard modules, including file structures, front-end widgets, and event handlers.

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Encoding UTF-8

Language en-US

Imports grDevices, stats, dplyr (>= 0.2.0), logger (>= 0.2.2), raveio (>= 0.0.6), rpy2 (>= 0.1.2), shidashi (>= 0.1.1), shiny (>= 1.7.1), shinyWidgets (>= 0.6.2), threeBrain (>= 0.2.4), shinyvalidate, htmlwidgets, R6, checkmate, cachem (>= 1.0.6)

Suggests htmltools, fastmap (>= 1.1.0), rlang (>= 1.0.2), crayon (>= 1.4.2), rstudioapi, knitr, httr, rmarkdown, testthat (>= 3.0.0)

RoxygenNote 7.3.1

URL <https://dipterix.org/ravedash/>

BugReports <https://github.com/dipterix/ravedash/issues>

VignetteBuilder knitr

Config/testthat/edition 3

Repository <https://dipterix.r-universe.dev>

RemoteUrl <https://github.com/dipterix/ravedash>

RemoteRef HEAD

RemoteSha 83ff0f121f22221d4806fb9bc1d4e3fbdd8f292b

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card_badge	<i>Create a badge widget located at card header</i>
------------	---

Description

Create a badge widget located at card header

Usage

```
card_badge(text = NULL, class = NULL, ...)
```

```
card_recalculate_badge(text = "Recalculate needed", class = NULL, ...)
```

```
enable_recalculate_badge(text = "Recalculate needed", ...)
```

```
disable_recalculate_badge(text = "Up-to-date", ...)
```

```
set_card_badge(  
  id = NULL,  
  class = NULL,  
  text = NULL,  
  add_class = NULL,  
  remove_class = NULL,  
  session = shiny::getDefaultReactiveDomain()  
)
```

Arguments

text	inner text content of the badge
class	additional 'HTML' class of the badge; for set_card_badge, this is the class selector of the badge that is to be changed
...	additional 'HTML' tag attributes
id	the badge 'HTML' ID to be changed, will be enclosed with session namespace session\$ns(id) automatically.
add_class, remove_class	add or remove class
session	shiny session

Examples

```
library(ravedash)  
  
# UI: a Bootstrap badge with green background  
card_badge("Ready", class = "bg-green rave-output-status")  
  
# server  
server <- function(input, output, session) {  
  
  safe_observe({  
  
    # ... check if the inputs have changed  
  
    set_card_badge(  
      class = "rave-output-status",  
      text = "Refresh needed",  
      add_class = "bg-yellow",  
      remove_class = "bg-green"  
    )  
  
  })  
  
}
```

card_url	<i>Set 'URL' scheme for modules</i>
----------	-------------------------------------

Description

Automatically generates href for [input_card](#) and [output_card](#)

Usage

```
set_card_url_scheme(module_id, root, sep = "/")

card_href(title, type = "input", module_id = NULL)
```

Arguments

module_id	the module ID
root	'URL' default route
sep	separation
title	a title string that will be used to generate 'URL'
type	type of the card; choices are 'input' or 'output'

Value

The hyper reference of suggested card 'URL'

Examples

```
set_card_url_scheme(
  module_id = "power_explorer",
  root = "https://openwetware.org/wiki/RAVE:ravebuiltins",
  sep = ":")

card_href("Set Electrodes", type = "input", module_id = "power_explorer")
```

debug_modules	<i>Debug 'RAVE' modules interactively in local project folder</i>
---------------	---

Description

Debug 'RAVE' modules interactively in local project folder

Usage

```
debug_modules(
  module_root = rstudioapi::getActiveProject(),
  host = "127.0.0.1",
  port = 17283,
  jupyter = FALSE,
  ...
)
```

Arguments

module_root	root of modules, usually the project folder created from 'shidashi' template
host, port	host and port of the application
jupyter	whether to launch 'Jupyter' server; default is false
...	passed to render

Value

'RStudio' job ID

get_active_module_info

Get current active module information, internally used

Description

Get current active module information, internally used

Usage

```
get_active_module_info(session = shiny::getDefaultReactiveDomain())
```

```
get_active_pipeline(session = shiny::getDefaultReactiveDomain())
```

Arguments

session	shiny reactive domain, default is current domain
---------	--

Value

A named list, including module ID, module label, internal 'rave_id'.

`group_box`*Group input elements into a box with title*

Description

Only works in template framework provided by 'shidashi' package, see [use_template](#)

Usage

```
group_box(title, ..., class = NULL)
```

```
flex_group_box(title, ..., class = NULL, wrap = "wrap", direction = "row")
```

Arguments

<code>title</code>	the box title
<code>...</code>	elements to be included or to be passed to other methods
<code>class</code>	additional class of the box
<code>wrap, direction</code>	see flex_container

Value

A 'HTML' tag

Examples

```
library(shiny)
library(shidashi)
library(ravedash)

group_box(
  title = "Analysis Group A",
  selectInput("a", "Condition", choices = c("A", "B")),
  sliderInput("b", "Time range", min = 0, max = 1, value = c(0,1))
)

flex_group_box(
  title = "Project and Subject",
  flex_item( "Some input 1" ),
  flex_item( "Some input 2" ),
  flex_break(),
  flex_item( "Some input in new line" )
)
```

logger	<i>Logger system used by 'RAVE'</i>
--------	-------------------------------------

Description

Keep track of messages printed by modules

Usage

```
logger(  
  ...,  
  level = c("info", "warning", "error", "fatal", "debug", "trace"),  
  calc_delta = "auto",  
  .envir = parent.frame(),  
  .sep = "",  
  use_glue = FALSE,  
  reset_timer = FALSE  
)  
  
set_logger_path(root_path, max_bytes, max_files)  
  
logger_threshold(  
  level = c("info", "warning", "error", "fatal", "debug", "trace"),  
  module_id,  
  type = c("console", "file", "both")  
)  
  
logger_error_condition(cond, level = "error")  
  
error_notification(  
  cond,  
  title = "Error found!",  
  type = "danger",  
  class = "error_notif",  
  delay = 30000,  
  autohide = TRUE,  
  collapse = "\n",  
  prefix = paste("Found the following error",  
    "(details have been printed in the console):"),  
  session = shiny::getDefaultReactiveDomain()  
)  
  
error_alert(  
  cond,  
  title = "Error found!",  
  type = "error",  
  danger_mode = TRUE,
```

```

    auto_close = FALSE,
    prefix = paste("Found the following error",
      "(details have been printed in the console):"),
    buttons = "Confirm",
    session = shiny::getDefaultReactiveDomain()
  )

with_error_notification(expr, envir = parent.frame(), quoted = FALSE, ...)

with_error_alert(expr, envir = parent.frame(), quoted = FALSE, ...)

```

Arguments

..., .envir, .sep	passed to glue , if use_glue is true
level	the level of message, choices are 'info' (default), 'warning', 'error', 'fatal', 'debug', 'trace'
calc_delta	whether to calculate time difference between current message and previous message; default is 'auto', which prints time difference when level is 'debug'. This behavior can be changed by altering calc_delta by a logical TRUE to enable or FALSE to disable.
use_glue	whether to use glue to combine ...; default is false
reset_timer	whether to reset timer used by calc_delta
root_path	root directory if you want log messages to be saved to hard disks; if root_path is NULL, "", or nullfile , then logger path will be unset.
max_bytes	maximum file size for each logger partitions
max_files	maximum number of partition files to hold the log; old files will be deleted.
module_id	'RAVE' module identification string, or name-space; default is 'ravedash'
type	which type of logging should be set; default is 'console', if file log is enabled through set_logger_path, type could be 'file' or 'both'. Default log level is 'info' on console and 'debug' on file.
cond	condition to log
class, title, delay, autohide	passed to show_notification
collapse, danger_mode, auto_close, buttons	will be passed to shiny_alert2 or show_notification
prefix	additional messages to display in the notification or alert
session	shiny session
expr	expression to evaluate
envir	environment to evaluate expr
quoted	whether expr is quoted; default is false

Value

The message without time-stamps

Examples

```
logger("This is a message")

a <- 1
logger("A message with glue: a={a}")

logger("A message without glue: a={a}", use_glue = FALSE)

logger("Message A", calc_delta = TRUE, reset_timer = TRUE)
logger("Seconds before logging another message", calc_delta = TRUE)

# by default, debug and trace messages won't be displayed
logger('debug message', level = 'debug')

# adjust logger level, make sure `module_id` is a valid RAVE module ID
logger_threshold('debug', module_id = NULL)

# Debug message will display
logger('debug message', level = 'debug')

# Trace message will not display as it's lower than debug level
logger('trace message', level = 'trace')
```

module_server_common *Default module server function*

Description

Common shiny server function to enable modules that requires data loader panel.

Usage

```
module_server_common(
  module_id,
  check_data_loaded,
  ...,
  session = shiny::getDefaultReactiveDomain(),
  parse_env = NULL
)
```

Arguments

`module_id` 'RAVE' module ID

`check_data_loaded` a function that takes zero to one argument and must return either TRUE if data has been loaded or FALSE if loader needs to be open to load data.

...	ignored
session	shiny session
parse_env	environment used to parse module

Value

A list of server utility functions; see 'Examples' below.

Examples

```
# Debug in non-reactive session: create fake session
fake_session <- shiny::MockShinySession$new()

# register common-server function
module_server_common(module_id = "mock-session",
                     session = fake_session)
server_tools <- get_default_handlers(fake_session)

# Print each function to see the usage

server_tools$auto_recalculate

server_tools$run_analysis_onchange

server_tools$run_analysis_flag

server_tools$module_is_active

server_tools$simplify_view

# 'RAVE' module server function
server <- function(input, output, session, ...){

  pipeline_path <- "PATH to module pipeline"

  module_server_common(
    module_id = session$ns(NULL),
    check_data_loaded = function(first_time){

      re <- tryCatch({
        # Try to read data from pipeline results
        repo <- raveio::pipeline_read(
          'repository',
          pipe_dir = pipeline_path
        )

        # Fire event to update footer message
        ravedash::fire_rave_event('loader_message',
                                "Data loaded")

        # Return TRUE indicating data has been loaded
        TRUE
      })
    }
  )
}
```

```
    }, error = function(e){  
      # Fire event to remove footer message  
      ravedash::fire_rave_event('loader_message', NULL)  
  
      # Return FALSE indicating no data has been found  
      FALSE  
    })  
  }, session = session  
)  
}
```

new_rave_shiny_component_container

Creates a container for preset components

Description

Creates a container for preset components

Usage

```
new_rave_shiny_component_container(  
  module_id,  
  pipeline_name,  
  pipeline_path = raveio::pipeline_find(pipeline_name),  
  settings_file = "settings.yaml"  
)
```

Arguments

module_id	'RAVE' module ID
pipeline_name	the name of pipeline to run
pipeline_path	path of the pipeline
settings_file	the settings file of the pipeline, usually stores the pipeline input information; default is "settings.yaml"

Value

A 'RAVShinyComponentContainer' instance

Examples

```
f <- tempfile()
dir.create(f, showWarnings = FALSE, recursive = TRUE)
file.create(file.path(f, "settings.yaml"))

container <- new_rave_shiny_component_container(
  module_id = "module_power_phase_coherence",
  pipeline_name = "power_phase_coherence_pipeline",
  pipeline_path = f
)

loader_project <- presets_loader_project()
loader_subject <- presets_loader_subject()

container$add_components(
  loader_project, loader_subject
)
```

output_gadget

'RAVE' dashboard output gadgets

Description

'RAVE' dashboard output gadgets

Usage

```
output_gadget(
  outputId,
  icon = NULL,
  type = c("standalone", "download", "download2", "actionbutton", "custom"),
  class = NULL,
  inputId = NULL,
  ...
)

output_gadget_container(
  expr,
  gadgets = c("standalone", "download2"),
  quoted = FALSE,
  env = parent.frame(),
  outputId = NULL,
  class = NULL,
  container = NULL,
  wrapper = TRUE
)
```

Arguments

outputId	output ID in the root scope of shiny session
icon	gadget icon
type, gadgets	gadget type(s), currently supported: 'standalone', 'download', 'actionbutton'
class	additional class to the gadget or its container
inputId	input ID, automatically assigned internally
...	ignored
expr	shiny output call expression, for example, shiny::plotOutput({...})
quoted	whether expr is quoted; default is false
env	environment where expr should be evaluated
container	optional container for the gadgets and outputs; will be ignored if wrapper is false
wrapper	whether to wrap the gadgets and the output within a 'HTML' container

plotOutput2

Shiny plot output with minimum height and additional classes

Description

Shiny plot output with minimum height and additional classes

Usage

```
plotOutput2(
  outputId,
  class = NULL,
  width = "100%",
  height = "100%",
  min_height = "400px",
  ...
)
```

Arguments

outputId, width, height, ...	passed to plotOutput
class	additional 'HTML' class of the output wrapper
min_height	minimum height of the image; default is 400 pixels

Value

A plot output element that can be included in a panel.

Examples

```
plotOutput2("plot", class = "rounded overflow-hidden",
            min_height = 300)
```

random-text

Randomly choose a text from a list of strings

Description

Randomly choose a text from a list of strings

Usage

```
be_patient_text(candidates)
```

```
finished_text(candidates)
```

Arguments

candidates character vectors, a list of candidates

Value

be_patient_text returns a text asking users to be patient; finished_text returns the text indicating the task has finished.

Examples

```
be_patient_text()
```

```
finished_text()
```

rave-input-output-card

Input and output card (front-end element)

Description

Input and output card (front-end element)

Usage

```
input_card(
  title,
  ...,
  class = "",
  class_header = "shidashi-anchor",
  class_body = "padding-10",
  class_foot = "padding-10",
  href = "auto",
  tools = NULL,
  footer = NULL,
  append_tools = TRUE,
  toggle_advanced = FALSE,
  module_id = get0("module_id", ifnotfound = NULL, envir = parent.frame())
)
```

```
output_card(
  title,
  ...,
  class = "",
  class_body = "padding-10",
  class_foot = "padding-10",
  href = "auto",
  tools = NULL,
  append_tools = TRUE,
  module_id = get0("module_id", ifnotfound = NULL, envir = parent.frame())
)
```

```
output_cardset(
  title,
  ...,
  class = "",
  class_body = "no-padding",
  class_foot = "padding-10",
  href = "auto",
  tools = NULL,
  append_tools = TRUE,
  module_id = get0("module_id", ifnotfound = NULL, envir = parent.frame())
)
```

Arguments

<code>title</code>	title of the card
<code>...</code>	additional elements to be included in the card, see card
<code>class</code>	the 'HTML' class for card
<code>class_header</code>	the 'HTML' class for card header; default is 'shidashi-anchor', which will generate shortcuts at the page footers

class_body	the 'HTML' class for card body; default is "padding-10", with '10px' at each direction
class_foot	the 'HTML' class for card footer; default is "padding-10", with '10px' at each direction
href	hyper reference link of the card
tools	a list of additional card tools, see card_tool
footer	footer elements
append_tools	whether to append tools to the default list; default is true
toggle_advanced	whether to show links in the footer to toggle elements with 'HTML' class 'rave-optional'
module_id	the 'RAVE' module ID

Value

'HTML' tags

See Also

[card](#)

Examples

```
input_card(title = "Condition selector",
           "Please select experimental conditions:",
           shiny::selectInput(
             inputId = "condition", label = "Condition",
             choices = c("Audio", "Visual")
           ))
```

rave-runtime-events *'RAVE' run-time events*

Description

A set of preset behaviors used by 'RAVE' modules

Usage

```
register_rave_session(
  session = shiny::getDefaultReactiveDomain(),
  .rave_id = NULL
)

get_default_handlers(session = shiny::getDefaultReactiveDomain())
```



```

fire_rave_event(
  key,
  value,
  global = FALSE,
  force = FALSE,
  session = shiny::getDefaultReactiveDomain(),
  .internal_ok = FALSE
)

get_session_by_rave_id(rave_id)

get_rave_event(key, session = shiny::getDefaultReactiveDomain())

open_loader(session = shiny::getDefaultReactiveDomain())

close_loader(session = shiny::getDefaultReactiveDomain())

watch_loader_opened(session = shiny::getDefaultReactiveDomain())

watch_data_loaded(session = shiny::getDefaultReactiveDomain())

current_shiny_theme(default, session = shiny::getDefaultReactiveDomain())

```

Arguments

session	shiny session, usually automatically determined
key	event key to fire or to monitor
value	event value
global	whether to notify other sessions (experimental and not recommended)
force	whether to force firing the event even the value hasn't changed
.internal_ok	internally used
rave_id, .rave_id	internally used to store unique session identification key
default	default value if not found

Details

The goal of these event functions is to simplify the dashboard logic without understanding the details or passing global variables around. Everything starts with `register_rave_session`. This function registers a unique identification to session, and adds bunch of registry to monitor the changes of themes, built-in, and custom events. If you have called `module_server_common`, then `register_rave_session` has already been called.

`register_rave_session` make initial registries, must be called, returns a list of registries
`fire_rave_event` send signals to make changes to a event; returns nothing
`get_rave_event` watch and get the event values; must run in shiny reactive context

`open_loader` fire an event with a special key 'open_loader' to open the data-loading panel; returns nothing

`close_loader` reset an event with a special key 'open_loader' to close the data-loading panel if possible; returns nothing

`watch_loader_opened` watch in shiny reactive context whether the loader is opened; returns a logical value, but raise errors when reactive context is missing

`watch_data_loaded` watch a special event with key 'data_loaded'; returns a logical value of whether new data has been loaded, or raise errors when reactive context is missing

`current_shiny_theme` watch and returns a list of theme parameters, for example, light or dark theme

Value

See 'Details'

Built-in Events

The following event keys are built-in. Please do not fire them using `fire_rave_event` or the 'RAVE' application might will crash

- 'simplify_toggle' toggle visibility of 'HTML' elements with class 'rave-option'
- 'run_analysis' notifies the module to run pipeline
- 'save_pipeline', 'load_pipeline' notifies the module to save or load pipeline
- 'data_loaded' notifies the module that new data has been loaded
- 'open_loader', 'toggle_loader' notifies the internal server code to show or hide the data loading panel
- 'active_module' internally used to store current active module information

Examples

```
library(shiny)
library(ravedash)

ui <- fluidPage(
  actionButton("btn", "Fire event"),
  actionButton("btn2", "Toggle loader")
)

server <- function(input, output, session) {
  # Create event registries
  register_rave_session()

  shiny::bindEvent(
    shiny::observe({
      fire_rave_event("my_event_key", Sys.time())
    }),
    input$btn,
```

```

    ignoreInit = TRUE,
    ignoreNULL = TRUE
  )
  shiny::bindEvent(
    shiny::observe({
      cat("An event fired with value:", get_rave_event("my_event_key"), "\n")
    }),
    get_rave_event("my_event_key"),
    ignoreNULL = TRUE
  )

  shiny::bindEvent(
    shiny::observe({
      if(watch_loader_opened()){
        close_loader()
      } else {
        open_loader()
      }
    }),
    input$btn2,
    ignoreInit = TRUE,
    ignoreNULL = TRUE
  )

  shiny::bindEvent(
    shiny::observe({
      cat("Loader is", ifelse(watch_loader_opened(), "opened", "closed"), "\n")
    }),
    watch_loader_opened(),
    ignoreNULL = TRUE
  )
}

if(interactive()){
  shinyApp(ui, server)
}

```

 rave-session

Create, register, list, and remove 'RAVE' sessions

Description

Create, register, list, and remove 'RAVE' sessions

Usage

```
new_session(update = FALSE, app_root = NULL)
```

```
use_session(x, ...)  
  
launch_session(  
  x,  
  host = "127.0.0.1",  
  port = NULL,  
  modules = NULL,  
  dry_run = FALSE,  
  options = list(jupyter = TRUE, jupyter_port = NULL, as_job = TRUE, launch_browser =  
    TRUE, single_session = FALSE, page_title = NULL, sidebar_open = TRUE)  
)  
  
session_getopt(keys, default = NA, namespace = "default")  
  
session_setopt(..., .list = NULL, namespace = "default")  
  
remove_session(x)  
  
remove_all_sessions()  
  
list_session(path = session_root(), order = c("none", "ascend", "descend"))  
  
start_session(  
  session,  
  new = NA,  
  modules = NULL,  
  page_title = NULL,  
  sidebar_open = TRUE,  
  host = "127.0.0.1",  
  port = NULL,  
  jupyter = NA,  
  jupyter_port = NULL,  
  as_job = TRUE,  
  launch_browser = TRUE,  
  single_session = FALSE,  
  app_root = NULL,  
  dry_run = FALSE  
)  
  
shutdown_session(  
  returnValue = invisible(NULL),  
  jupyter = TRUE,  
  session = shiny::getDefaultReactiveDomain()  
)  
  
session_log(x, max_lines = 200, modules = NULL)
```

Arguments

update	logical, whether to update to latest 'RAVE' template
..., .list	named list of key-value pairs of session options. The keys must be characters, and values must be simple data types (such as numeric vectors, characters)
host	host 'IP' address, default is 'localhost'
port	port to listen
modules	selected module ID to launch; used to only show a subset of modules; default is NULL (select all modules); hidden modules are always selected
dry_run	whether to dry-run (do not launch) the 'RAVE' session
options	additional options, including jupyter, jupyter_port, as_job, and launch_browser
keys	vector of characters, one or more keys of which the values should be obtained
default	default value if key is missing
namespace	namespace of the option; default is 'default'
path, app_root	root path to store the sessions; default is the "tensor_temp_path" in raveio_getopt
order	whether to order the session by date created; choices are 'none' (default), 'ascend', 'descend'
session, x	session identification string, or session object; use <code>list_session</code> to list all existing sessions
new	whether to create a new session instead of using the most recent one, default is false
page_title	session web page title and logo text; can have length of either one (page title and logo text are the same); or length of two, with page title be the first element and logo text be the second.
sidebar_open	whether to open the side-bar by default; default TRUE when more than one module is to be displayed
jupyter	logical, whether to launch 'jupyter' instances when starting 'RAVE' sessions, or to stop the 'jupyter' instances when shutting down. It requires additional setups to enable 'jupyter' lab; see 'Installation Guide Step 3' in the 'RAVE' wiki page.
jupyter_port	port used by 'jupyter' lab, can be set by 'jupyter_port' option in raveio_setopt
as_job	whether to launch the application as 'RStudio' job, default is true if 'RStudio' is detected; when running without 'RStudio', this option is always false
launch_browser	whether to launch browser, default is true
single_session	whether to enable single-session mode. Under this mode, closing the main frame will terminate 'RAVE' run-time session, otherwise the 'RAVE' instance will still open in the background
returnValue	passed to stopApp
max_lines	maximum number of log entries to return; default is 200

Value

`new_session` returns a session object with character 'session_id' and a function 'launch_session' to launch the application from this session

`use_session` returns a session object, the same as `new_session` under the condition that corresponding session exists, or raise an error if the session is missing

`list_session` returns a list of all existing session objects under the session root

`remove_session` returns a logical whether the corresponding session has been found and removed

Examples

```
if(interactive()){
  sess <- new_session()
  sess$launch_session()

  all_sessions <- list_session()
  print(all_sessions)

  # Use existing session
  session_id <- all_sessions[[1]]$session_id
  sess <- use_session(session_id)
  sess$launch_session()

  # Remove session
  remove_session(session_id)
  list_session()
}
```

 rave-ui-preset

Preset reusable front-end components for 'RAVE' modules

Description

For examples and use cases, please check [new_rave_shiny_component_container](#).

Usage

```
presets_analysis_electrode_selector2(
  id = "electrode_text",
  varname = "analysis_electrodes",
  label = "Select Electrodes",
  loader_project_id = "loader_project_name",
  loader_subject_id = "loader_subject_code",
  pipeline_repository = "repository",
  start_simple = FALSE,
  multiple = TRUE
```

```
)

presets_analysis_ranges(
  id = "analysis_ranges",
  varname = "analysis_ranges",
  label = "Configure Analysis",
  pipeline_repository = "repository",
  max_components = 2
)

presets_baseline_choices(
  id = "baseline_choices",
  varname = "baseline",
  label = "Baseline Settings",
  pipeline_repository = "repository",
  baseline_choices = c("Decibel", "% Change Power", "% Change Amplitude",
    "z-score Power", "z-score Amplitude"),
  baseline_along_choices = c("Per frequency, trial, and electrode", "Across electrode",
    "Across trial", "Across trial and electrode")
)

presets_condition_groups(
  id = "condition_groups",
  varname = "condition_groups",
  label = "Create Condition Contrast",
  pipeline_repository = "repository"
)

presets_import_export_subject_pipeline(
  id = "im_ex_pipeline",
  loader_project_id = "loader_project_name",
  loader_subject_id = "loader_subject_code",
  pipeline_repository = "repository",
  settings_entries = c("loaded_electrodes", "epoch_choice", "epoch_choice__trial_starts",
    "epoch_choice__trial_ends", "reference_name"),
  fork_mode = c("exclude", "include")
)

presets_import_setup_blocks(
  id = "import_blocks",
  label = "Format & session blocks",
  import_setup_id = "import_setup",
  max_components = 5
)

presets_import_setup_channels(
  id = "import_channels",
  label = "Channel information",
```

```
import_setup_id = "import_setup",
import_blocks_id = "import_blocks"
)

presets_import_setup_native(
  id = "import_setup",
  label = "Select project & subject"
)

presets_loader_3dviewer(
  id = "loader_3d_viewer",
  height = "600px",
  loader_project_id = "loader_project_name",
  loader_subject_id = "loader_subject_code",
  loader_reference_id = "loader_reference_name",
  loader_electrodes_id = "loader_electrode_text",
  gadgets = c("standalone", "download")
)

presets_loader_3dviewer2(
  id = "loader_3d_viewer",
  height = "600px",
  loader_project_id = "loader_project_name",
  loader_subject_id = "loader_subject_code",
  loader_electrodes_id = "loader_electrode_text",
  gadgets = c("standalone", "download")
)

presets_loader_electrodes(
  id = "loader_electrode_text",
  varname = "loaded_electrodes",
  label = "Electrodes",
  loader_project_id = "loader_project_name",
  loader_subject_id = "loader_subject_code"
)

presets_loader_epoch(
  id = "loader_epoch_name",
  varname = "epoch_choice",
  label = "Epoch and Trial Duration",
  loader_project_id = "loader_project_name",
  loader_subject_id = "loader_subject_code"
)

presets_loader_project(
  id = "loader_project_name",
  varname = "project_name",
  label = "Project"
```



```

)

presets_loader_reference(
  id = "loader_reference_name",
  varname = "reference_name",
  label = "Reference name",
  loader_project_id = "loader_project_name",
  loader_subject_id = "loader_subject_code",
  mode = c("default", "create")
)

presets_loader_subject(
  id = "loader_subject_code",
  varname = "subject_code",
  label = "Subject",
  loader_project_id = "loader_project_name",
  checks = c("notch", "wavelet"),
  allow_new = FALSE
)

presets_loader_subject_only(
  id = "loader_subject_code",
  varname = "subject_code",
  label = "Subject",
  multiple = FALSE
)

presets_loader_sync_project_subject(
  id = "loader_sync_project_subject",
  label = "Sync subject from most recently loaded",
  varname = "loader_sync_project_subject",
  loader_project_id = "loader_project_name",
  loader_subject_id = "loader_subject_code",
  from_module = NULL,
  project_varname = "project_name",
  subject_varname = "subject_code"
)

```

Arguments

<code>id</code>	input or output ID of the element; this ID will be prepended with module namespace
<code>varname</code>	variable name(s) in the module's settings file
<code>label</code>	readable label(s) of the element
<code>loader_project_id</code>	the ID of <code>presets_loader_project</code> if different to the default
<code>loader_subject_id</code>	the ID of <code>presets_loader_subject</code> if different to the default

pipeline_repository	the pipeline name that represents the 'RAVE' repository from functions such as prepare_subject_bare , prepare_subject_with_epoch , and prepare_subject_power
start_simple	whether to start in simple view and hide optional inputs
multiple	whether to allow multiple inputs
max_components	maximum number of components for compound inputs
baseline_choices	the possible approaches to calculate baseline
baseline_along_choices	the units of baseline
settings_entries	used when importing pipelines, pipeline variable names to be included or excluded, depending on fork_mode
fork_mode	'exclude' (default) or 'include'; in 'exclude' mode, settings_entries will be excluded from the pipeline settings; in 'include' mode, only settings_entries can be imported.
import_setup_id	the ID of presets_import_setup_native if different to the default
import_blocks_id	the ID of presets_import_setup_blocks if different to the default
height	height of the element
loader_reference_id	the ID of presets_loader_reference if different to the default
loader_electrodes_id	the ID of presets_loader_electrodes if different to the default
gadgets	gadget types to include; see type argument in function output_gadget
mode	whether to create new reference, or simply to choose from existing references
checks	whether to check if subject has been applied with 'Notch' filters or 'Wavelet'; default is both.
allow_new	whether to allow new subject to be created; ignored when checks exist
from_module	which module to extract input settings
project_varname, subject_varname	variable names that should be extracted from the settings file

Value

A 'RAVESHinyComponent' instance.

See Also

[new_rave_shiny_component_container](#)

ravedash_footer	<i>A hovering footer at bottom-right</i>
-----------------	--

Description

Internally used. Do not call explicitly

Usage

```
ravedash_footer(
  module_id = NULL,
  label = "Run Analysis",
  auto_recalculation = TRUE,
  message_action = "toggle_loader",
  class = NULL,
  style = NULL
)
```

Arguments

module_id	'RAVE' module ID
label	run-analysis button label; default is "Run Analysis"
auto_recalculation	whether to show the automatic calculation button; default is true
message_action	message to send when clicking on message button; default is 'toggle_loader', which opens up loading screen
class	additional class for the footer
style	additional style for the footer

Value

'HTML' tags

Examples

```
library(shiny)
# dummy variables for the example
data_loaded <- TRUE

# UI code
ravedash_footer("my_module")

# server code to set message
server <- function(input, output, session){

  module_server_common(input, output, session, function(){
```

```

# check if data has been loaded
if(data_loaded) {

  # if yes, then set the footer message
  fire_rave_event("loader_message",
                 "my_project/subject - Epoch: Auditory")
  return(TRUE)
} else {

  # No data found, unset the footer message
  fire_rave_event("loader_message", NULL)
  return(FALSE)
}
})
}

```

register_output

Register output and output options

Description

Enable advanced output gadgets such as expanding the output in another browser window, or downloading the rendered data.

Usage

```

register_output_options(
  outputId,
  ...,
  .opt = list(),
  extras = list(),
  session = shiny::getDefaultReactiveDomain()
)

```

```

get_output_options(outputId, session = shiny::getDefaultReactiveDomain())

```

```

register_output(
  render_function,
  outputId,
  ...,
  output_opts = list(),
  quoted = FALSE,
  download_function = NULL,
  download_fileformat =
    "{ outputId }-{" format(Sys.time(), '%b_%d_%Y_%H_%M_%S') }.{ extension }",
  output_type = c("image", "data", "threeBrain", "no-download"),

```

```

    extensions = NULL,
    title = "Download widget",
    cancel_btn = "Cancel",
    confirm_btn = "Download",
    session = shiny::getDefaultReactiveDomain()
  )

  get_output(outputId, session = shiny::getDefaultReactiveDomain())

```

Arguments

outputId	output ID in the scope of current shiny session
extras	extra information to store
session	shiny session instance
render_function	shiny render function
output_opts, .opt	output options
quoted	whether render_function is quoted; default is false
download_function	core function that writes the data into the files; default is set for 'image' and 'threeBrain' automatically; see 'Default' and 'Examples'.
download_fileformat	download file format, supports 'glue'
output_type	type of export file formats supported, options are 'image' (for figures, default), 'data', 'threeBrain' (for 'RAVE' 3D viewers), and 'no-download' (do not export).
extensions	a list of file extensions and their descriptions; the names will be used to display the modal selectors, and values are the underlying extension read by download_fileformat
title, cancel_btn, confirm_btn, ...	title, button labels, and additional 'HTML' elements that are to be shown in the modal

Details

The following steps are done when register_output is called:

- * Register the render function to shiny output output[[outputId]]
- * Register the render information to session which can be retrieved via get_output
- * Register (if download_function is a function) a download handler that listen to the shiny event. The event ID is paste0(outputId, '__download2').

When downloading event is triggered, a modal will pop up asking for exporting format (always exists) and image dimensions (if output type is 'image') or title (when output type is 'threeBrain'). Users will choose the proper inputs, which will be passed into download_function.

The file extensions is a named list. Its names are printable descriptions of the formats, and values are the file extensions (without the leading '.'). for example, list("compressed CSV" = "csv"). Users will see "compressed CSV" in the format selector, and download_function sees "csv".

When output type is image, users will be asked to enter the image size in inches; default width is 7, and height is calculated based on current image aspect ratio.

If you would like to show more on the modal, pass 'HTML' elements to . . .

Function `download_function` is a function containing four inputs:

* `con`: file where the data should be written into * `params`: a named list of `params$extension` (file extension), `width`, `height` (type is image), or `title` (3D viewer) * `render_expr` a quoted rendering expression of the rendering function * `render_env` the rendering environment of the rendering function.

Default `download_function` is provided when not specified.

Value

Registered output or output options.

Examples

```
if(interactive()) {

  library(shiny)
  library(ravedash)

  # ---- Use this in RAVE -----

  # UI
  output_gadget_container(
    plotOutput("plot", brush = shiny::brushOpts("plot__brush")),
  )

  # server
  server <- function(input, output, session) {
    register_output(
      renderPlot({
        # ... plot it
      }),
      outputId = "plot",
      output_opts = list(brush = shiny::brushOpts("plot__brush"))
    )
  }

  # ---- Low-level method -----

  rave_id <- paste(sample(c(letters, LETTERS, 0:9), 20, replace = TRUE),
    collapse = "")

  ui <- function(req) {
    query_string <- req$QUERY_STRING
    if(length(query_string) != 1) {
      query_string <- "/"
    }
  }
}
```

```

query_result <- httr::parse_url(query_string)

if(!identical(toupper(query_result$query$standalone), "TRUE")) {
  # normal page
  basicPage(
    output_gadget_container(
      plotOutput("plot", brush = shiny::brushOpts("plot__brush")),
    )
  )
} else {
  # standalone viewer
  uiOutput("viewer")
}
}

server <- function(input, output, session) {

  bindEvent(
    safe_observe({
      query_string <- session$clientData$url_search
      query_result <- httr::parse_url(query_string)

      if(!identical(toupper(query_result$query$module), "standalone_viewer")) {
        # normal page
        register_rave_session(session = session, .rave_id = rave_id)
        register_output(
          renderPlot({
            input$btn
            plot(rnorm(100), pch = 16)
          }),
          outputId = "plot",
          output_opts = list(brush = shiny::brushOpts("plot__brush"))
        )
      } else {
        # standalone viewer
        standalone_viewer(outputId = "plot", rave_id = rave_id)
      }
    }
  ),
  session$clientData$url_search
)

}

shinyApp(ui, server, options = list(port = 8989))
}

```

Description

A button that triggers 'run_analysis' event; see also [get_rave_event](#)

Usage

```
run_analysis_button(
  label = "Run analysis (Ctrl+Enter)",
  icon = NULL,
  width = NULL,
  type = "primary",
  btn_type = c("button", "link"),
  class = "",
  style = "",
  ...
)
```

Arguments

label	label to display
icon	icon before the label
width, class, style, ...	passed to 'HTML' tag
type	used to calculate class
btn_type	button style, choices are 'button' or 'link'

Value

A 'HTML' button tag

safe_observe	<i>Safe-wrapper of 'shiny' observe function</i>
--------------	---

Description

Safely wrap expression x such that shiny application does no hang when when the expression raises error.

Usage

```
safe_observe(
  x,
  env = NULL,
  quoted = FALSE,
  priority = 0L,
  domain = NULL,
  ...,
  error_wrapper = c("none", "notification", "alert")
)
```


Arguments

`x`, `env`, `quoted`, `priority`, `domain`, ...
passed to [observe](#)

`error_wrapper` handler when error is encountered, choices are 'none', 'notification' (see [error_notification](#)), or 'alert' (see [error_alert](#))

Value

'shiny' observer instance

Examples

```
values <- shiny::reactiveValues(A=1)

obsB <- safe_observe({
  print(values$A + 1)
})
```

shiny_cache

Obtain caching object for current run-time shiny session

Description

Cache small objects such as inputs or configurations

Usage

```
shiny_cache(namespace, session = shiny::getDefaultReactiveDomain())
```

Arguments

`namespace` characters, usually the module ID

`session` shiny interactive context domain

Value

A caching object. The caching object is identical within the same context and namespace.

shiny_check_input *Check shiny inputs and modify if validation fails*

Description

Check shiny inputs and modify if validation fails

Usage

```
shiny_check_input(
  inputId,
  check = NULL,
  on_check_fails,
  ...,
  quoted = FALSE,
  env = parent.frame(),
  logger_level = c("trace", "none", "debug", "info", "warning", "error"),
  session = shiny::getDefaultReactiveDomain()
)
```

Arguments

inputId	character, input ID
check	either a function that takes the input value or a character of a checkmate function; when check is a character, this function will look for check_* functions in the checkmate package
on_check_fails	value to substitute when check fails, and the input value will be the result of on_check_fails. This argument can be missing; when missing, input value will not be altered
...	passed to check function
quoted	whether on_check_fails is quoted
env	environment to evaluate on_check_fails
logger_level	log level when validation fails
session	shiny session; default is current session

Value

A shiny observe instance

Examples

```
if(interactive()) {
  library(ravedash)
  shiny::shinyApp(
    ui = shiny::basicPage(
```

```
    shiny::textInput("id1", "Enter a text"),
    shiny::textOutput("id2")
  ),
  server = function(input, output, session) {
    # input$id1 must have at least 1 character
    # the check uses `checkmate::check_character`
    shiny_check_input(
      "id1",
      check = "character",
      min.chars = 1,
      on_check_fails = "altered text"
    )

    output$id2 <- shiny::renderText({
      print(input$id1)
      sprintf("The final value is: %s", input$id1)
    })
  }
}
```

shiny_icons

Shiny icons

Description

Shiny icons

Usage

```
shiny_icons
```

Format

An object of class `ravedash_shiny_icons` of length 0.

Details

The goal of create this list is to keep 'shiny' icons (which are essentially 'font-awesome' icons) up-to-date.

simple_layout	<i>Simple input-output layout</i>
---------------	-----------------------------------

Description

Provides simple layout, with inputs on the left, and outputs on the right. Only useful in 'shidashi' framework.

Usage

```
simple_layout(
  input_ui,
  output_ui,
  input_width = 4L,
  container_fixed = FALSE,
  container_style = NULL,
  scroll = FALSE
)
```

Arguments

input_ui	the 'HTML' tags for the inputs
output_ui	the 'HTML' tags for the outputs
input_width	width of inputs, must be an integer from 1 to 11
container_fixed	whether the maximum width of the container should be fixed; default is no
container_style	additional 'CSS' style of the container
scroll	whether to stretch the container to full-heights and scroll the input and output separately.

Value

'HTML' tags

Examples

```
library(shiny)
library(ravedash)

simple_layout(
  input_ui = list(
    ravedash::input_card(
      title = "Data Selection",
      "Add inputs here"
    )
  ),
)
```

```

output_ui = list(
  ravedash::output_card(
    title = "Result A",
    "Add outputs here"
  )
)
)
)

```

standalone_viewer	<i>Register shiny-output options to allow display in stand-alone viewers</i>
-------------------	--

Description

Save the output options such that the additional configurations can be used by stand-alone viewer

Usage

```

standalone_viewer(
  outputId,
  module_session,
  rave_id,
  session = shiny::getDefaultReactiveDomain(),
  wrapper_id = "viewer"
)

```

Arguments

outputId	the full shiny output ID
module_session	the module shiny session; if not provided, then the session will be inferred by rave_id
rave_id	the unique identification key for 'RAVE' module sessions, can be obtained via get_active_module_info
session	shiny session object
wrapper_id	the wrapping render ID, default is "viewer"

Details

'RAVE' dashboard provides powerful stand-alone viewers where users can display almost any outputs from other modules and interact with these viewers while sending messages back.

Value

nothing

Examples

```

if(interactive()) {

library(shiny)
library(ravedash)

rave_id <- paste(sample(c(letters, LETTERS, 0:9), 20, replace = TRUE),
                 collapse = "")

ui <- function(req) {
  query_string <- req$QUERY_STRING
  if(length(query_string) != 1) {
    query_string <- "/"
  }
  query_result <- httr::parse_url(query_string)

  if(!identical(toupper(query_result$query$standalone), "TRUE")) {
    # normal page
    basicPage(
      actionButton("btn", "Click Me"),
      plotOutput("plot")
    )
  } else {
    # standalone viewer
    uiOutput("viewer")
  }
}

server <- function(input, output, session) {

  bindEvent(
    safe_observe({
      query_string <- session$clientData$url_search
      query_result <- httr::parse_url(query_string)

      if(!identical(toupper(query_result$query$standalone), "TRUE")) {
        # normal page
        register_rave_session(session = session, .rave_id = rave_id)
        output$plot <- renderPlot({
          input$btn
          plot(rnorm(100), pch = 16)
        })
      } else {
        # standalone viewer
        standalone_viewer(outputId = "plot", rave_id = rave_id)
      }
    }),
    session$clientData$url_search
  )

}

```

```
shinyApp(ui, server, options = list(port = 8989))

# Now open http://127.0.0.1:8989/?standalone=TRUE

}
```

switch_module	<i>Drive 'RAVE' browser to switch to another module</i>
---------------	---

Description

Switch to another 'RAVE' module to continue the procedures.

Usage

```
switch_module(module_id, title, session = shiny::getDefaultReactiveDomain())
```

Arguments

module_id	the module ID, see 'modules.yaml' in the pipeline directory
title	the module title to display
session	shiny session

Value

Nothing

temp_file	<i>Create a random temporary file path for current session</i>
-----------	--

Description

Create a random temporary file path for current session

Usage

```
temp_file(
  pattern = "file",
  fileext = "",
  persist = c("process", "app-session", "package-cache")
)

temp_dir(check = FALSE, persist = c("process", "app-session", "package-cache"))
```

Arguments

pattern, fileext	see tempfile
persist	persist level, choices are 'app-session', 'package-cache', and 'process'; see 'Details'. 'RAVE' application session, default), 'package-cache' (package-level cache directory)
check	whether to create the temporary directory

Details

R default [tempdir](#) usually gets removed once the R process ends. This behavior might not meet all the needs for 'RAVE' modules. For example, some data are 'RAVE' session-based, like current or last visited subject, project, or state data (like bookmarks, configurations). This session-based information will be useful when launching the same 'RAVE' instance next time, hence should not be removed when users close R. Other data, such as subject-related, or package-related should last even longer. These types of data may be cache of subject power, package-generated color schemes, often irrelevant from R or 'RAVE' sessions, and can be shared across different 'RAVE' instances.

The default scheme is `persist='process'`. Under this mode, this function behaves the same as [tempfile](#). To store data in 'RAVE' session-based manner, please use `persist='app-session'`. The actual path will be inside of 'RAVE' session folder, hence this option is valid only if 'RAVE' instance is running. When 'RAVE' instance is not running, the result falls back to `persist='process'`. When `persist='process'`, To cache larger and session-irrelevant data, use 'package-cache'.

The 'RAVE' session and package cache are not cleared even when R process ends. Users need to clean the data by themselves. See [remove_session](#) or [remove_all_sessions](#) about removing session-based folders, or [clear_cached_files](#) to remove package-based cache.

Value

A file or a directory path to persist temporary data cache

Examples

```
temp_dir()
temp_dir(persist = "package-cache")
```

with_log_modal	<i>Evaluate script in the background and show the results from shiny modal dialogue</i>
----------------	---

Description

Evaluate script in the background and show the results from shiny modal dialogue

Usage

```
with_log_modal(
  expr,
  quoted = FALSE,
  callback = NULL,
  title = "Running...",
  size = "1",
  session = shiny::getDefaultReactiveDomain(),
  ...
)
```

Arguments

expr	R expression to evaluate The script must be standalone
quoted	whether the expression has been quoted
callback	callback function to run once the evaluate finishes; must take one argument. The passed variable will be the evaluation results or an error condition (if error occurs)
title, size	modal title and size, see showModal
session	shiny session object
...	ignored, reserved for future use

Value

A promise object

Examples

```
# Shiny server function
server <- function(input, output, session) {
  shiny::bindEvent(
    shiny::observe({
      with_log_modal(
        title = "Roll the dice",
        expr = {
          for(i in 1:10) {
            Sys.sleep(runif(1, min = 0.5, max = 2))
            cat(sprintf("Rolling dice result: %.0f\n", sample(6, 1)))
          }
        }
      )
    }
  ),
  input$btn,
  ignoreNULL = TRUE, ignoreInit = TRUE
)
}

if(interactive()) {
```

```
shiny::shinyApp(  
  ui = shiny::basicPage(  
    shiny::actionButton('btn', "Click me")  
  ),  
  server = server,  
  options = list(launch.browser = TRUE)  
)  
}
```

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