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CRAN



**Genentech**  
*A Member of the Roche Group*

# WORKSHOP

FROM PRE-BUILT MODULES  
TO CUSTOM MODULE CREATION

An R Programming Workshop on Embedding  
Interactive Data Exploration in Clinical Trials

***R Medicine 2025***

# Presenters

## Dony Unardi

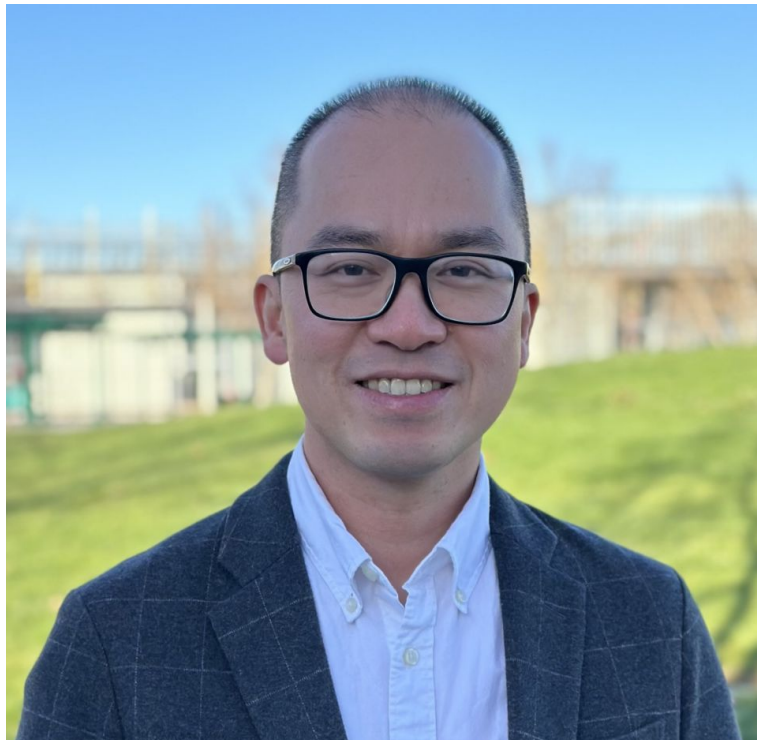
Principal Data Scientist, Data Sciences

Roche/Genentech

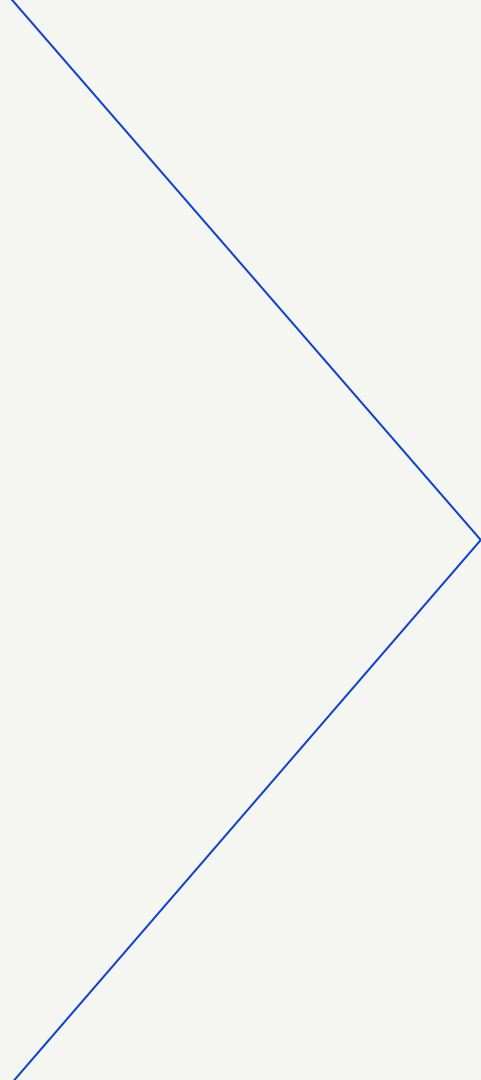
**tea1 Engineering Team Lead**

### Hobbies:

- Play guitar
- Play retro video games
- Swim & basketball



# Agenda

- 
- A decorative graphic consisting of a vertical blue line and two diagonal blue lines that meet at a point on the vertical line, forming a large right-pointing arrow shape that spans the height of the slide.
1. Introduction to **teal** framework
  2. Workshop
  3. Additional Resources

# What is teal?



Open-source R Shiny-based interactive data exploration framework



Modularized and standardized building blocks

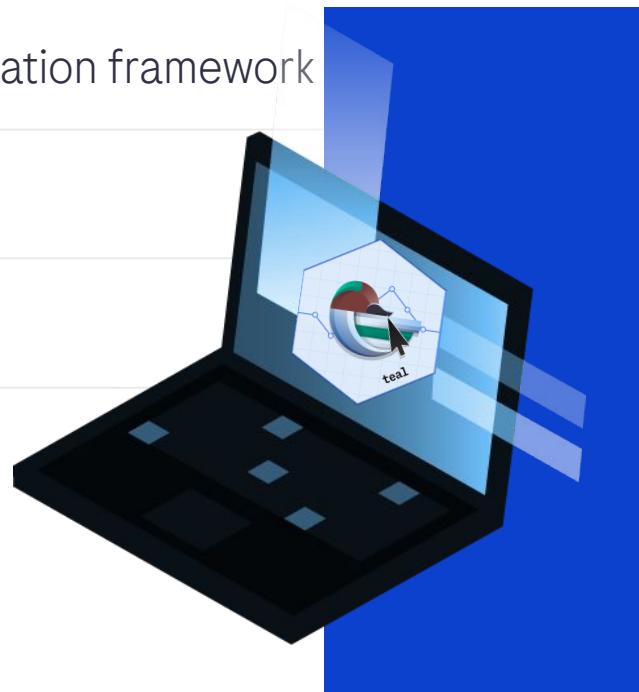


Collection of specialized R packages



Streamlines creation of web-apps that offers:

- Dynamic filtering facility
- Code reproducibility
- Reporting engine
- Many data summarization and visualizations



# How does teal work?



## Traditional shiny app

### Data

Dataset 1  
Dataset 2  
Dataset 3

### Shiny

ui  
server

## teal framework with modularized components

- Data agnostic
- Flexible
- Cumulative
- Collaborative
- Crowdsourcing



### Data

Dataset 1  
Dataset 2  
Dataset 3

### teal modules

Module 1  
ui  
server

Module 2  
ui  
server

Module 3  
ui  
server

### teal framework

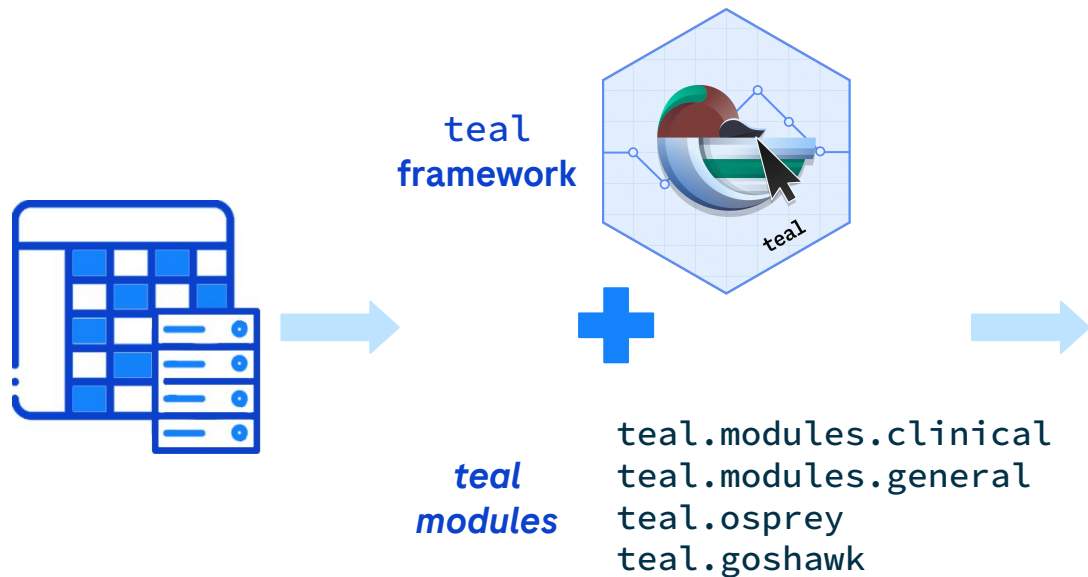
ui  
server

### teal app



# Workflow with teal

Building modularized web-apps can be quick and easy





## teal Framework R Packages

- [teal](#): shiny-based interactive exploration framework for analyzing data.
- [teal.gallery](#): gallery of sample teal apps.
- [teal.widgets](#): shiny components used within teal.
- [teal.reporter](#): allows teal applications to generate reports.
- [teal.slice](#): provides a filtering panel to allow subset of data.
- [teal.data](#): creating and loading the data needed for teal applications.
- [teal.code](#): handles reproducibility of outputs.
- [teal.transform](#): standardizes extracting and merging data
- [teal.logger](#): standardizes logging within teal framework.



## teal Modules R Packages

- [teal.modules.general](#): general analysis modules for exploring any data types
- [teal.modules.clinical](#): modules for analyzing CDISC data and clinical trial reporting with [tern](#) R package
- [teal.osprey](#): modules for analyzing and reporting early-phase clinical trial data with [osprey](#) R package
- [teal.goshawk](#): modules for analyzing and visualizing biomarker data with [goshawk](#) R package
- [teal.modules.hermes](#): modules for analyzing and visualizing RNAseq data with [hermes](#) R package



# Celebration!

New release of teal v0.16.0 on CRAN!

CRAN release includes  
module packages:

[teal.modules.clinical](#), [teal.modules.general](#)

& all core teal framework packages:

[teal.logger](#), [teal.reporter](#), [teal.widgets](#), [teal.code](#),  
[teal.data](#), [teal.slice](#), and [teal](#)





# Installation

```
install.packages("teal")  
install.packages("teal.modules.general")
```

# Workshop

# Workspace Setup

- Create Posit Cloud account: <https://posit.cloud/>
- Open the repo: <https://github.com/pharmaverse/tealworkshop-rmedicine2025>
- Open the assignment: **teal\_workshop\_rmedicine\_2025**
- Let's start coding!

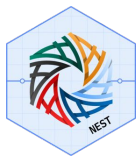
# Learning Materials

- Getting Started with teal:
  - [A Complete Guide to Getting Started with teal](#)
  - [Building Clinical Data Analysis Apps with teal](#)
- Example apps:
  - <https://insightsengineering.github.io/teal.gallery/demo.html>
- Vignettes:
  - [Getting Started with teal](#)
  - [Create custom teal module](#)
  - [Add Reporter feature to your custom teal module](#)

# Additional Resources



teal.gallery of *teal* modules catalog  
<https://insightsengineering.github.io/teal.gallery/>



teal is part of NEST R product family  
<https://insightsengineering.github.io/nest/>



teal & NEST is also part of  
 pharmaverse: <https://pharmaverse.org/>



Slack channel [#teal](#) under  
[pharmaverse](#) workspace





[PHUSE WG on teal enhancements for  
 cross-industry adoption](#)

## Support

### Packages

For all [pharmaverse packages](#) we recommend to use the following for support and communications between user and developer communities:

-  **Slack** - for informal discussions, Q&A and building user community
-  **GitHub Issues** - for direct feedback, enhancement requests or raising bugs

*Doing now what patients need next*