

# Developing A Scalable Programming Environment to Support MOOC Education in Clinical Data Science

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## Clinical Data Science Specialization

Created By:



University of Colorado  
Anschutz Medical Campus

Industry Partner:



@ [LearnClinicalDataScience.org](http://LearnClinicalDataScience.org)

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# Clinical Data Science Specialization



Introduction to  
Clinical Data Science

Clinical Data Models &  
Data Quality Assess.

Identifying Patient  
Populations



Clinical Natural  
Language Processing



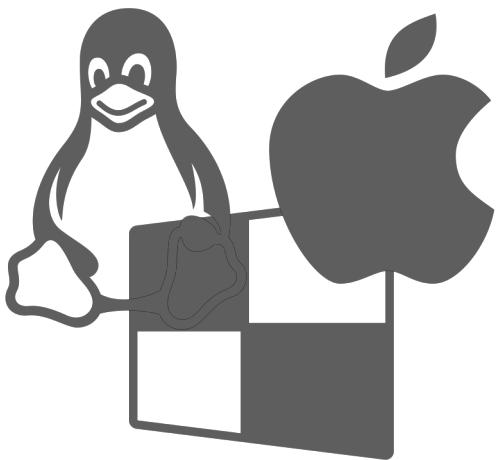
Predictive Modeling &  
Transforming Clinical  
Practice



Advanced Clinical  
Data Science

# Challenges

## Traditional Classroom



## MOOC



# Resources

Google Cloud



R Studio®



PhysioNet

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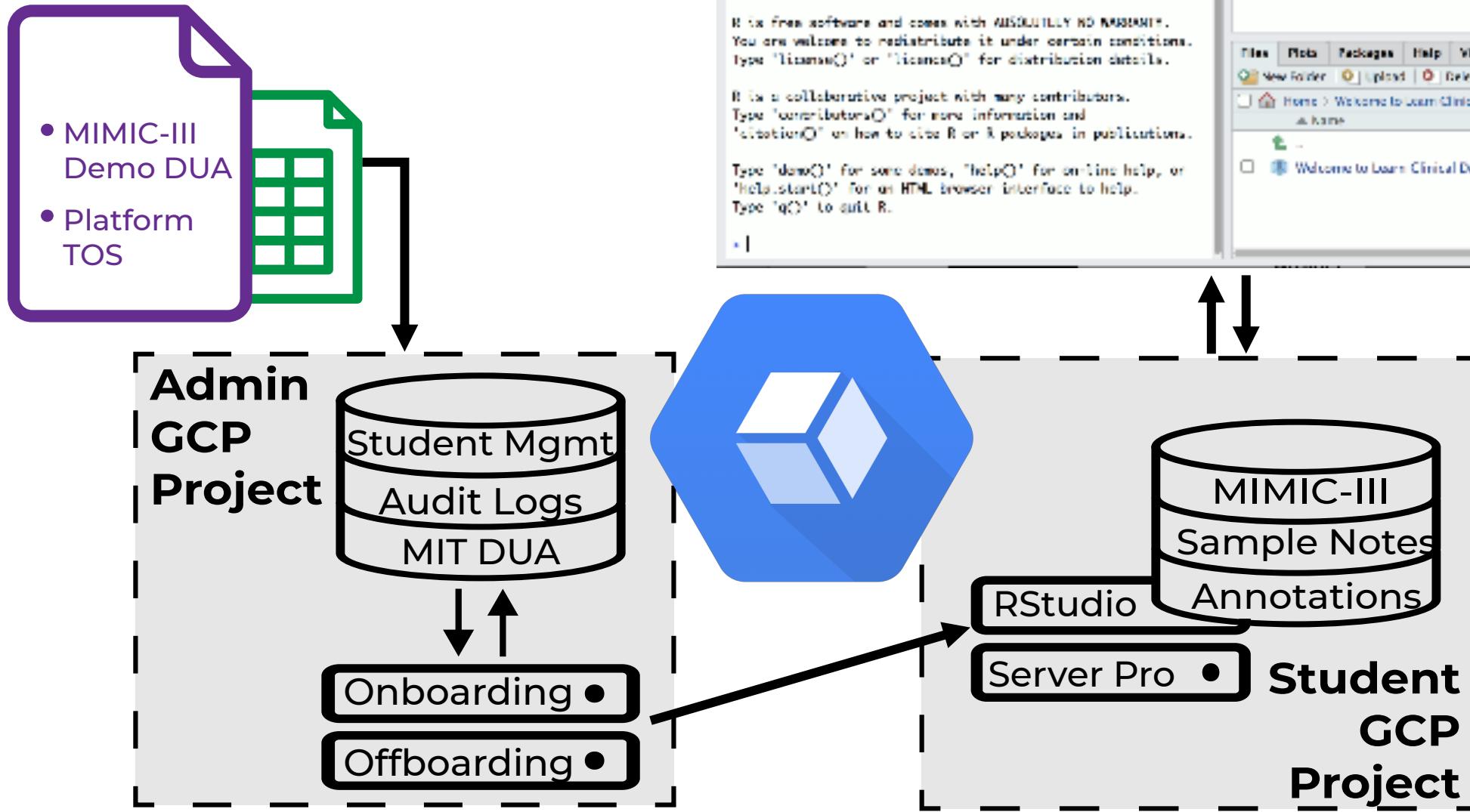
Database Open Access

MIMIC-III Clinical Database Demo

Alistair Johnson , Tom Pollard , Roger Mark

Published: April 24, 2019. Version: 1.4

# Architecture



# Student's Perspective

tech-registration.  
learnclinicaldatascience.org

## Technology Platform Registration

Welcome to the Coursera Clinical Data Science Specialization created by the University of Colorado Anschutz Medical Campus and supported by our industry partner Google Cloud! We are excited to be able to provide a completely free online technology environment and facilitate access to a real clinical data set (MIMIC-III, [mimic.physionet.org](https://mimic.physionet.org)) to support your learning in this specialization.

To access the materials you MUST:

- 1) Provide a valid google account (i.e., an email address that ends in @[gmail.com](mailto:gmail.com)). You can create a free account at <https://accounts.google.com/SignUp>
- 2) Agree to the Technology Platform Terms of Service
- 3) Agree to the MIMIC-III Data Use Agreement

\*\*If these conditions are not met then you will not be eligible for the specialization or course certificate/s and forfeit any payment made to Coursera!\*\* If you do not agree you may still be able to access all ungraded materials available on the Coursera platform.

In this process we will ask you for some personal information.

- 1) Your gmail account is \*REQUIRED\*. This information allows you to:
  - a) log in to Google BigQuery
  - b) log in to the RStudio server platform
  - c) comply with the MIMIC-III data access policies
- 2) Your name, country, and state (where applicable) are \*REQUIRED\*. This information allows you to:
  - a) comply with the MIMIC-III data access policies
  - b) Your city, organization, and department are all OPTIONAL. These are data that MIMIC-III

rstudio.  
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R Studio



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Welcome to the Coursera Clinical Data Science Specialization!

Please Sign In to the RStudio Computational Environment with your Google Account!

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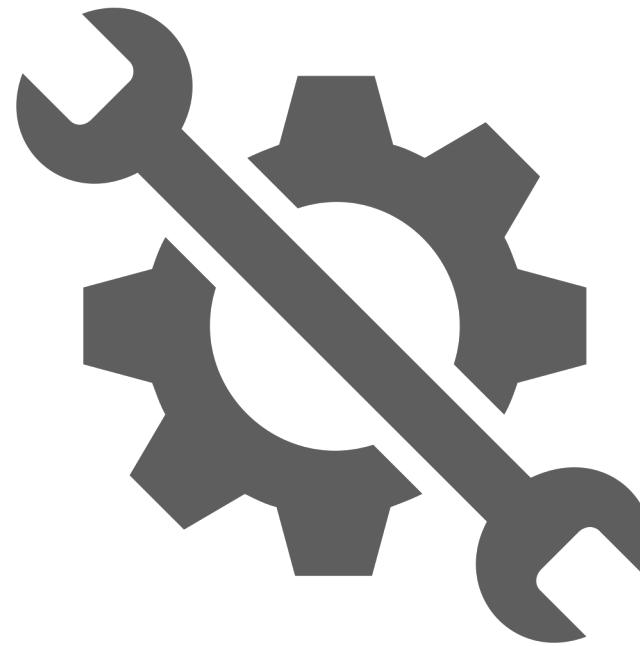
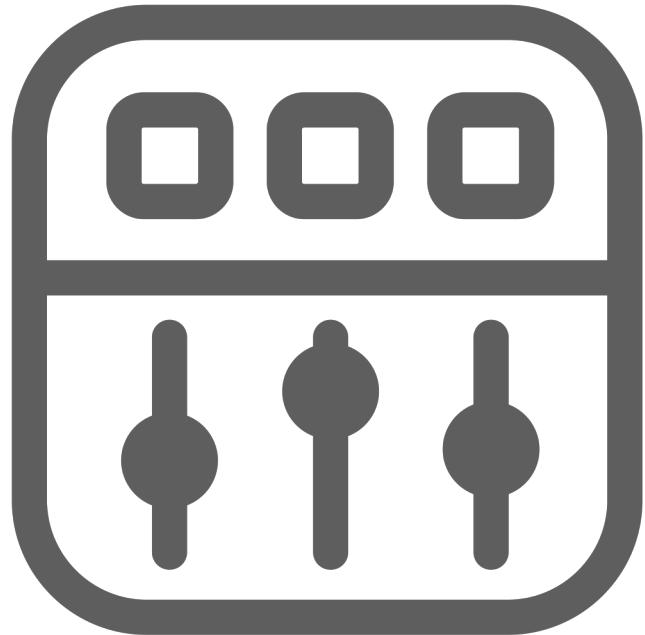
Google Email:

Remember me on this computer

 Sign in with Google

# Educator's Perspective

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# Performance

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> 600 Students on Platform

3 unscheduled outages since Jan 2019

7 students with onboarding issues

- Gmail vs GoogleMail

- Mapping ID Error

# Acknowledgements

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Michael Kahn



Chan Voong



David Mayer



Seth Russell

CU System Office for Digital Education  
Colorado Center for Personalized Medicine

Health Data Compass  
Data Science 2 Patient Value,

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