

# Trainstation

## Streamlining training delivery

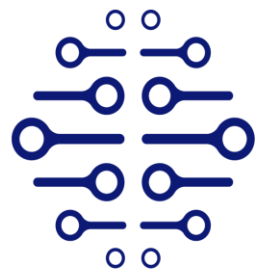
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Aidan Wilson, Abdullah Shaikh  
Intersect Australia

# Intersect Australia: Overview



**Data**



**Learn**



**Energy**



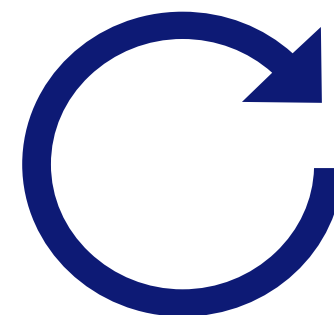
**48 staff nationwide**

Physical presence in  
NSW, SA, VIC, ACT

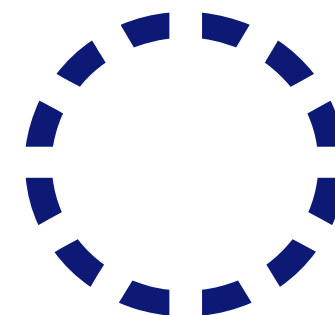
**Established 2008**

- Not-for-profit National eResearch Organisation
- Membership based and Founded by Universities

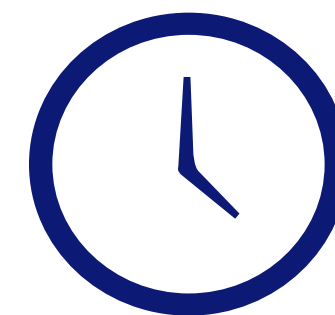
## Members



Productivity



Diversity



Longevity

- ▶ Why the change?
- ▶ Trainstation
- ▶ Demo
- ▶ Benefits
- ▶ Future Plans



# History of programming training

- ▶ 2015: First programming courses – Locally installed software
- ▶ 2016: Nectar VM per attendee
- ▶ 2023: Trainstation



# Why the change?

- ▶ OS became EOL and needed to be updated
- ▶ Updating packages, data, meant re-imaging entirely
- ▶ Managing images became complex
- ▶ Machines identified with IP; SSL not straightforward
- ▶ Difficulty assigning VMs to attendees, lots of clashes, forcing others off
- ▶ ML courses required additional compute resources
- ▶ Lack of scalability; continually increasing Nectar resource allocation

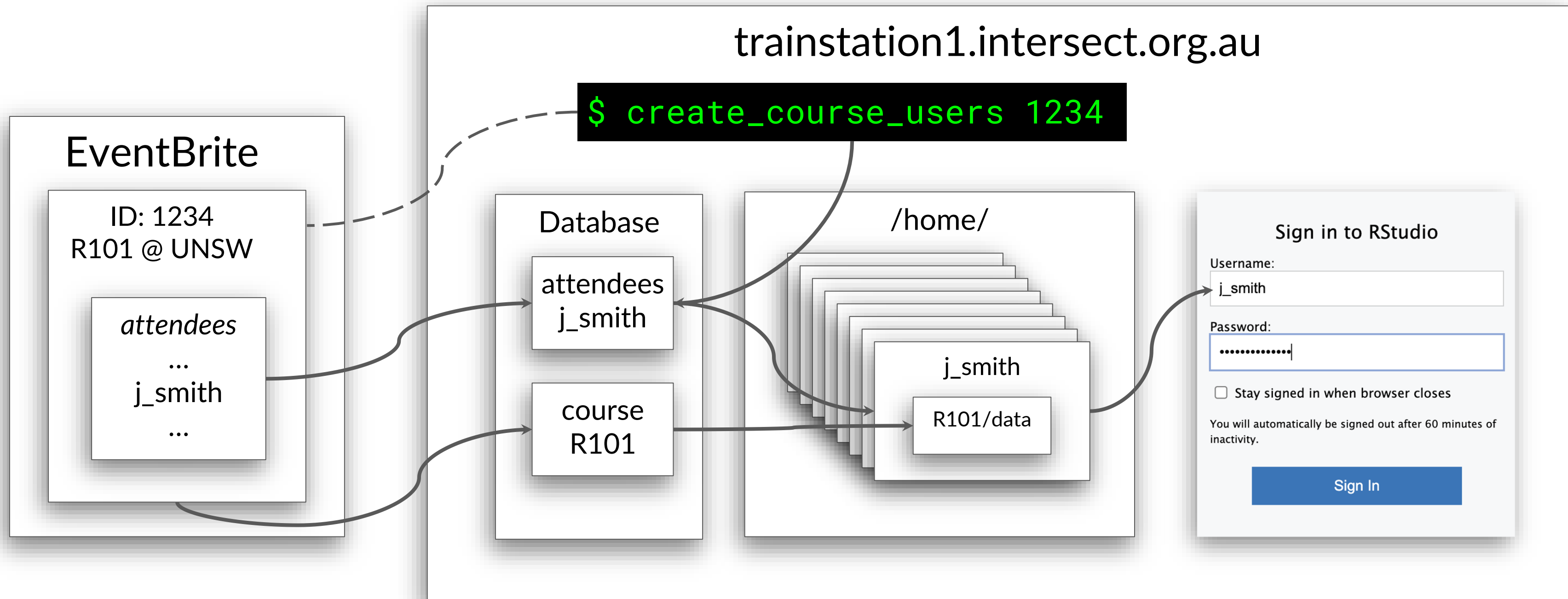


# Trainstation

- ▶ A single server managed over time for many courses
- ▶ JupyterHub and RStudio running as web apps
- ▶ Software packages, data, all managed centrally
- ▶ Integrates with EventBrite via API for automatic creation of user accounts
- ▶ User accounts created for each attendee for each course, complete with all data
- ▶ Reuse of the same user accounts across many courses, providing continuity for attendees
- ▶ Users, courses managed in a local SQL database
- ▶ Branded domain, SSL encryption



# Trainstation Course User management



# Trainstation Course User management

Trainstation  
Access

This document:  
[inter.fyi/2X-1V](https://inter.fyi/2X-1V)

**Course Evaluation Survey**  
Please [click here](#) to take the short Intersect course evaluation survey.

**Lesson Material**  
[inter.fyi/training/R101](https://inter.fyi/training/R101)

**Trainstation**  
Click the link below to navigate to [Trainstation](#), Intersect's secure environment programming training. You will find your unique username and password by looking for your name in the list below. If you encounter any issues, see [here](#).

[Go to Trainstation](#)

Please note that [Trainstation](#) allows the trainers to inspect the code you are running in case of the need for troubleshooting. Please be aware of this and do not enter personal or sensitive information into [Trainstation](#).

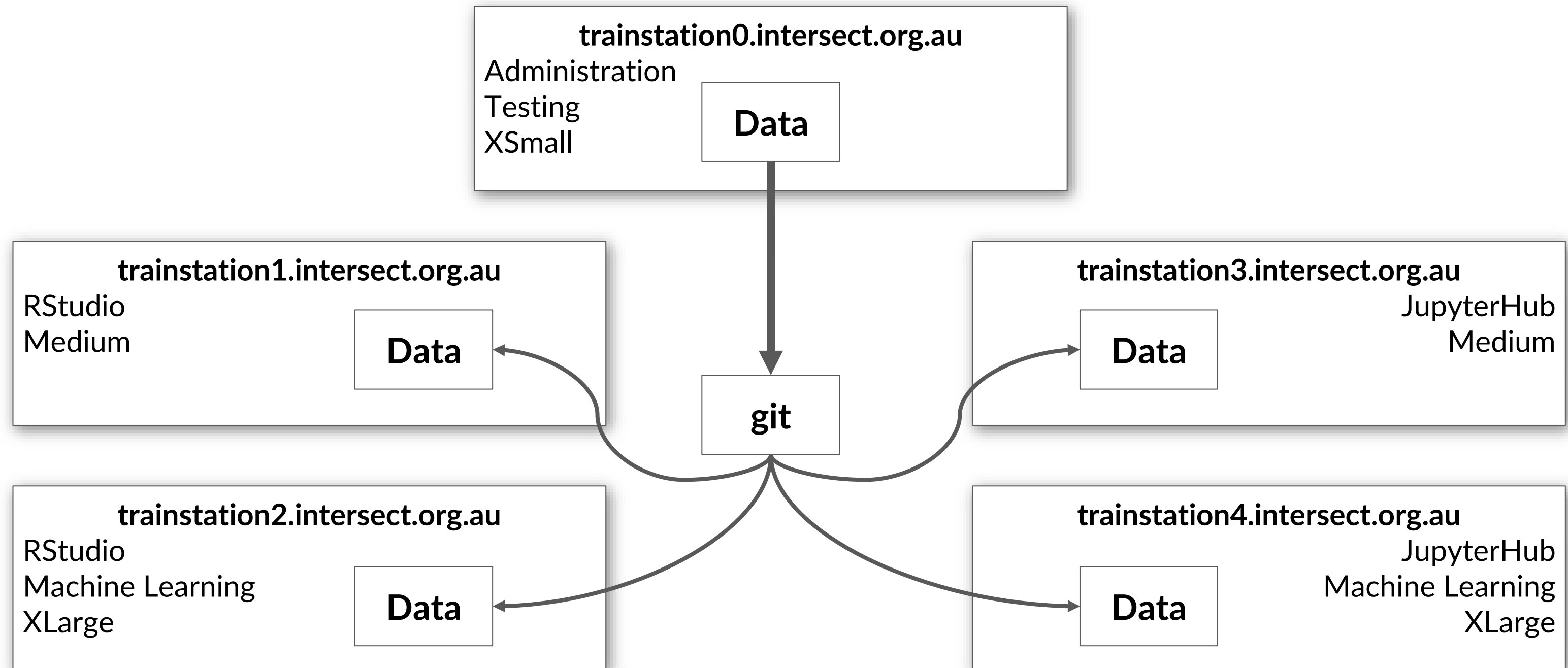
Bandit Heeler  
Username: [banditheeler](#)  
Password: KlutzyKeel9120

Joe Leaner  
Username: [jlearner](#)  
Password: WideWeek5488

The screenshot shows the RStudio Server interface in a browser window. The browser address bar shows the URL `trainstation1.intersect.org.au/rstudio/`. The RStudio interface includes a menu bar (File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help), a toolbar, and a console window. The console displays the R version information: "R version 4.2.2 Patched (2022-11-10 r83330) -- 'Innocent and Trusting' Copyright (C) 2022 The R Foundation for Statistical Computing Platform: x86\_64-pc-linux-gnu (64-bit)". Below this, it shows the R license text: "R is free software and comes with ABSOLUTELY NO WARRANTY. You are welcome to redistribute it under certain conditions. Type 'license()' or 'licence()' for distribution details." The console also displays the message: "Natural language support but running in an English locale". At the bottom of the console, it says: "R is a collaborative project with many contributors. Type 'contributors()' for more information and 'citation()' on how to cite R or R packages in publications. Type 'demo()' for some demos, 'help()' for on-line help, or 'help.start()' for an HTML browser interface to help. Type 'q()' to quit R." The file explorer on the right shows the directory structure: `Home > R > R101 > data`. It lists several CSV files named `inflammation-01.csv` through `inflammation-09.csv`, with sizes ranging from 5.2 KB to 5 KB.



# Trainstation Course Data Management



```
trainstation1: ~
dP  dP  dP          dP                                dP
88  88  88          88                                88
88  .8P .8P .d8888b. 88 .d8888b. .d8888b. 88d8b.d8b. .d8888b. d8888P .d8888b.
88  d8' d8' 880000d8 88 88'  `"' 88'  `88 88'`88'`88 880000d8 88 88' `88
88.d8P8.d8P 88.  ... 88 88.  ... 88.  .88 88 88 88 88.  ... 88 88.  .88
8888' Y88'  `88888P' dP `88888P' `88888P' dP dP dP `88888P' dP `88888P'
```

```

dP          oo          dP          dP oo          d88
88          88          88          88          88
d8888P 88d888b. .d8888b. dP 88d888b. .d8888b. d8888P .d8888b. d8888P dP .d8888b. 88d888b. 88
88  88' `88 88' `88 88 88' `88 Y800000. 88 88' `88 88 88 88' `88 88' `88 88' `88 88
88  88          88.  .88 88 88          88          88 88 88.  .88 88 88 88 88
dP  dP          `88888P8 dP dP          dP `88888P' dP `88888P8 dP dP `88888P' dP dP d88P
```

Quick Start Guide for managing Trainstation courses and users:

Command	Description
add_course <eventbrite_id>	Add a course to the database
create_course_users <course_id>	Create users for a course (can be done by following prompts from `add_course`)
list_courses	Display course IDs from database
list_course_users <course_id>	Display login information for all users for a course
show_user <username>	Display information about user, including courses and current processes
delete_course_users <course_id>	Remove users from course and from Trainstation if not enrolled in other courses

Commands that take <course\_id> and <username> parameters support bash completion

```
Full Documentation:
cat /home/ubuntu/README
Memory Usage: 3%
ubuntu@trainstation1:~$
```



# Results and Benefits

- ▶ Has been used for >180 programming courses at every member
- ▶ Teething issues ⇒ continual improvements
- ▶ Simpler administration of virtual training hardware
- ▶ Simpler onboarding for attendees during training courses
- ▶ Simplified debugging; trainers can access user's files and troubleshoot



# Future plans

- ▶ Have Trainstation send the username and password to the attendee directly, further minimising effort
- ▶ Build API endpoints, maybe on trainstation0, to be able to trigger account creation remotely and non-interactively from our training management systems (currently Google Sheets)
- ▶ Incorporate as a module into a Training Management System



# Accelerate your research



Productivity



Diversity



Longevity

<https://intersect.org.au>

[training@intersect.org.au](mailto:training@intersect.org.au)



TMS

tms-uat.intersect.org.au

INTERSECT

Documentation | Aidan Wilson

# Training Management System

Expert Researcher Training on Digital Tools and Technologies by Researchers for Researchers

## Upcoming Events

Donec ullamcorper nulla non metus auctor fringilla. Vestibulum id ligula porta felis euismod semper. Praesent commodo cursus magna, vel scelerisque nisl consectetur. Fusce dapibus, tellus ac cursus

Intersect Course Catalogue

Covers the breadth of digital research tools & technologies

ADVANCED Data Science Data Analytics INTERMEDIATE

