



# Institute for the Wireless Internet of Things at Northeastern University

## Colosseum Young Gladiators School Opening

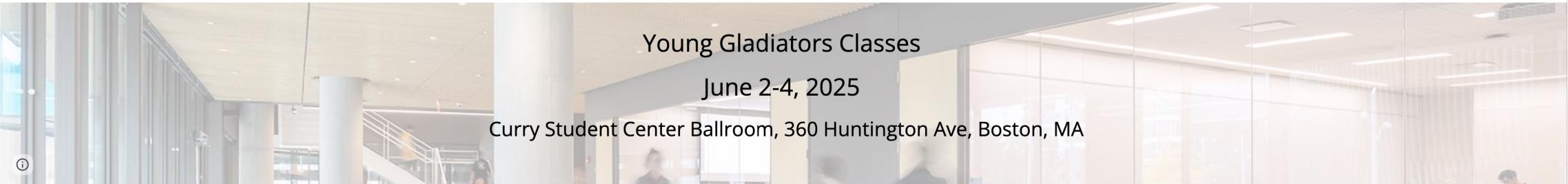
Colosseum Team:

Tommaso Melodia, Stefano Basagni, Manu Gosain,  
Pedram Johari, Leonardo Bonati, Michele Polese, Davide Villa, Ali Saeizadeh



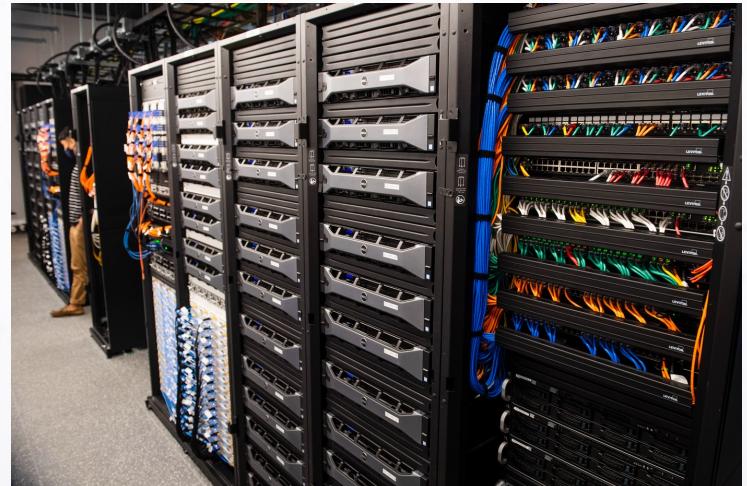
# Location

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# Colosseum Hosted at Innovation Campus at Burlington

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**N** Institute for the Wireless  
Internet of Things  
at Northeastern

# Program: Day 1

Young Gladiators 2025

Home Schedule Venue 

MONDAY JUNE 2, 2025

7.30 - 8.45 am

**Breakfast at Stetson East – The Eatery**

**Location:** 11 Speare Place, Boston, MA

8.45 - 9.30 am

**Registration and Greetings**

**Location:** EXP 610 (6<sup>th</sup> floor), 815 Columbus Ave, Boston, MA

9.30 - 10.00 am

**Colosseum Young Gladiators School Opening**

with Leonardo Bonati, Associate Research Scientist

10.00 - 11.00 am

**Keynote: Introduction on the Institute for the Wireless Internet of Things**

with Tommaso Melodia, William Lincoln Smith Professor and Director of Institute for the Wireless Internet of Things

11.00 - 11.15 am

**Coffee Break**

11.15 am - 12.00 pm

**Introduction and Use Cases**

with Michele Polese, Research Assistant Professor

12.00 - 1.30 pm

**Lunch Break at Stetson East – The Eatery**

**Location:** 11 Speare Place, Boston, MA

You are here



# Program: Day 1

Young Gladiators 2025

Home   Schedule   Venue   

12.00 - 1.30 pm  
**Lunch Break at Stetson East – The Eatery**  
Location: 11 Speare Place, Boston, MA

1.30 - 2.15 pm  
**Colosseum Architecture and Emulation System**  
with Leonardo Bonati, *Associate Research Scientist*

2.15 - 3.45 pm  
**First Time Users – Quick Start Guide**  
with the Colosseum Team

3.45 - 4.00 pm  
**Coffee Break**

4.00 - 5.00 pm  
**Hands-on Assignments: WiFi on Colosseum**  
with the Colosseum Team



# Program: Day 2

Young Gladiators 2025

Home

Schedule

Venue



## TUESDAY JUNE 3, 2025

7.30 - 8.30 am

**Breakfast at Stetson East – The Eatery**

**Location:** 11 Speare Place, Boston, MA

8.30 - 9.00 am

**Meet in EXP**

**Location:** EXP 610 (6<sup>th</sup> floor), 815 Columbus Ave, Boston, MA

9.00 - 10.15 am

**Colosseum Scenarios & CaST**

with Paolo Testolina, *Research Scientist*

10.15 - 10.45 am

**Coffee Break**

10.45 am - 12.00 pm

**Primer on O-RAN and OpenRAN Gym**

with Leonardo Bonati, *Associate Research Scientist*

12.00 - 1.30 pm

**Lunch Break at Stetson East – The Eatery**

**Location:** 11 Speare Pl, Boston, MA



# Program: Day 2

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Young Gladiators 2025

Home

Schedule

Venue



12.00 - 1.30 pm

**Lunch Break at Stetson East – The Eatery**

**Location:** 11 Speare Pl, Boston, MA

1.30 - 3.00 pm

**Invited Tutorial from NI/Emerson: Introduction to Software-defined Radios (Part 1)**

with Neel Pandeya, Principal SDR Architect, Emerson Test & Measurement Group

3.00 - 3.15 pm

**Coffee Break**

3.15 - 4.30 pm

**Invited Tutorial from NI/Emerson: Introduction to Software-defined Radios (Part 2)**

with Neel Pandeya, Principal SDR Architect, Emerson Test & Measurement Group

4.30 - 5.00 pm

**Work on Elevator Pitch**

with the Colosseum Team

5.30 - 7.30 pm

**Reception at Curry Student Center Ballroom**

**Location:** Curry Student Center Ballroom, 360 Huntington Ave, Boston, MA



# Program: Day 3

Young Gladiators 2025

Home   Schedule   Venue   

WEDNESDAY JUNE 4, 2025

7.30 - 8.30 am

**Breakfast at Stetson East – The Eatery**

**Location:** 11 Speare Place, Boston, MA 02120

8.30 - 9.00 am

**Meet in EXP**

**Location:** EXP 610 (6<sup>th</sup> floor), 815 Columbus Ave, Boston, MA

9.00 - 10.00 am

**Keynote: Driving 6G Innovation with OpenAirInterface**

with Florian Kaltenberger, Associate Professor, EURECOM/Northeastern University

10.00 - 10.15 am

**Coffee Break**

10.15 am - 12.00 pm

**Hands-on Activity: Cellular Networks with O-RAN and OpenAirInterface on Colosseum**

with the Colosseum Team

12.00 - 1.30 pm

**Lunch Break at Stetson East – The Eatery**

**Location:** 11 Speare Place, Boston, MA



# Program: Day 3

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12.00 - 1.30 pm

## Lunch Break at Stetson East – The Eatery

**Location:** 11 Speare Place, Boston, MA

1.30 - 2.15 pm

## Colosseum Evolution and Open Testing and Integration Center

with Michele Polese, Research Assistant Professor

2.15 - 2.45 pm

## Work on Elevator Pitch

with the Colosseum Team

2.45 - 3.00 pm

## Coffee Break

???

3.00 - 4.45 pm

## Elevator Student Pitch Presentations

4.45 - 5.00 pm

## Final Remarks and Q&A

with the Colosseum Team



# Elevator Pitch

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What is the elevator pitch?

- **1 slide** quickly describing your **research** and how **Colosseum** can help
- **2 minutes** + Q&A
- Time for preparation will be allocated on the 2<sup>nd</sup> and 3<sup>rd</sup> days.
- **Presentations** on 3<sup>rd</sup> day afternoon.
- You can upload your presentation here →



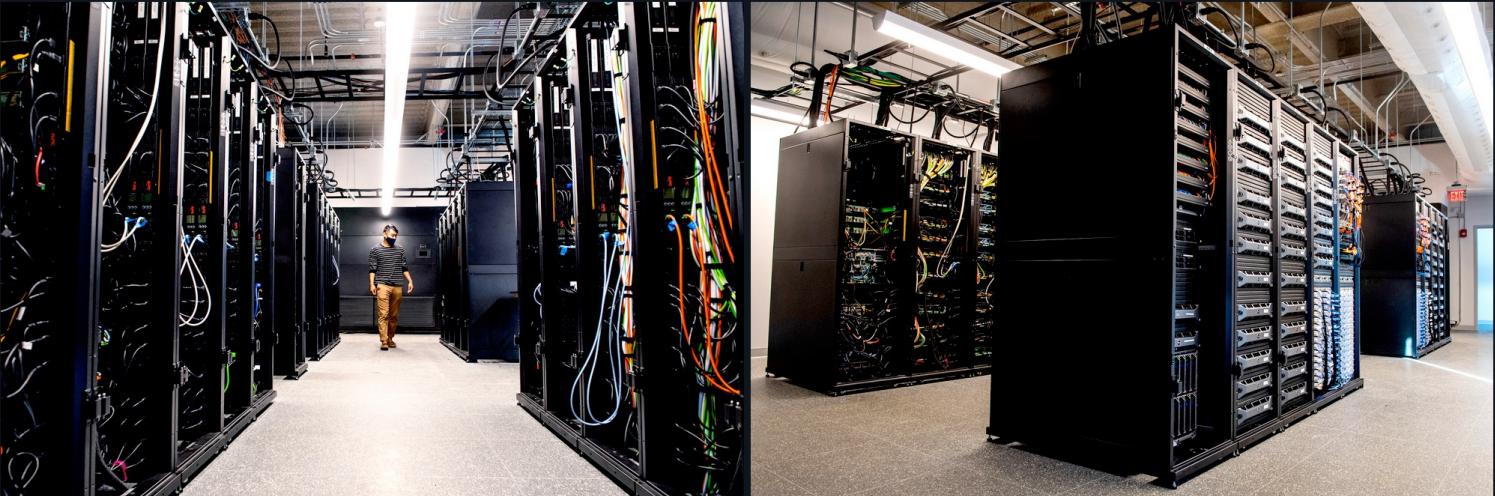
<https://tinyurl.com/2k95ddax>

# Class Resources

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## Colosseum Young Gladiators 2025

June 2-4, 2025



Large-scale experimentation is a core component of wireless research. However, experimental capabilities are as effective and useful as their ability to capture diverse wireless environments and conditions realistically, in a controlled environment that is highly accessible, programmable, and where experiments can be repeated for fair and informative comparison among solutions. Up until now, the research community lacked widespread access to testbeds offering such critical capabilities, especially at scale.

The past few years have seen the emergence of larger facilities with the characteristics required for repeatable wireless experimentation at scale. Examples include the testbeds of the NSF Platform for Advanced Wireless Research (PAWR) program and Colosseum, which, with its capability of emulating over 60k wireless channels, is hailed as the world's largest wireless network emulator.

<https://github.com/colosseum-wiot/colosseum-school-2025>



# Colosseum Website

**N** Institute for the Wireless  
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Generally Available (October 2, 2020)  
Number of users: 661, number of teams: 143 (February 2025)



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# Colosseum Experiments Website

Home Reservations Batch Jobs Scenarios Images Ibonati



**N** COLOSSEUM  
at Northeastern University

wineslab

Tokens Remaining 10315

Planned Outages

No planned outages

## Getting Started

If this is your first time logging in to Colosseum, go to [Colosseum Quick Start Guide](#) for an introduction to the system

## SSH Reminder

At your scheduled time, SSH into your SRN(s) at <team name>-<srn number>. The hostnames for your allocated SRNs can be found by viewing your reservation's details or by running the following command on the SSH gateway:

```
cat /etc/hosts
```

## Having Problems?

Open a ticket on [FreshDesk](#)



# Colosseum Knowledge Base

Colosseum  
COLOSSEUM at Northeastern University  
1.0.0  
Search docs

**ADDITIONAL RESOURCES**

- Getting Started
- Tutorials
- Scenarios
- Frequently Asked Questions
- Architecture and Overview
- Reservations
- SRN Specifications and Hardware
- Container Management
- Radio APIs and Traffic
- News and Announcements

[/ Colosseum Wireless Network Emulator](#) [View page source](#)

## Colosseum Wireless Network Emulator

Colosseum is the world's largest RF emulator designed to support research and development of large-scale, next generation radio network technologies in a repeatable and highly configurable RF environment. It combines 128 Standard Radio Nodes (SRNs) with a Massive digital Channel Emulator (MCHEM) backed by an extensive FPGA routing fabric.

Colosseum is remotely accessible to users and operates 24/7/365, with resources reservable through a simple web interface.

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## Hardware Architecture

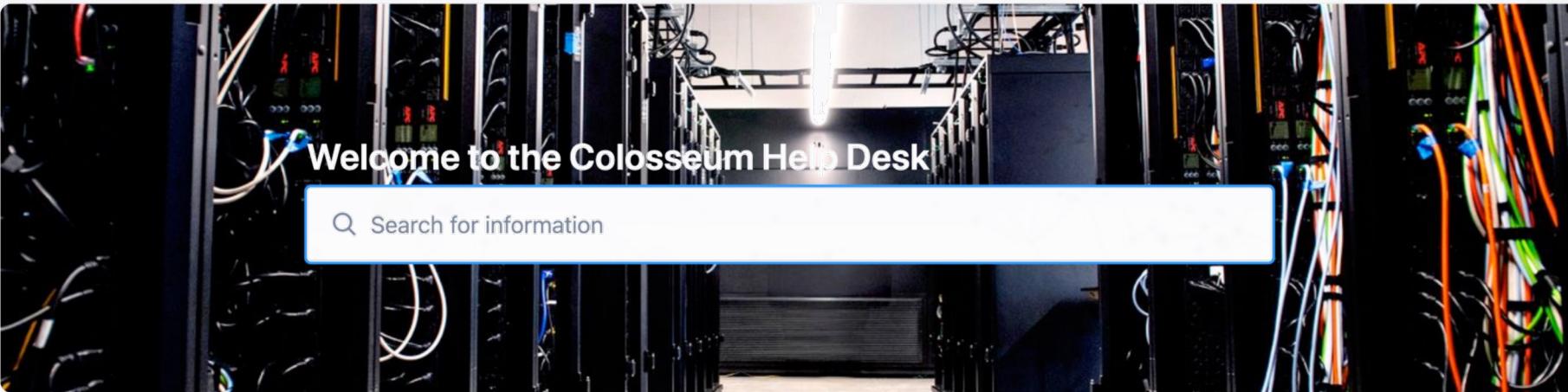
Each Standard Radio Node (SRN) provides a platform for Software Defined Radio and Machine Learning applications with two key hardware components:

- A Dell R730 Server with an NVIDIA K40M GPU
- An Ettus Research USRP X310 Software-defined Radio equipped with a XILINX Kintex 7 FPGA

The Massive Channel Emulator (MCHEM) facilitates real-world wireless RF channel emulation between the SRNs and can emulate fading, multipath, and other effects for up to 256 x 256 independently customizable channels. This architecture enables large scale RF testing with up to



# Colosseum Helpdesk



Welcome! You can raise a request for Colosseum support using the options provided.

If you do not have a Colosseum team already, you can request for a new one by filling out the following form:

<https://docs.google.com/forms/d/e/1FAIpQLScHZ7gNyO4TB8b2xXPnbvPCSzGv22i0NREQ7p2XZyhF-dNQWA/viewform>

## What can we help you with?



### Technical support

Need help installing, configuring, or troubleshooting? Select this to request assistance.



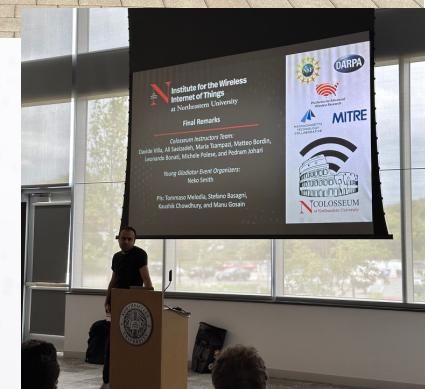
### Report a bug

Tell us the problems you're experiencing.



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# Previous Young Gladiators Editions (2021-2024)





# Institute for the Wireless Internet of Things

at Northeastern University

Thank You!



Platforms for Advanced  
Wireless Research



MITRE



MASSACHUSETTS  
TECHNOLOGY  
COLLABORATIVE



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