



# **POEM 4<sup>th</sup>** **Scientific Meeting**

## **AI for Pediatric Oncology & its Application in Neuroradiology**

**APRIL 30, 2025**



AMERICAN  
UNIVERSITY OF BEIRUT  
MEDICAL CENTER  
المركز الطبي في الجامعة الأمريكية في بيروت



St. Jude Global



مركز الحسين للسرطان  
King Hussein Cancer Center

# Workshop Overview

## Target Audience

Young pediatric oncologists, fellows, nurses, pharmacists, radiologists, and other healthcare professionals with beginner coding or technical skills who are interested in AI.

## Workshop Goals

1. Illustrate the real-world impact and value of AI in a clinical pediatric oncology setting.
2. Explore the AI lifecycle in neuroradiology from idea inception, dataset development, team building, validation, and potential clinical approval.
3. Emphasize the ethical and regulatory considerations of implementing AI in healthcare.
4. Discuss applications of AI in radiological image analysis, including inference, evaluation, and clinical workflows.
5. Demonstrate how to prompt and interact with AI models effectively.
6. Introduce the basics of Python for data and AI applications.
7. Familiarize participants with the Hugging Face Transformers framework.

## Time

7 hours

## Capacity

up to 50

# PROGRAM

## 8:45–9:00 am

### Registration & Welcome

- Greet participants.
- Assist with laptop setup to ensure everyone can access the Google Colab environment.

## 9:00–9:20 am

### Opening Remarks & Introduction to AI in Healthcare

Dr. Andrew Smith, MD, PhD

#### Objective

Provide a broad overview of AI applications, focusing on the potential impact on pediatric oncology and neuroradiology.

- Brief history of AI in medicine.
- Examples of AI-driven solutions in oncology and radiology (diagnosis, prognosis, treatment planning).
- The importance of a hands-on approach to understand AI tools.
- Preview of the full AI lifecycle in neuroradiology: from idea to clinical validation.

## 9:20–10:20 am

### Session 1: Python for the Beginner

Dr. Iyad Sultan, MD

#### Objective

Offer a gentle introduction to Python, focusing on essential syntax and data handling.

- **Basics of Python:** Variables, data types, basic operations.
- **Colab Notebook Walkthrough:** Setting up the environment, using Markdown vs. code cells.
- **Data Structures:** Lists, dictionaries, basic indexing.
- **Reading Data:** Simple loading of CSV/JSON files with pandas.
- **Hands-On Exercise:** Writing and running a simple Python script, importing a small dataset, and performing basic data exploration (e.g., `head()`, `describe()`).

## 10:30–10:45 am

### Coffee Break

### 10:45–11:15 am

#### Session 2: Hugging Face Transformers

Dr. Iyad Sultan, MD

#### Objective

Familiarize participants with the Hugging Face ecosystem.

- **Hugging Face Overview:** Model Hub, Transformers library, Datasets, Pipelines.
- **Loading Pre-Trained Models:** BERT, GPT-2, or domain-specific models.
- **Inference Pipelines:** Text classification, question answering, summarization.
- **Hands-On Exercise:** Load a pre-trained transformer, perform text classification or Q&A.

### 11:15 am–12:00 pm

#### Session 3: Prompting a Model

Dr. Cody Savage, MD; (Virtual)

#### Objective

Understand how Large Language Models (LLMs) process prompts and how to get meaningful responses.

- **What is a Prompt?:** Role of instructions and context in model output.
- **Common LLMs:** GPT-based models, open-source alternatives.
- **Prompt Engineering:** Tips for clarity, detail, and context.
- **Hands-On Exercise:** Practice crafting prompts in Colab using an API or local model; compare different prompt structures.

### 12:00–1:00 pm

#### Lunch

### 1:00–1:30 pm

#### Session 4A: Idea Inception & Dataset Development

Dr. Asim Bag, MD, EDINR

#### Objective

Walk participants through the early stages of an AI project.

- **Identifying a Clinical Need:** Brainstorming problems in pediatric oncology/neuroradiology.
- **Defining the Project Scope:** Setting clear goals and metrics.
- **Data Requirements:** Understanding imaging types, data collection, and labeling.
- **Quality & Quantity:** Ensuring data is representative and de-identified.

## 1:30–2:00 pm

### Session 4B: Team Building & Project Planning

Dr. Andrew Smith, MD, PhD

#### Objective

Highlight the interdisciplinary nature of AI projects.

- **Roles Needed:** Data scientists, radiologists, clinicians, regulatory experts.
- **Collaboration Strategies:** Effective communication between domain experts.
- **Regulatory Pathways:** Early considerations for FDA, CE, or local approvals.

## 2:00–3:00 pm

### Session 4C: Radiology Inference & Evaluation; Dr. Jacob Luber, PhD

#### Objective

Provide experience in AI-driven radiology tasks.

- **Overview of Imaging in Pediatric Oncology:** MRI, CT, and common use-cases.
- **Introduction to Imaging AI:** CNNs, Vision Transformers (light on theory).
- **Evaluation & Validation:** Basic metrics (accuracy, precision, recall), significance of validation for clinical use.

## 3:00–3:30 pm

### Coffee Break

## 3:30–4:15 pm

### Group Discussion: Ethical & Regulatory Considerations

Dr. Paul Yi, MD (VIRTUAL)

#### Objective

Explore the responsibilities of applying AI in healthcare.

- **Ethical Guidelines & Data Privacy:** HIPAA/GDPR, informed consent.
- **Bias & Fairness:** Importance of representative datasets.
- **Regulatory Approval Processes:** Path to clinical implementation.
- **Real-World Deployment:** Integration with electronic medical records, user training.

## 4:15–4:45 pm

### Wrap-Up & Next Steps

#### Objective

Summarize key takeaways and outline resources for further learning.

- **Key Takeaways:** Review major workshop themes.
- **Resources & Community:** Hugging Face forums, Kaggle, open-source libraries.
- **Future Opportunities:** Expanding AI usage in pediatric oncology.
- **Q&A, Feedback Survey.**



## Organized By

Healthcare Professional Development Center–American University of Beirut,  
Beirut – Lebanon

**Tel:** 01 35 00 00 ext 4717/4752

**Email:** [hpdc@aub.edu.lb](mailto:hpdc@aub.edu.lb)

**Web:** [hpdc.aub.edu.lb](http://hpdc.aub.edu.lb)