JOHNS HOPKINS
WHITING SCHOOL of ENGINEERING

Great Learning
POWER AHEAD

CERTIFICATE PROGRAM IN APPLIED GENERATIVE AI

Listen-only mode

Type your questions in the Q&A box

Ask questions which are in the interest of the larger audience

Recording & Slides will be available 6 hours post session

JOHNS HOPKINS
WHITING SCHOOL of ENGINEERING

Great Learning
POWER AHEAD

Agenda

1. AI Landscape
2. Program Overview
3. Learning Journey
4. Q&A

Senior Manager - Sushmita Gaur

- Leads the Delivery of Data & AI programs @ GL
- 8+ years of experience in Education Industry
- Passionate about establishing and nurturing high-performing delivery teams, with expertise in building functions from the ground up—crafting strategy, defining operating models, and developing strong teams.
- Worked as a consultant in a leadership Learning & Development firm, delivering tailored leadership solutions to drive growth and impact
- Spent three years working at the grassroots level in Tier 2 and Tier 3 cities, empowering students to excel in education and enhance their communication skills.

Faculty: Dr. Ian McCulloh

- Dr. Ian McCulloh leads the Artificial Intelligence portfolio for Lifelong Learning at Johns Hopkins University, with faculty roles in Computer Science and Public Health.
- His research combines AI, neuroscience, and human behavior to create scalable AI systems that improve access to products, services, and healthcare.
- Previously, he was Accenture's Chief Data Scientist, where he built and led a 1,200-strong federal AI practice delivering advanced AI solutions for the U.S. government.
- A retired U.S. Army Lieutenant Colonel, Dr. McCulloh founded the West Point Network Science Center and served as Chief Strategist for Information Warfare at CENTCOM.
- He holds a Ph.D. in Computer Science from Carnegie Mellon University and has authored several significant publications, including over 100 peer-reviewed papers.

Faculty: Dr. Pedro Rodriguez

- Dr. Pedro Rodriguez leads the Information Science Branch at the Johns Hopkins Applied Physics Lab, consisting of 250+ scientists.
- His team conducts innovative, applied AI research in support of the U.S. Department of Defense and other Federal agencies.
- His team's work during the COVID-19 pandemic was recognized by Time Magazine as one of the Best Innovations of 2020 and included the world-famous COVID dashboard, involving AI/ML algorithms for target detection, tracking, classification, and sensor fusion.
- Developed the first truly autonomous uncrewed aerial vehicle.
- His computer vision research developing independent component analysis algorithms enhances fMRI image exploitation.
- He holds a Ph.D. in Electrical Engineering from University of Maryland Baltimore County (UMBC), an M.S. in Applied Biomedical Engineering from Johns Hopkins University, and a B.S. in Electrical Engineering from the University of Puerto Rico.

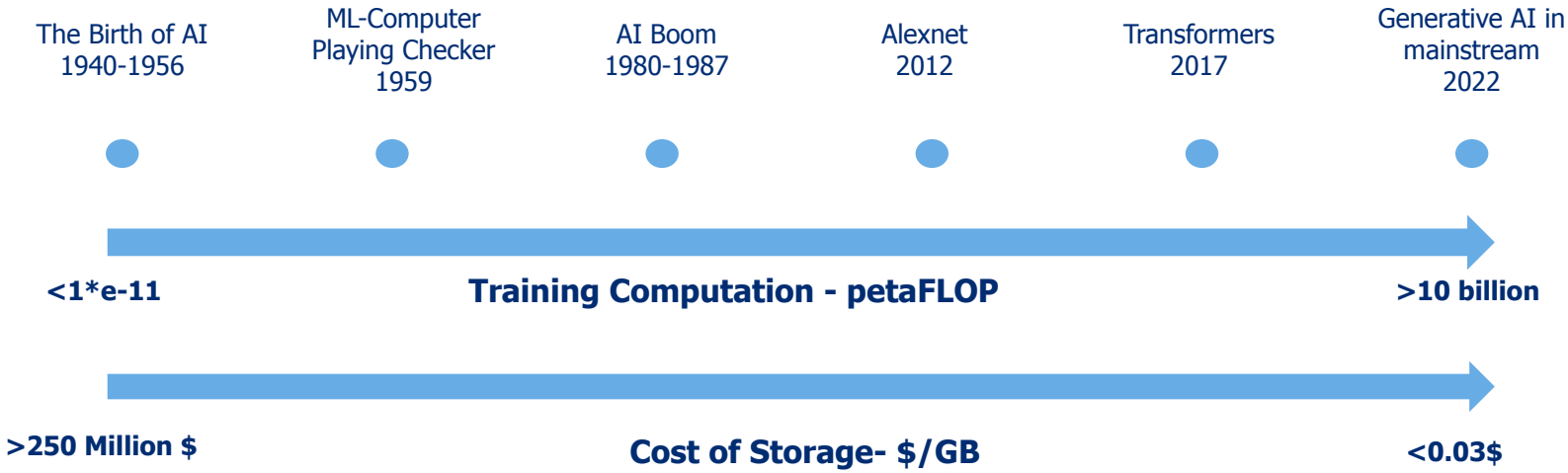
JOHNS HOPKINS
WHITING SCHOOL of ENGINEERING

Great Learning
POWER AHEAD

Faculty: Dr. Iain Cruickshank

- Dr. Iain Cruickshank is adjunct AI faculty at Johns Hopkins University.
- He is a practicing data scientist and AI engineer for the U.S. Army.
- He has led teams at the Army Artificial Intelligence Center, the Army Cyber Institute at West Point and various other positions in the Army.
- His research is focused on novel AI/ML techniques for understanding online information environments, platforms, and on the test, evaluation, and acquisition of machine-learning enabled systems.
- Results of his research has been used by industry, academia and government to analyze the spread of online misinformation and to analyze the spread of state-sponsored disinformation campaigns.
- He holds a Ph.D. in Societal Computing from Carnegie Mellon University, an M.S. from University of Edinburgh, a B.S. from the U.S. Military Academy at West Point and has authored several significant publications, including over 40 peer-reviewed papers.
- He is an NSF scholar and a Rotary Ambassador scholar.

AI has been here for a long time



Google Maps [2005] Transit time prediction, Optimum route recommendations	Siri [2011] Virtual assistant developed by Apple	Ezra [2018] Disease prediction, focusing on early detection of cancers	ChatGPT [2020] LLM developed by openAI, Chat with humans	Tesla's Cybercab [expected 2027] Self driving vehicle

AI is here to stay

Global AI race has already began. Choice is not whether we should use AI, rather the choice is about regulations, competition, and utility to benefit human society.

Regulation to address..	More AI for a better world..
• Bias and Discrimination • Ethical integrity • Privacy and Data Protection • Job Displacement • Destructive use	• Economic growth and innovation • Evolution nature of human skills at work • Better healthcare - diagnosis, treatment, drug discovery • Breaking language barriers - world a global village • Extreme personalisation

80% of AI initiatives fail, and generally for one or more of the three reasons

Incorrect use cases

- Selecting flashy use cases, not pragmatic ones
- Lack of clear business objectives
- Misalignment with business strategy

Poor data

- Insufficient data
- Bias in the data
- Data quality issues
- Data privacy and security concerns
- Inconsistent data labels

Poor communication

- Misaligned expectations
- Technologists lack domain expertise/experience
- Business leaders fail to engage/understand tradeoff decisions
- Cynicism and frustration

Learning Outcomes

1. Understand the theoretical foundations of generative AI and its applications.
2. Develop and train generative models using contemporary machine learning frameworks.
3. Apply generative AI techniques to create text, image, and multimedia content.
4. Evaluate the ethical implications of Generative AI
5. Implement best practices to mitigate potential risks in Generative AI solutions
6. Critically analyze the impact of generative AI on various industries and society as a whole.

JOHNS HOPKINS
WHITING SCHOOL of ENGINEERING

Great Learning
POWER AHEAD

Program Structure

1	Learning Python with Generative AI	1	Introduction to python
		2	Generative AI Landscape
		3	Python Programming with Generative AI - 1
		4	Foundations of AI
		5	Python Programming with Generative AI - 2
2	Generative AI For Office Productivity	6	Natural Language Processing
		7	Transformers for Large Language Models
		8	Prompt Engineering
		8	Classification, Content Generation, and Summarization with Gen AI
		10	Learning and Easter Break
		11	Project 1
3	Designing Advanced Generative AI Workflows	12	Secure and Responsible Gen AI Solutions
		13	Developing Agents with Lang Chain
		14	Retrieval Augmented Generation (RAG) Search
		15	Advanced RAG
		16	Fine Tuning and Customization of Generative AI
		17	Project 2

JOHNS HOPKINS
WHITING SCHOOL of ENGINEERING

Great Learning
POWER AHEAD

Collaboration

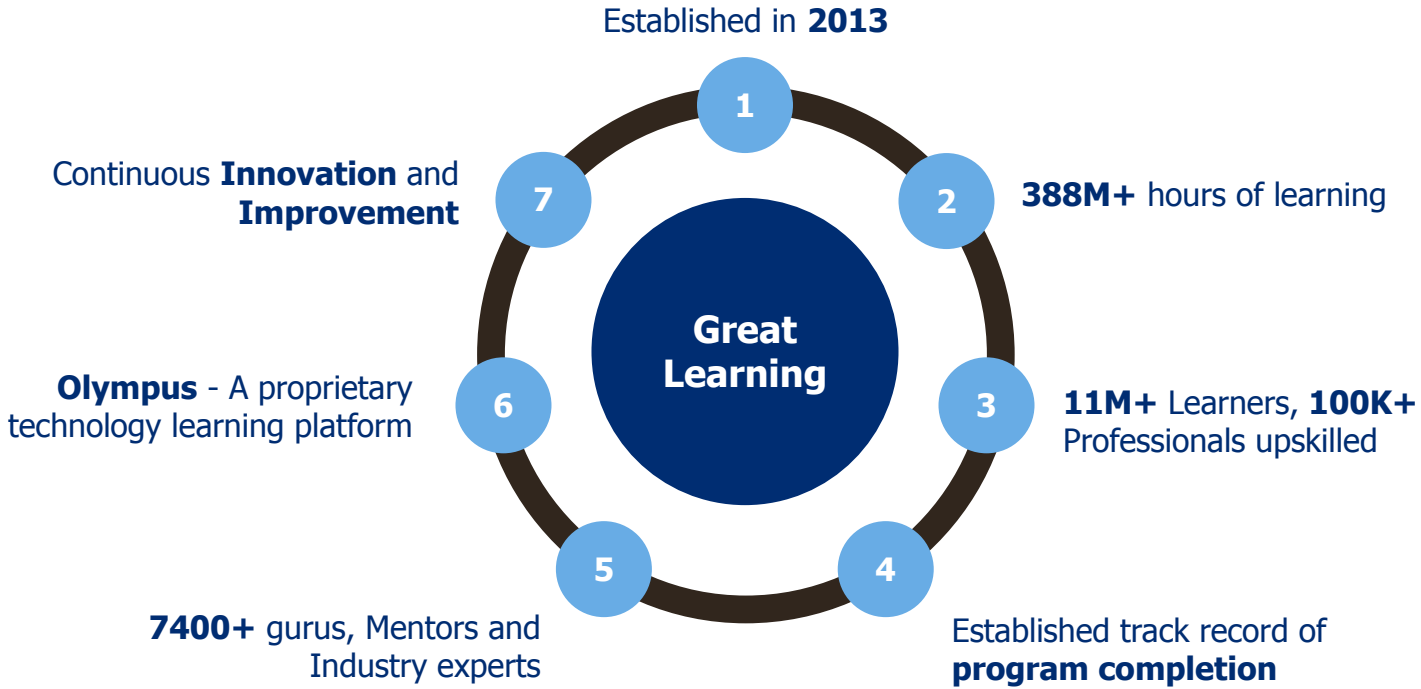
Johns Hopkins

- **Academic Collaborator**
- Curriculum & content design
- Recorded Video lectures
- Case studies / Projects
- Certificate

Great Learning

- **Delivery Collaborator**
- Industry mentorship
- Learning management system
- Program Support
- Learning support

About Great Learning



The Learning Philosophy

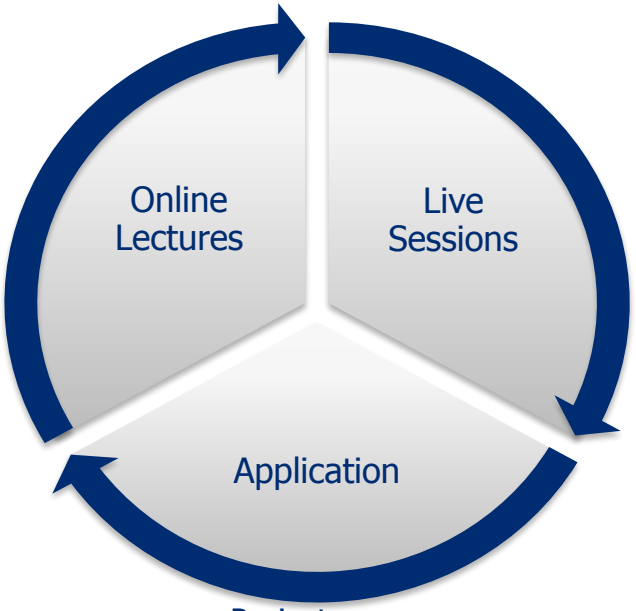
1. Learning is a hard process. It requires many different things to happen together. It takes a lot more than content to truly learn
2. For true learning to happen, one needs to
    1. Have a clear **learning path** that is **structured** well as well as **comprehensive**
    2. Have access to good **content** from **reputed, credible academicians**
    3. **Practice hands-on** by applying the learning on actual problems
    4. Have access to a **mentor** who can clarify doubts and provide industry perspective
    5. Be **tested frequently and get personalized feedback** to be aware of the progress
    6. Have **support** available during tough times
    7. Have access to **peers** to network with

Approach to Learning

Traditional Classroom	Flipped Classroom
• Instructor prepares material to be delivered in class • Learners listens to lecture in-class and other guided instructions and take notes • Homework and assignments to demonstrate learning	• Instructor records and shares lectures outside of class • Recorded Lectures and content to be watched before the session • **In-class learning** includes applied learning and **higher order thinking tasks** • Support through peers and Mentor

Vehicles of Delivering Learning

- Watch & Read
- ~2 hours of video lectures per week
- Reference reading material



- Mentor-led
- Online collaborative, interactive learning space
- Case studies
- Concepts
- Come prepared & ask questions

- Projects
- Quizzes
- Hands-on assignments

Weekly Learning Rhythm

Cohort	Module	Course (Week)	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Jan '25		1												▲																				
		2																		▲														
		3																									▲							
		4																																

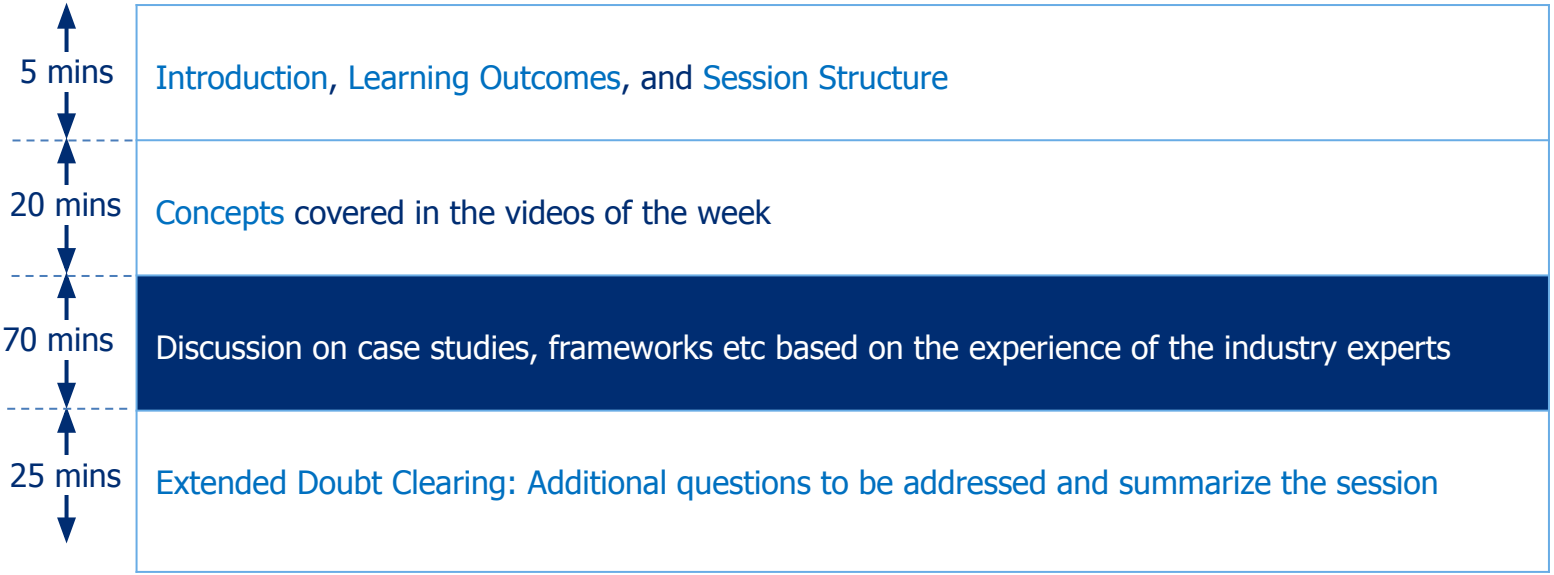
Illustrative

Video content, reading material & practice exercises

Live session

▲ Deadline for assessment completion

Weekend mentorship session design



Assessments

In order to be eligible for the certificate, you will have to complete all mandatory courses with a minimum score of 60% in each.

Quizzes	➢ 1 quiz every learning week
Projects	➢ 2 hands-on projects

***Assessments in every course carry 90% weightage**

***Attendance of the Live sessions carries 10% weightage**

JOHNS HOPKINS
WHITING SCHOOL
of ENGINEERING

Great Learning
POWER AHEAD

Delivery Schedule

Course #	Course	Program Week	Topic	Content Release	Live Session[3] Weekend	Assessment Deadline[4]
0	Pre Work[1]	0	Pre-work01: Introduction to the World of AI	Available on enrollment		
			Pre-work 02: Overview of Generative AI	Available on enrollment		
			Pre-work 03: Python Foundation	Available on enrollment		
-	-	-	**Program Orientation[2]**		**8-Feb**	
1	Learning Python with Generative AI	1	MLS 0 Introduction To Python		15-Feb	
		2	Generative AI Landscape	13-Feb	22-Feb	23-Feb
		3	Python Programming with Generative AI - 1	20-Feb	1-Mar	2-Mar
		4	Foundation of AI	27-Feb	8-Mar	9-Mar
		5	Python Programming with Generative AI - 2	6-Mar	15-Mar	16-Mar
2	Generative AI for Office Productivity	6	Natural Language Processing	13-Mar	22-Mar	23-Mar
		7	Transformers for Large Language Models	20-Mar	29-Mar	30-Mar
		8	Prompt Engineering	27-Mar	5-Apr	6-Apr
		9	Classification, Content Generation, and Summarization with Gen AI	3-Apr	12-Apr	13-Apr
		10	**Learning Break & Easter Break**			
3	Designing Advanced Generative AI Workflows	11	**Project-1**	3-Apr	26-Apr	4-May
		12	Secure and Responsible Gen AI Solutions	1-May	10-May	11-May
		13	Developing Agents with LangChain	8-May	17-May	18-May
		14	Retrieval Augmented Generation (RAG) Search	15-May	24-May	25-May
		15	Advanced RAG	22-May	31-May	1-Jun
		16	Fine Tuning and Customization of Generative AI	29-May	7-Jun	8-Jun
		17	**Project-2**	29-May	14-Jun	22-Jun

JOHNS HOPKINS
WHITING SCHOOL of ENGINEERING

Great Learning
POWER AHEAD

Learning Support Ecosystem

Olympus
- You can raise a support request through Olympus
- All queries are responded to within 24-48 hours
- All program announcements show as notifications

Program Manager
- Schedule a call
- Available during office hours
- Single POC for all support from the ecosystem

Program Office Email
- Prefered mode for candidature change actions
- Onboarding & post program communications (support.appliedgenai-jhu@mygreatlearning.com)

WhatsApp
- Peer learning through groups & discussions
- Ad-hoc communications from Program Office

GL Coach
- AI support to helps answer queries on concepts covered in video content
- Coding Guidance: Offer personalized hints in CodeEval

GL Community
- Peer-to-peer networking platform
- Create blogs & participate in open conversations
- Post questions & seek assistance for your queries

Make the most of the journey - Commit!

1. Consume all the content shared every week
2. Think about how to apply them in the real world
3. Prepare your questions before the sessions
4. Attend all the sessions
5. Participate during the sessions
6. Spend time working on assignments
7. Complete all the assignments
8. Reach out for support to enhance your learning journey
9. Ask questions
10. Share feedback with us

8-10 hours per week

Share feedback to help us improve

WHEN

Post session

- How did the session go?
- Any suggestions to add?

Mid Program

- How is the journey going?
- Discuss the progress so far

End Program

- How did your 16 weeks learning go?
- What went well and suggestions for improvement

HOW

Be Descriptive | Be Constructive | Share examples | Be realistic 

A few important points to note

Recorded Content:

- **Captions/Subtitles:** All recorded video content is captioned upon posting. We ensure all the content consists of professionally created captions and subtitles after a thorough quality check.
- **Quality:** Videos are high-quality and created in a professional manner. All videos are recorded in professional settings, ensuring there are no lags or performance issues.
- **Playback Speed:** If you find the pace of the videos too fast or slow, our learning management system, Olympus, allows adjusting the video playback speed to suit the preference.

Live Session:

- **Platform:** All our live sessions are organized on Zoom platform.
- **Live Captions:** You can enable live captions during the sessions.

Next Steps

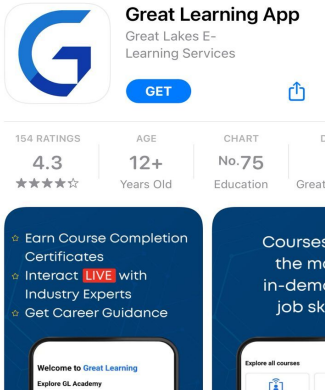
- **Login to Olympus at olympus.mygreatlearning.com**
  - Complete your profile on Olympus
    (Name, LinkedIn profile, contact details)
  - Update your time zone on Olympus
- **Go through the following courses:**
  - Program Overview
  - Pre-work
- **Join the first mentored learning session on February 15th 2025** ***(Link will be available under UPCOMING/ONGOING Activities on dashboard)***
- **Submit the weekly quiz before the deadline, & in case of any questions, kindly raise a support request on Olympus through the 'Need Assistance' option**

Olympus Walkthrough

Tools & Technology

olympus.mygreatlearning.com

Great Learning App



Online Sessions

JOHNS HOPKINS
WHITING SCHOOL of ENGINEERING

Great Learning
POWER AHEAD

Thank you

We'd love to hear your feedback!

Please share your feedback for the Orientation session

Wish you all the very best!

Please feel free to raise a support request through Olympus