



# Unlock the Leaping Intelligent Technologies Open up New Possibilities



Please Join our AI Enablement Workshops

New Era AI Summit Workshops

SCHEDULE – Saturday, October 26th

Saturday October 26	
7:00 – 8:00 AM	Registration, Check-in & Breakfast
8:00 – 9:20 AM	Plenary Session
8:00 – 8:05 AM 8:05 – 8:25 AM 8:25 – 8:35 AM 8:35 – 9:20 AM	<p>Opening Remarks – <a href="#">Dr. Sheree Wen</a>, Event Chair</p> <p>Welcome Keynote – <a href="#">IEEE President 2025, Professor Kathleen Kramer</a>, USD</p> <p>Welcome Keynote – UWB Dean, STEM School, <a href="#">Professor Jennifer McCloud-Mann</a></p> <p>Keynote – Chair, UWB Computing &amp; Software Systems Division, <a href="#">Professor Michael Stiber</a></p>
9:20 – 9:45 AM	Networking Break
12:00 – 2:00 PM	Lunch
9:45 AM – 5:00 PM	<p>Parallel Workshops – see schedule below</p> <p><a href="#">Room I – All day with Microsoft</a></p> <p><a href="#">Room II – Morning Global Health Lab; Afternoon Netflix</a></p> <p><a href="#">Room III – All day with Amazon</a></p> <p><a href="#">Room IV – Morning Manufacturing; Afternoon Meta</a></p> <p><a href="#">Room V – All day with Nvidia</a></p> <p><a href="#">Room VI – Morning Amazon, Apple, Microsoft; Afternoon AMD</a></p> <p>All workshops start at 9:45 AM, except Nvidia workshop starts at 9:30 AM</p>



## New Era AI Enablement Workshops

Time	Workshop (click for description)	Presenters
9:45 AM – 12:00 PM	WTA: Microsoft, AI for ALL-Generative AI, Prompt Engineering, Microsoft Copilot for Cybersecurity and Microsoft Azure AI Studio – Room I (hands-on, see prerequisites)	
9:45 – 10:45 AM	 <a href="#">Exploring Generative AI, Prompt Engineering and Cybersecurity with Microsoft Copilot</a>	Ankit Masrani and Naga Santhosh Reddy Vootukuri, Microsoft
11:00 AM – 12:00 PM	<a href="#">Build your own Copilot using Microsoft Azure AI Studio</a>	Ankit Masrani and Naga Santhosh Reddy Vootukuri, Microsoft
12:00 – 1:00 PM	Lunch	
1:00 – 3:45 PM	 WTB Microsoft AI Agents – Room I	
1:00 – 2:00 PM	<a href="#">Introduction to Generative AI Agents: AutoGen</a>	Ankit Masrani and Naga Santhosh Reddy Vootukuri, Microsoft
2:15 – 3:45 PM	<a href="#">Developing AI Agents using AutoGen</a>	Ankit Masrani and Naga Santhosh Reddy Vootukuri, Microsoft
9:45 AM – 12:00 PM	WTC: GHG – AI for Global Health – Room II	
9:45 – 10:45 AM 11:00 AM – 12:00 PM	<a href="#">Principles and techniques to design AI for impact in global health</a> Workshop 1: <a href="#">AI for Cervical Cancer</a> Workshop 2: <a href="#">AI Ultrasound Saves Lives</a>	Courosch Mehanian, Olivia Zahn, Sourabh Kulhare, Ishan Shah and Charles Delahunt, Global Health Labs, Inc.
12:00 – 1:00 PM	Lunch	
1:00 – 3:15 PM	WTD: Netflix – Data & Feature Eng – Room II	
1:00 PM – 2:00 PM	<a href="#">Data and Feature Engineering</a>	Sreyashi Das, Senior Data Engineer at Netflix
2:15 – 3:15 PM	<a href="#">Designing scalable and high-quality data models for feature engineering</a>	Sreyashi Das, Netflix

## New Era AI Enablement Workshops

9:45 AM – 12:00 PM	WTE: AWS – Gen AI App – Room III (Hands-on, see prerequisites)	
9:45 – 10:45 AM 11:00 AM – 12:00 PM	<a href="#">Harnessing Serverless Technologies for Generative AI Applications</a> Part 1: Image Processing Part 2: Event-Driven Data Redaction	Tejas Ghadge, Senior Engineering Manager, Nithin Vommi, Senior Software Engineer and Tarun Rai Madan, Product Manager, AWS Lambda
12:00 – 1:00 PM	Lunch	
1:00 – 3:15 PM	WTF: AI for Management – Room III	
1:00 – 2:00 PM	<a href="#">Using AI for Career Management: Navigating Your Professional Path with Artificial Intelligence</a>	Karthikeyan Gopal, Senior Software Development Engineer, Amazon Jayashree Sankar Kumar, SDE, Oracle Madhuri Gangadharan, SDE, AWS
2:15 – 3:15 PM	<del>AI-Enabled Corporate Management: Harnessing Artificial Intelligence for Business Excellence</del>	<del>Karthikeyan Gopal, Senior Software Development Engineer, Amazon</del>
3:30 – 5:00 PM	WTG: Prompt Engineering – Room III (Hands-on)	
	<a href="#">Abracadabra for GenAI Models: Learn How Prompt Engineering Works</a>	Prashant Gupta: Software Development Manager at Amazon Arpit Chaudhary, Senior Software Engineer at Apple and Seema Bansal, Product Manager at Microsoft
9:45 AM – 12:00 PM	WTH: Aero Sup MFG Dig Twin – Room IV	
9:45 – 10:45 AM	<a href="#">Revolutionizing Aerospace Supply Chains with Machine Learning-Powered Digital Twins</a>	Amit Dubey, Data Science Manager, Agilent Technologies, Seattle, WA
11:00 AM – 12:00 PM	<a href="#">Revolutionizing Supply Chain Fulfillment with Machine Learning and AI</a>	Amit Dubey, Data Science Manager, Agilent Technologies, Seattle, WA
12:00 – 1:00 PM	Lunch	
1:00 – 2:00 PM	WTI: Meta – Unlock LLMs via LLAMA – Room IV (Hands-on, see prerequisites)	
	<a href="#">Unlocking the Power of LLMs for Customizable Problem-Solving via LLAMA</a>	Prakash Murugesan and Srihari Jayakumar, Meta

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2:15 – 3:45 PM	WTJ: Gen AI for Product Dev – Room IV (Hands-on, see prerequisites)	
	<a href="#">Generative AI for Product Development and Rapid Prototyping</a>	Ram Joshi, Staff Engineer at The Climate Corporation and Gunjan Paliwal, Product Development & Marketing Leader
9:30 AM – 5:00 PM	Nvidia LLM Train (2 sessions) – Room V	
9:30 AM – 1:00 PM 1:30 – 5:00 PM	WTK-a: <a href="#">Nvidia LLM/RAG Training</a> (Hands-on; Limit to 20 people.) (See prerequisites) WTK-b: Repeat: Nvidia LLM/RAG Training (Hands-on; Limit to 20 people)	Kevin Lee, Deep Learning Institute Team, Nvidia Suchismita Sahu, Senior Data Scientist, Generative AI, Nvidia
9:45 AM – 12:00 PM	 WTL: Building AI Applications – Room VI (Hands-on, see prerequisites)	
	<a href="#">Learn to build AI applications with no code, low code, and using AI powered coding assistant</a>	Ashish Vaidya, Amazon Alexa Abhai Pratap Singh, Amazon Alexa Ramakanth Damodaram and Neha Shetty, Amazon Web Services
12:00 – 1:00 PM	Lunch	
1:00 PM – 3:15 PM	 WTM: AI on AMD’s Hardware and Software Ecosystem – Room VI	
	<a href="#">Enabling AI on AMD’s Hardware and Software Ecosystem</a>	Hari Sadasivan, Member of Technical Staff SDE, AMD Kalin Ovtcharov, AI Solutions Architect, AMD Mahesh Ravishankar, Senior Software Development Manager, AMD

# New Era AI Enablement Workshops

## PLENARY SESSION

**Speaker:** Kathleen Kramer, 2025 IEEE President-elect

**Talk Title:** “AI - Advancing Technology and its Implications for Humanity”

**Abstract:**

The last two years have brought dramatic increases in AI interest and efforts. It is more than just hype and hope, with both ubiquitous use and major applications. Real use brings meaningful challenges – and, almost by definition, these are unpredictable. The connection and relevance of ecosystems involved continues to drive standards development, public policy, and significant efforts to consider major sustainable development goals. The world wide “conversation” on the implications of generative artificial intelligence has motivated collaborative efforts and included some great minds, aiming to represent the best of advancing technology for humanity. IEEE’s leadership in developing ethical principles and convening expertise to consider technical implications and expertise is historic, and has continued even now to address rapidly evolving challenges to ethical understanding.

**Bio:**



**Kathleen A. Kramer** is a Professor of Electrical Engineering at the University of San Diego in California. She worked to develop new engineering programs as a founding member of the faculty and eventually became the chair of electrical engineering, and then serving as Director of Engineering (2004-2013), providing academic leadership for all of the university’s engineering programs. Her teaching interests are in the areas of signal processing, mechatronics and robotics, and communication systems.

She has also been a Member of Technical Staff at several companies, including ViaSat, Hewlett Packard, and Bell Communications Research. She is a Distinguished Lecturer for the IEEE Aerospace and Electronic Systems Society (AESS) and is a past vice president of the society. She is a Fellow of ABET, and leader in the development of criteria for cyber security, mechatronics, and robotics.

She served on the IEEE Board of Directors as IEEE Secretary and chair of Governance, and as IEEE Region 6 (Western USA) Director. She was also chair of the 2023 IEEE Ad Hoc on Innovating Funding Models.

She received the B.S. degree in electrical engineering magna cum laude with a second major in physics from Loyola Marymount University, and the M.S. and Ph.D. degrees in electrical engineering from the California Institute of Technology.

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**Keynote Speaker:** Michael Stiber, Professor & Division Chair, Computing & Software Systems, UWB

**Talk Title:** An Orientation to AI for Natural Intelligences

**Abstract:**

There is so much hype and excitement about artificial intelligence today that a technology professional couldn't be blamed for thinking that this is something new to the world that is sophisticated beyond most of our abilities to understand. This talk's purpose is to debunk both of those preconceptions, explaining how today's AI technology represents the latest evolution of work that has been going on for over 70 years — and that it is based on ideas accessible to anyone familiar with basic engineering principles.

**Bio:**



**Dr. Michael Stiber** earned his Ph.D. in Computer Science from UCLA. Before coming to UWB, he was an Assistant Professor at the Hong Kong University of Science & Technology and a Research Assistant Professor at the University of California, Berkeley. He has also been a Visiting Associate Professor at the University of Florida and a Fulbright Scholar in the Institute of Physiology of the Czech Academy of Sciences. Dr. Stiber's research lies at the intersection of complex networks, modeling, high performance simulation, data/metadata/paradata management, and analysis and visualization. He has applied these interests to problems in computational neuroscience, cybersecurity, artificial intelligence, and nonlinear dynamics.

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## WORKSHOPS

### Track WTA: Microsoft – AI for ALL - Generative AI, Prompt Engineering, Microsoft Copilot for Cybersecurity and Microsoft Azure AI Studio – Room I

9:45 AM – 12:00 PM	WTA: Microsoft, AI for ALL - Generative AI, Prompt Engineering, Microsoft Copilot for Cybersecurity and Microsoft Azure AI Studio – Room I
9:45 – 10:45 AM	<a href="#">Exploring Generative AI, Prompt Engineering and Cybersecurity with Microsoft Copilot</a>
11:00 AM – 12:00 PM	<a href="#">Build your own Copilot using Microsoft Azure AI Studio</a>

**NOTE: Hands-On AI Software Training – See Prerequisites**

**Workshop Title:** Exploring Generative AI, Prompt Engineering and Cybersecurity with Microsoft Copilot

**Presenters:** Ankit Masrani and Naga Santhosh Reddy Vootukuri (Sunny), Microsoft

**Abstract:**

Join us for an insightful workshop that delves into the fundamentals of generative AI and the power of prompt engineering in effectively interacting with Large Language Models (LLMs).

We will begin by laying a strong foundation in the basics of generative AI, highlighting how prompt engineering can enhance your experience and outcomes when working with these models.

Next, we will explore some applications of prompt engineering techniques with Microsoft Copilot products like Microsoft 365 Copilot, Copilot for Security, etc.

At the end of this workshop, participants will have a comprehensive understanding of how to leverage generative AI and prompt engineering techniques.

**Level of Knowledge Required:** Basic to none

**Equipment to bring:** Laptop + Internet

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11:00 AM – 12:00 PM	<a href="#">Build your own Copilot using Microsoft Azure AI Studio</a>
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**Workshop Title:** Build your own Copilot using Microsoft Azure AI Studio

**Presenters:** Ankit Masrani and Naga Santhosh Reddy Vootukuri, Microsoft

**Abstract:**

Unlock the potential of artificial intelligence by learning to build your own AI-powered assistant, or Copilot, using Azure AI Studio Service. This workshop provides a hands-on opportunity for attendees to create customized copilots that can answer questions based on their unique knowledge bases and data sources.

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We will explore two primary approaches to building your Copilot:

1. **Low-Code Tools and Out-of-the-Box Features:** Ideal for those who prefer a simplified approach, this option leverages intuitive, user-friendly tools to quickly create and deploy your AI assistant with minimal coding.
2. **Code-Heavy and Extensible Configurations:** For those looking to harness more advanced capabilities, allowing for greater flexibility and extensibility in your Copilot's functionality.

By the end of this workshop, participants will have the skills and knowledge to build and integrate their own AI-powered assistants into applications, enabling personalized interactions and smarter solutions tailored to their specific needs.

### Level of Knowledge Required:

- Low code tools – Basic to none
- Code heavy and extensive Configuration – Python required

**Equipment to bring:** Laptop + Internet

### Presenter Bios:

**Ankit Masrani**, Principal Software Engineer, Microsoft Security



Ankit Masrani is a Principal Software Engineer at Microsoft with over a decade of experience in building scalable and secure distributed systems. He has been instrumental in the development of various software products from the ground up across various global organizations like Amazon and Microsoft, earning recognition and patents for innovative contributions. His latest significant contribution has been leading an engineering team to build the first-ever AI solution for Cybersecurity which not only reduces the time to threat detection and mitigation but also addresses the shortage of cybersecurity professionals in the industry.

Additionally, Ankit has been part of the Microsoft hiring panel and actively mentoring new and junior engineers, fostering their growth and success. Ankit is a IEEE Senior Member, participates as an industry expert judge in hackathons, conducts workshops at conferences and contributes to research articles.

**Naga Santhosh Reddy Vootukuri**, Senior Software Engineering Manager, Cloud + AI Division, Microsoft



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Naga Santhosh Reddy Vootukuri, is a Senior Software Engineering Manager at Microsoft with over 16+ years of experience spanning India, China, and the USA. Leading the Azure SQL Database team, he focuses on optimizing deployment processes to enhance efficiency and scalability for millions of databases globally. Santhosh is an active speaker, He spoke at multiple conferences including Microsoft tech ready. Santhosh has been instrumental in developing Master Data Services, earning recognition for his impactful solutions. He has authored numerous research articles and is a Senior IEEE member, contributing to DZone and serving on the editorial board of Science journal. Santhosh is deeply committed to mentoring, actively participating in Microsoft's SQL Hiring Committee and guiding junior engineers. He is a technical reviewer for APress, Packt, and Manning publications, and Pearson where he reviewed multiple books. He also participated as a Judge for Devpost, Geekle and Microsoft AI Hackathon. Beyond his technical responsibilities, Santhosh is a strong advocate for diversity and inclusion.

LinkedIn: <https://www.linkedin.com/in/naga-santhosh-reddy-vootukuri-5a67a133/>

Speaker profile: <https://sessionize.com/naga-santhosh-reddy-vootukuri/>

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1:00 – 3:45 PM	WTB Microsoft AI Agents – Room I
1:00 – 2:00 PM	<a href="#">Introduction to Generative AI Agents: AutoGen</a>
2:15 – 3:45 PM	<a href="#">Developing AI Agents using AutoGen</a>

**NOTE: Hands-On AI Software Training – See Prerequisites**

**Workshop Title:** Introduction to Generative AI Agents: AutoGen

**Presenters:** Ravi Shankar Goli, XiaoYun Zhang and Eric Zhu, Microsoft

### Introduction:

Generative AI agents are revolutionizing how we automate and manage complex workflows. In this presentation, we will delve into AutoGen, an advanced framework designed by Microsoft for creating multi-agent systems that autonomously collaborate, solve problems, and interact with users. AutoGen enables seamless integration between large language models (LLMs), tools, and human inputs, supporting dynamic, conversation-driven task execution. Whether it's automating code generation, optimizing workflows, or performing real-time decision-making, AutoGen simplifies the development of intelligent agents, reducing the need for manual intervention and enabling rapid deployment across diverse applications.

Attendees will explore basic understanding of Agents, including its multi-agent conversation framework, customizable agent design, and real-world use cases in areas like code automation and collaborative problem-solving. Whether you're an AI developer or a tech enthusiast, this session offers deep insights into how AutoGen is shaping the future of AI-driven systems.

**Level of Knowledge:** Basic to none

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2:15 – 3:45 PM	<a href="#">Developing AI Agents using AutoGen</a>
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**Workshop Title:** Developing AI Agents using AutoGen

**Presenters:** Ravi Shankar Goli, XiaoYun Zhang and Eric Zhu, Microsoft

### Introduction:

In this interactive session, we will dive into **AutoGen**, Microsoft's powerful framework for creating intelligent AI agents capable of collaborating, solving problems, and executing complex workflows autonomously. Designed for developers and AI enthusiasts, this hands-on presentation will feature live demonstrations showcasing how to build multi-agent systems using AutoGen's advanced capabilities. Attendees will explore real-world examples, from coding assistants to

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workflow automation, and gain practical experience in configuring and managing agent workflows through AutoGen's intuitive interface.

The session will also briefly showcase **AutoGen Studio**, a low-code tool that enables rapid prototyping of AI agents through a user-friendly drag-and-drop interface. This makes it easier for developers to experiment with agent workflows, even with limited coding experience

### Prerequisites:

- Basic knowledge of Python or any language and LLMs.
- Laptop with WiFi
- OpenAI/Azure OpenAI account

### Presenters Bios:



#### **Ravi Shankar Goli, Principal Software Engineer Manager, Microsoft**

Ravi has over a decade and a half experience in designing, developing and implementing software applications. In his current position, he is leading a team in building next-generation AI and copilot products.

[Ravi Shankar Goli | LinkedIn](#)



#### **XiaoYun Zhang, Senior Software Engineer, Microsoft**

XiaoYun Zhang is an enthusiastic software engineer and open-source contributor in Microsoft DevDiv. He is the co-author of AutoGen framework and leads the development of AutoGen.Net library.

[xiaoyun zhang | LinkedIn](#); [LittleLittleCloud \(Xiaoyun Zhang\) \(github.com\)](#)



#### **Eric Zhu, Senior Researcher, Microsoft Research**

Eric's current project is AutoGen, an open-source framework for building AI agents and multi-agent systems. AutoGen is a central hub that brings together agentic AI research and applications, like PyTorch for deep learning.

<https://ekzhu.com>

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## Track WTC: GH – AI for Global Health – Room II

9:45 – 12:00 PM	WTC: GH – AI for Global Health – Room II
9:45 – 10:45 AM 11:00 AM – 12:00 PM	<a href="#">Principles and techniques to design AI for impact in global health</a> Workshop 1: <a href="#">AI for Cervical Cancer</a> Workshop 2: <a href="#">AI Ultrasound Saves Lives</a>

### Nothing in Applied AI makes sense except in light of specific needs: Techniques to develop AI for impact, with examples from global health

#### Introduction:

Medical care in low resource settings is often constrained by a lack of trained health care workers, and if AI can be effectively deployed at scale as an accurate medical decision maker (e.g. in diagnostic algorithms), it has enormous potential to improve health care for underserved populations. But AI solutions, however well-intentioned, are guaranteed to fail at the clinic if they are mismatched to the specific constraints and needs of the medical problem. Therefore, as a necessary condition for success, AI teams must fully understand, independent of AI, the clinical constraints and needs of the problem, and must design these into the AI development process at every step.



In these two workshops, we'll draw on examples from our AI work at Global Health Labs in global health (e.g. OB ultrasound, cervical cancer, malaria, and neglected tropical diseases) to illustrate both their unique challenges and also specific techniques for developing AI solutions tailored to meet such challenges.

#### Workshop 1 Title: AI for Cervical Cancer

#### Presenters:

- Couros Meharian, Principal Research Engineer, Global Health Labs
- Olivia Zahn, Global Health Labs
- Sourabh Kulhare, Machine Learning Research Engineer, Global Health Labs
- Ishan Shah, Machine Learning Engineer, Global Health Labs
- Charles Delahunt, Senior Research Engineer, Global Health Labs, Inc.

#### Abstract:

Cervical cancer kills over 250,000 women every year. Better diagnostics would enable earlier and more effective interventions. However, to be effective, AI needs to integrate into a larger landscape.

#### 1. Make the output matter

Any AI model will output a score. But to have impact, the model output must contribute to solving the clinical problem. We discuss how our cervical cancer models are designed to output results that combine with other information to deliver actionable diagnostics.

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### 2. Expect trouble

The real world situation will change in unforeseen ways during testing and deployment. We discuss methods to make models adaptable and robust to challenges such as image quality, improper device handling, data imbalance, and variations in patient data.

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### Workshop 2 Title: AI Ultrasound Saves Lives

Ultrasound has been indispensable in pregnancy care in rich countries since the 1970's, and it has saved the lives of countless mothers and babies. But ultrasound is rarely used in low and middle income countries due to multiple barriers to access.

#### 1. Identify the right target

AI can remove barriers to access, but it must be carefully directed to have impact. We discuss how the AI models in our OB ultrasound project are focused on particular, high-value aspects of the access problem.

#### 2. Match the specifics

Modern generalized AI models usually do pretty well on a given problem. But having impact requires doing better, which in turn requires understanding and incorporating the specifics of the problem. We discuss how we tailor datasets and architectures of our AI ultrasound models to the particular clinical use cases.

#### 3. Hands-on case studies

After covering the techniques and principles, we'll break into small groups and apply these techniques to plan AI development for concrete global health scenarios.

### Takeaways:

Attendees will bring away core principles and specific techniques to enable effective design of AI for successful deployment and impact. These principles and techniques are relevant both to medical problems and more generally to any applied AI context.

### Attendees:

- Equipment and software required: None
- Prerequisite: None
- Software name: None
- AI/ML: None

The certificate will be mailed to you upon completion of the workshop.

### Presenter Bios:

**Global Health Labs, Inc** (GH Labs) innovates to reduce health disparities, especially in low- and middle-income countries. As a nonprofit corporation fully funded by Gates Ventures (the private office of Bill Gates), we partner with the Gates Foundation and other cross-sector leaders to develop health technology solutions for the people who need them most. See <https://www.ghlabs.org/> and

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<https://www.linkedin.com/company/ghlabs1>



**Courosh Mehanian** is a principal research engineer at GH Labs. He received a physics PhD from Cornell University. He has worked for three decades in artificial intelligence, having held positions at Boston University, MIT Lincoln Laboratory, the University of Oregon, and now GH Labs. He applies ML and computer vision to automated medical image understanding.

<https://www.linkedin.com/in/courosh>



**Olivia Zahn** received a B.S. Degree in Physics from Northern Arizona University in 2018 and a Ph.D. in Physics from the University of Washington in 2023. In 2023 she joined GH Labs, where she works on medical applications of computer vision and artificial intelligence. <https://www.linkedin.com/in/olivia-zahn>



**Sourabh Kulhare** is an experienced Machine Learning Research Engineer at GH Labs working in multidisciplinary AI research groups. He focuses on developing efficient AI systems for low-cost healthcare applications. His research interests encompass deep learning architectures, sequence modeling, domain adaptation, generative modeling, and object detection. Sourabh holds a Master's degree (M.S) in Computer Engineering from the Rochester Institute of Technology, specializing in video summarization and natural language processing. <https://www.linkedin.com/in/skrealworld>

**Ishan Shah** joined GH Labs in 2021 as a machine learning engineer and has primarily worked on the development and analysis of visual deep learning models to detect cervical precancer in low-resource settings. Previously, he completed his Master's degree in data science from Stanford University and helped build deep learning algorithms for digital pathology slides at pharmaceutical company Roche.



<https://www.linkedin.com/in/ishanunc/>



**Charles Delahunt** is a senior research engineer on the ML team at GH Labs and has applied ML to global health challenges for over 10 years. He has also held a postdoc researching ML methods at University of Washington's applied math department. He serves on the scientific committee of the American Society of Tropical Medicine and Hygiene; has advised the WHO on digital microscopy for malaria; and serves on the board of RISE-MICCAI, which works to increase participation of LMIC-based researchers in the ML community.

<https://www.linkedin.com/in/charles-delahunt-b387968>



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## Track: WTD: Netflix – Data & Feature Eng – Room II

1:00 – 3:15 PM	WTF: Netflix – Data & Feature Eng – Room II
1:00 – 2:00 PM	<a href="#">Data and Feature Engineering</a>
2:15 – 3:15 PM	<a href="#">Designing scalable and high-quality data models for feature engineering</a>

**Workshop Title:** Data Engineering and Feature Engineering

**Presenter:** Sreyashi Das, Senior Data Engineer at Netflix

**Abstract:**

Data Engineering and Generative AI are at the forefront of revolutionizing the landscape of technology and business. In the realm of Data Engineering, we are witnessing unprecedented advancements in the collection, storage, and processing of vast amounts of data. This not only enhances the efficiency of data pipelines but also ensures the integrity and accessibility of data in real-time. On the other hand, Generative AI, with its ability to create new content, from text to images and even complex simulations, is pushing the boundaries of what machines can achieve. The synergy of these two fields can lead to the development of more intelligent systems capable of predictive analytics, automated decision-making, and personalized user experiences. For our audience, the implications are profound: businesses can harness these technologies to gain deeper insights, drive innovation, and maintain a competitive edge in their respective markets. As we delve into these topics, expect to explore cutting-edge research, practical applications, and the future trajectory of Data Engineering and Generative AI. The knowledge shared will empower you to leverage these advancements to transform your organizational strategies and operational efficiencies.

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**Workshop Title:** Designing scalable and high-quality data models for feature engineering

**Presenter:** Sreyashi Das, Senior Data Engineer at Netflix

**Abstract:**

This data modeling workshop will explore how structured/ unstructured data is cleansed, processed and integrated with the product experience in real-time using dimensional modeling concepts and data transformation tools (dbt). This will be an interactive session with Q&A, highlighting data modeling approaches for different real-world scenarios. The first part of the workshop will focus on technical concepts and state of data modeling for Generative AI applications and the second part will be more about best practices with illustrative examples and data integration with user-facing products.

**Content:**

1. Introduction to Data Engineering and Feature Engineering
  - Role of data engineers in Data Analytics
  - Key Challenges in scaling ML workflows
  - State of the art data modeling in the age of Generative AI
2. Data Lifecycle ~ heterogeneous data integration to consumer friendly data formats
  - Overview of data modeling

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- Building high-quality data models
  - Real-time vs Batch data processing with storage format as Iceberg
3. Data transformations
    - Unified data layer
    - Introduction to dbt
    - Applying data classification strategies to develop key performance indicators (KPIs)
  4. Case Studies
    - Real-time recommendation system
    - Dynamic content generation
    - Fraud detection

### Format:

- Interactive lecture with live demonstrations.
- Scenario-based data modeling examples
- Q&A sessions to address participant questions.

### Prerequisites:

- Knowledge of SQL (beginners level) is required.
- Dimensional Modeling (beginners level)

### What attendees are expected to learn:

- Cleansing and processing structured/unstructured data
- Real-time data integration using dimensional modeling and dbt
- Organize information retrieval for machine learning models
- Best practices and illustrative examples

### Presenter Bio:

**Sreyashi Das**, Netflix



Sreyashi Das is a Senior Data Engineer at Netflix with a demonstrated history of working in media entertainment and consumer electronics industries. She excels in the design and implementation of both streaming and batch data movement, along with analytical solutions. At Netflix she has developed new data products which provide the foundation for metric development and analysis insights for the Studio and Creative Production team. These products drive data health, launch timeliness, resource availability, and cost optimization. She has also designed a data extraction framework specifically for the animation team. Before her role at Netflix, her expertise was primarily in data warehousing and self-serve business intelligence. Sreyashi loves building high-quality data models. Sreyashi is a IEEE Senior Member.



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## Track WTE: AWS – Gen AI App – Room III

9:45 AM - 12:00 PM	WTE: AWS – Gen AI App – Room III (Hands-on, see prerequisites)
9:45 – 10:45 AM 11:00 AM – 12:00 PM	<a href="#">Harnessing Serverless Technologies for Generative AI Applications</a> Part 1: Image Processing Part 2: Event-Driven Data Redaction

**NOTE: Hands-On AI Software Training – See Prerequisites**

### Workshop Title: Harnessing Serverless Technologies for Generative AI Applications

#### Presenters:

- Tejas Ghadge, Senior Engineering Manager
- Nithin Vommi, Senior Software Engineer
- Tarun Rai Madan, Product Manager, AWS Lambda

**Overview:** Join us for an immersive workshop where you'll learn to build and deploy GenAI applications using AWS. This hands-on session will guide you through leveraging AWS technologies like Lambda, Bedrock, S3 etc. to create a simple 1/ AI-driven image processing and 2/ sensitive data redaction systems.

By the end of the workshop, participants will gain the necessary skills to innovate and build scalable AI applications in AWS cloud.

#### Part 1: Image Processing

In the first part of the workshop, you'll dive into the world of serverless computing with AWS Lambda and Bedrock. We'll walk you through building a Generative AI application that reads images from S3 buckets and intelligently removes unnecessary background objects. You'll gain insights into the architecture, implementation, and deployment of serverless solutions that can handle image processing tasks efficiently and at scale.

#### Part 2: Event-Driven Data Redaction

The second part of the workshop focuses on real-time data processing. We'll demonstrate how to integrate event sources like Amazon Kinesis/Simple Queues with AWS Lambda and Bedrock to create an application capable of redacting Personally Identifiable Information (PII) from streaming data. You'll learn best practices for setting up event-driven architectures for using Foundation Models from AWS Bedrock.

#### Key Takeaways:

- Introduction to serverless technologies like AWS Lambda and Bedrock and Event Driven Architecture
- Practical experience in building and deploying AI-driven applications
- Knowledge of integrating event sources with serverless functions for real-time processing

#### Prior Knowledge/Software

- Laptop with Wifi
- AWS account (to access Lambda and Bedrock)
- Prior basics of Python and Foundation Models is encouraged but not necessary.

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Join us to explore the future of serverless Gen AI!

### Presenter Bios:

#### Tejas Ghadge, Senior Engineering Manager at AWS Lambda



Tejas has over 13 years of experience building large scale distributed systems that operate at millions of TPS while providing high availability, scale and utilization. His current leadership role focuses on building event driven architecture that powers services like AWS Lambda and AWS EventBridge.

#### Nithin Vommi, Senior Software Engineer, AWS Lambda



Over the past 5 years at AWS Lambda, Nithin has worked developing highly available and scalable serverless platforms that power event-driven architectures. With a deep understanding of distributed systems and cloud services, Nithin is currently working on driving innovation at the intersection of GenAI and Serverless computing.

#### Tarun Rai Madan, Product Manager, AWS Lambda



Tarun focuses on on AWS Lambda's offerings in the event-driven space. Tarun has 11 years of experience leading engineering and product teams across semiconductors and cloud-computing technologies.

# New Era AI Enablement Workshops

Track: WTF: AI for Management – Room III

1:00 – 3:15 PM	WTG: AI for Management – Room III
1:00 – 2:00 PM	<a href="#">Using AI for Career Management: Navigating Your Professional Path with Artificial Intelligence</a>
2:15 – 3:15 PM	<del>AI-Enabled Corporate Management: Harnessing Artificial Intelligence for Business Excellence</del> <b>(Cancelled)</b>

**Workshop Title:** Using AI for Career Management: Navigating Your Professional Path with Artificial Intelligence

**Presenters:**

- Karthikeyan Gopal, Senior Software Development Engineer, Amazon
- Jayashree Sankar Kumar, SDE, Oracle
- Madhuri Gangadharan, SDE, AWS

**Abstract:**

In the dynamic and competitive job market of today, leveraging artificial intelligence (AI) can provide a significant advantage in managing and advancing your career. This one-hour workshop, “Using AI for Career Management: Navigating Your Professional Path with Artificial Intelligence,” will be useful for professionals at all career stages looking to utilize AI tools to enhance their job search, skill development, networking, and performance tracking.

Participants will explore how AI technologies, such as machine learning and natural language processing, are transforming career management. The session will cover practical applications of AI in job matching, identifying skill gaps, recommending training, and facilitating professional networking. Real-world case studies will illustrate successful strategies, while interactive demos will provide hands-on experience with AI-driven career management tools.

Through engaging discussions and a Q&A session, attendees will have the opportunity to delve into the potential and challenges of integrating AI into their career strategies. This will empower them to take control of their career trajectory, optimize professional growth, and achieve career goals.

**Presenter Bios:**

**Karthikeyan Gopal**, Senior Software Development Engineer, Amazon

## New Era AI Enablement Workshops



Karthikeyan Gopal is a tenured senior software developer (~10 YOE) with extensive experience in building highly scalable, distributed, and multi-tenant systems. I have deep expertise in Java, SQL, RDBMS, and analytical queries, as well as proficiency in design patterns, caching, performance tuning, and system design. I also have deep expertise in Analytics, Payments and compliance domains. At Amazon, I have launched multiple payment products across different countries like Brazil, Singapore, Australia and Mexico. I have also led compliance projects, defining the technical strategy, and building components from the ground up for the emerging countries needs for Amazon. I've also served as a Bar Raiser, interviewing over 100 candidates, and have developed an AI powered "Vision" tool to help debug complex workflows across multiple services for all teams in Payments. Prior to Amazon, I was a Member Technical Staff at Zoho, where I significantly improved the performance of Zoho Analytics by 20x through content caching, precomputation, and in-memory database optimization over a period of 5 years. I hold a B.Tech in Computer Science and have a passion for problem-solving, as demonstrated by my participation and wins in various hackathons and coding events.

### **Jayashree Sankar Kumar, SDE, Oracle**



Jayashree Sankar Kumar is an experienced software engineer with over 6 years of experience. She has hands-on experience in building chatbots using AI and NLP for healthcare, as well as design and development of critical cloud infrastructure applications. She had worked on diverse technologies to deliver efficient solutions. Jayashree currently works as a Software Engineer at Oracle in Seattle. Prior to that, she held roles as a Software Developer at Egen Solutions and as a Software Engineer Intern at IQVIA, where she worked on creating an NLP-powered bot platform and pioneered to migrate the monolithic systems to containerized microservices. Also she worked as a full stack developer in Sony Pictures to enhance the products using the latest frameworks. She has a Master's degree in Computer Science with a focus on Intelligent Systems.

### **Madhuri Gangadharan, SDE, AWS**



Madhuri Gangadharan is an experienced Software Development Engineer with over six years of experience, currently working at Amazon Web Services (AWS) in Seattle. She specializes in designing and developing business analytics applications like QuickSight and has expertise in natural language processing, machine learning, and virtual reality. Before joining AWS, Madhuri worked at Continental, where she was involved in innovation-focused projects, including a proposal for "Helmet Detection in two-wheelers" using AI and image processing. Madhuri holds a Master's degree in Computer Science with a focus on Artificial Intelligence from Texas Tech University and has experience developing games using AI algorithms, highlighting her diverse skill set and innovative approach.

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## New Era AI Enablement Workshops

2:15 – 3:15 PM

~~AI-Enabled Corporate Management: Harnessing Artificial Intelligence for Business Excellence~~  
**(Cancelled)**

**Workshop Title:** AI-Enabled Corporate Management: Harnessing Artificial Intelligence for Business Excellence

**Presenter:** Karthikeyan Gopal, Senior Software Development Engineer, Amazon

### Abstract:

In today's rapidly evolving business landscape, artificial intelligence (AI) has emerged as a pivotal force driving innovation and efficiency across various corporate functions. This one-hour workshop, "AI-Enabled Corporate Management: Harnessing Artificial Intelligence for Business Excellence," will be useful for professionals seeking to understand and implement AI technologies in their management practices.

This workshop will share insights into the transformative potential of AI in human resources, operations, customer relationship management, and finance. Through real-world case studies, interactive demos, and engaging discussions, attendees will explore practical applications of AI that can enhance decision-making, optimize processes, and drive business growth. Whether they are a manager, executive, or aspiring leader, this workshop will equip them with the knowledge and tools to leverage AI for achieving organizational success in the digital age. This will help them propel their business towards a future of sustained excellence and competitive advantage.

### Presenter Bio:

**Karthikeyan Gopal**, Senior Software Development Engineer, Amazon



Karthikeyan Gopal is a tenured senior software developer (~10 YOE) with extensive experience in building highly scalable, distributed, and multi-tenant systems. I have deep expertise in Java, SQL, RDBMS, and analytical queries, as well as proficiency in design patterns, caching, performance tuning, and system design. I also have deep expertise in Analytics, Payments and compliance domains. At Amazon, I have launched multiple payment products across different countries like Brazil, Singapore, Australia and Mexico. I have also led compliance projects, defining the technical strategy, and building components from the ground up for the emerging countries needs for Amazon. I've also served as a Bar Raiser, interviewing over 100 candidates, and have developed an AI powered "Vision" tool to help debug complex workflows across multiple services for all teams in Payments. Prior to Amazon, I was a Member Technical Staff at Zoho, where I significantly improved the performance of Zoho Analytics by 20x through content caching, precomputation, and in-memory database optimization over a period of 5 years. I hold a B.Tech in Computer Science and have a passion for problem-solving, as demonstrated by my participation and wins in various hackathons and coding events.

## New Era AI Enablement Workshops

3:30 – 5:00 PM	WTG: Prompt Engineering – Room III (Hands-on – see prerequisites)
	<a href="#">Abracadabra for GenAI Models: Learn How Prompt Engineering Works</a>

**NOTE: Hands-On AI Software Training – See Requirements & Prerequisites**

**Workshop Title:** Abracadabra for GenAI Models: Learn How Prompt Engineering Works

**Presenters:**

- Prashant Gupta: Software Development Manager at Amazon;
- Arpit Chaudhary: Senior Software Engineer at Apple;
- Seema Bansal: Product Manager at Microsoft

**Abstract:**

During this workshop, you will dive into the fascinating world of prompt engineering for generative AI models. Prompt engineering is designing and refining inputs to effectively guide the output of AI models to achieve desired responses. Speakers will guide you through the principles of how prompts work and demonstrate strategies for crafting effective ones. You will learn various techniques and methods to enhance your understanding and skills in prompt engineering. Through interactive activities and hands-on exercises, you'll have the chance to design and build your own prompts, applying the concepts discussed during the session.

**Hands-on:** Yes

**Takeaways:**

- Understanding the mechanics of prompts in generating content
- Skills to design and deploy effective GenAI workflows
- Insights into real-world applications and use cases

**Prerequisite:**

- A laptop
- Beginner-level coding experience
- Access to internet

**Presenter Bios:**

**Prashant Gupta:** Software Development Manager at Amazon



Prashant is a seasoned leader currently serving as a Software Development Manager at Amazon where he leads a team of engineers to deliver scalable software solutions for Amazon's vast network of warehouses. With a Master's in Computer Engineering from UC Davis and over 9 years of professional experience, Prashant specializes in software development and management, utilizing state-of-the-art cloud solutions. As a cross-functional leader, he fosters global collaboration to ensure the quality and reliability of their projects. Prashant's contributions extend beyond Amazon; he also serves as a reviewer for Elsevier, where he contributes to advancing research in computer science.

His overarching mission remains consistent: to innovate, delight customers, and drive growth. See <https://www.linkedin.com/in/prashantgupta16/>

## New Era AI Enablement Workshops

**Arpit Chaudhary:** Senior Software Engineer at Apple



Arpit is a Software Engineer at iCloud Team. Before Apple, Arpit has worked in diverse teams at Amazon, Philips and Adobe. He is a proponent of learning on the job and is passionate about sharing his knowledge and experience with future professionals. In his leisure time, he enjoys hiking and camping. See <https://www.linkedin.com/in/arpit-chaudhary/>

**Seema Bansal:** Product Manager at Microsoft



Seema Bansal is a Microsoft Product Manager with over 8 years of international PM experience. She is currently building features for 300M users of Microsoft Teams. Before working on Teams, she was managing security product in Cloud and AI within Microsoft Azure. Her computer science engineering & visual design academic background matched with her entrepreneurial endeavors has framed how she approaches building and scaling products. It's through her empathy-driven product building approach, curiosity, and incredible mentors that have helped her grow into a seasoned product leader. See <https://www.linkedin.com/in/seema-bansal/>



# New Era AI Enablement Workshops

Track: WTH: Aero Sup MFG Dig Twin – Room IV

9:45 AM – 12:00 PM	WTH: Aero Sup MFG Dig Twin – Room IV
9:45 – 10:45 AM	<a href="#">Revolutionizing Aerospace Supply Chains with Machine Learning-Powered Digital Twins</a>
11:00 AM – 12:00 PM	<a href="#">Revolutionizing Supply Chain Fulfillment with Machine Learning and AI</a>

**Workshop Title:** Revolutionizing Aerospace Supply Chains with Machine Learning-Powered Digital Twins

**Presenter:** Mr. Amit Dubey, Data Science Manager, Agilent Technologies, Seattle, WA

**Abstract:**

In this cutting-edge 1-hour workshop, we delve into the transformative potential of digital twin technology enhanced by machine learning in the aerospace supply chain. As the industry faces unprecedented challenges and opportunities, this session explores how this powerful combination is reshaping supply chain management, offering unparalleled improvements in efficiency, predictive maintenance, and decision-making processes using data science.

**Key Topics:**

**Foundations of Digital Twins in Aerospace:** Introducing the concept of digital twins and their specific applications in aerospace, highlighting how they create virtual replicas of physical assets, from aircraft engines to entire supply chain networks.

1. Static Digital Twins
2. Dynamic Digital Twins
3. Interactive Digital Twins
4. Process Digital Twins
5. Product Digital Twins

**Machine Learning Integration:** Participants will gain insights into how machine learning algorithms are applied to digital twins, enabling them to analyze vast amounts of real-time and historical data for predictive analytics and continuous learning.

- Practical Applications: Through real-world case studies, I'll demonstrate how aerospace companies are leveraging this technology for:
  - Predictive maintenance to reduce aircraft downtime
  - Part Shortage Prediction to prevent assembly delays
  - Production optimization and bottleneck identification
  - Improved supply chain visibility and stakeholder collaboration
  - Cost reduction in development and maintenance phases

**Implementation Challenges:** Discussion of common hurdles in adopting this technology and strategies to overcome them, including data integration, cybersecurity concerns, and organizational change management.



## New Era AI Enablement Workshops

**Framework to Build Digital Twins:** We will discuss What are the phases and a general framework to build problem specific digital twin.

**Future Trends:** The workshop will conclude with a look at emerging trends and the future potential of ML-powered digital twins in creating more resilient, adaptive, and innovative aerospace supply chains, such as LLM powered digital twins, voice assisted digital twins.

**Who should attend:** This workshop is designed for IEEE members, aerospace engineers, supply chain professionals, and technology enthusiasts interested in the intersection of digital twin technology, machine learning, and aerospace supply chain management. Participants will leave with a comprehensive understanding of this technology's potential and practical insights for implementation in their organizations.

### Short introduction to the above key topics:

- **Introduction to Digital Twin Technology:** Understanding the basics of Digital Twin, its architecture, and how it mirrors physical assets in a virtual environment.
- **Role of Machine Learning:** Exploring how ML algorithms enhance the capabilities of Digital Twins, enabling predictive analytics and intelligent decision-making.
- **Implementation in Aerospace Supply Chain:** Examining the specific applications of Digital Twin technology within the aerospace supply chain, including inventory management, logistics optimization, and real-time monitoring.
- **Case Studies and Real-World Applications:** Analyzing successful implementations of Digital Twin and ML in aerospace companies, highlighting the tangible benefits and improvements in operational efficiency.
- **Challenges and Solutions:** Discussing the technical and organizational challenges in adopting Digital Twin technology and presenting strategies to overcome these hurdles.
- **Future Trends and Innovations:** Looking ahead at the potential advancements in Digital Twin technology and ML, and how they will continue to revolutionize the aerospace supply chain.
- **Interactive Q&A Session:** Providing an opportunity for attendees to engage with experts, ask questions, and discuss specific interests or concerns related to Digital Twin and ML applications.

### Tools:

1. Building a digital twin proposal for Aerospace company with the above discussed framework
2. Sample data from Kaggle or UCI website
3. MySQL community edition (open-source license)
4. PyCharm or jupyter notebook (free/ open-source community edition)
5. Microsoft excel
6. BI tool for visualization -per users need

### Presenter Bio:

**Mr. Amit Dubey**, Founder and CEO DataFlux.ai and Data Science Manager, Agilent Technologies, Seattle, WA

Experience: 20+ years in Aerospace, Banking, Telecommunication, Management Consulting, E-Commerce, and Digital Marketing.

## New Era AI Enablement Workshops



Companies Worked At: Agilent Technologies, Boeing, Airbus, Nortel Networks, Chase Payment Tech, Fiserv, Egon Zehnder.

Areas of Expertise: Machine Learning, Deep Learning, Artificial Intelligence, Enterprise Data Management, Digital Transformation, ML ops, Digital Marketing, Business Intelligence

Amit Dubey is a seasoned technology leader with over two decades of experience in the software, data science industry. As the Founder and Chief Technology Officer at Dataflux.ai and Data science manager at Agilent technologies, he has demonstrated expertise in digital transformation, cloud computing, and emerging data science technologies. Amit's career spans roles at prestigious organizations like Agilent Technologies, Boeing, Fiserv, Accenture, Egon Zehnder, Airbus GMBH, Nortel Networks where he honed his skills in data Science, solution architecture and technology consulting. Beyond his technical prowess, Amit is passionate about mentoring and developing talent, actively participating in various technology communities. He is a frequent speaker at industry events and has contributed to publications on digital innovation. In his spare time, Amit enjoys outdoor activities and is an avid photographer. His unique blend of technical depth, leadership experience, and diverse interests makes him well-suited to engage with the IEEE workshop audience, offering insights that bridge the gap between cutting-edge technology and practical business applications.

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**Workshop Title** : Revolutionizing Supply Chain Fulfillment with Machine Learning and AI

**Presenter:** Mr. Amit Dubey, Data Science Manager, Agilent Technologies, Seattle, WA

### **Abstract:**

In today's fast-paced global economy, efficient supply chain management is crucial for business success. This workshop explores the transformative potential of Machine Learning (ML) and Artificial Intelligence (AI) in optimizing supply chain fulfillment processes in aerospace. We will discuss how these technologies are reshaping traditional approaches, leading to increased efficiency, reduced costs, and improved customer satisfaction.

### **Key Topics (30 mins):**

- **Overview of ML and AI in Aerospace Supply Chain Management**
  - Brief introduction to ML and AI concepts
  - Current state of adoption in the Aerospace industry
- **Applications in Supply Chain Fulfillment**
  - Demand forecasting and inventory optimization
  - Route optimization and logistics planning
  - Warehouse automation and robotics
  - Predictive maintenance for equipment
- **Benefits and Challenges**
  - Improved accuracy in demand prediction
  - Real-time decision-making capabilities

## New Era AI Enablement Workshops

- Data integration and quality issues
- Ethical considerations and job displacement concerns
- **Case Studies**
  - Success stories from Boeing
  - Lessons learned and best practices
- **Future Trends**
  - Integration with scanners and real time DB, IoT
  - Advanced analytics and prescriptive AI
  - Sustainable supply chain management

### Interactive Demo (20 mins):

To bridge the gap between technical and semi-technical attendees, I will present an interactive demonstration of a simplified ML model for demand forecasting. This demo will:

- Visualize historical sales data and identify patterns
- Showcase how a basic ML algorithm processes this data
- Demonstrate batch predictions based on various input scenarios
- Allow attendees to manipulate variables and observe outcomes

The demo will be designed to be accessible to non-technical participants while providing insights into the underlying technology for those with a technical background.

### Conclusion:

This workshop aims to provide a comprehensive understanding of how ML and AI are revolutionizing supply chain fulfillment. Attendees will gain insights into current applications, potential benefits, and challenges, as well as a glimpse into future developments. The interactive demo will offer a hands-on experience, making complex concepts tangible for all participants, regardless of their technical expertise.

### Tools:

1. Sample data from Kaggle or UCI website
2. MySQL community edition (open source license)
3. pycharm or jupyter notebook (free/ open source community edition)
4. Microsoft Excel
5. BI tool for visualization – per users need

### Presenter Bio:



**Mr. Amit Dubey**, Data Science Manager, Agilent Technologies, Seattle, WA  
Experience: 20+ years in Aerospace, Banking, Telecommunication, Management Consulting, E-Commerce, and Digital Marketing.

Companies Worked At: Agilent Technologies, Boeing, Airbus, Nortel Networks, Chase Payment Tech, Fiserv, Egon Zehnder.

Areas of Expertise: Machine Learning, Deep Learning, Artificial Intelligence, Enterprise Data Management, Digital Transformation, ML ops, Digital Marketing, Business Intelligence

# New Era AI Enablement Workshops

## Track: WTI: Meta – Unlock LLMs via LLAMA – Room IV

1:00 – 2:00 PM	WTI: Meta – Unlock LLMs via LLAMA – Room IV (Hands-on, see prerequisites)
1:00 – 2:00 PM	<a href="#">Unlocking the Power of LLMs for Customizable Problem-Solving via LLAMA</a>

**NOTE: Hands-On AI Software Training – See Requirements & Prerequisites**

**Workshop Title:** Unlocking the Power of LLMs for Customizable Problem-Solving via LLAMA

**Presenters:** Prakash Murugesan and Srihari Jayakumar, Meta

### Abstract :

This workshop covers the use of LLM agents (using Llama ) and how to integrate them into different real life applications. Participants will get hands-on experience with Llama by learning how to extend a basic agent to connect to a database for data retrieval & how to chain GenAI models together to generate animations. The workshop will also cover security and privacy considerations when working with LLM agents.

### Prior knowledge or software for attendees :

- **Intermediate Python:** You need to know how to set up a virtual environment, install the required packages, and jupyter-lab.
- **Git/GitHub:** The content and base files for this workshop are hosted in GitHub, you need to be able to clone the repository.
- **LLM Agents:** You should have played around with Chat-GPT, Llama or any other AI Agent in the past.
- **Basic SQL:** One demo showcases how to translate natural language to SQL.

### Technical requirements:

- Laptop with GPU capabilities and 10GB of disk space.
- Python 3.9, pip, and virtual environment.
- Git/GitHub Client.
- A Python IDE.

### Pre-Workshop Requisites:

Go over the pre-workshop requisites tutorial to prepare your system for the workshop. It requires installing Ollama, and downloading ~5GB of data, therefore it is better to do it before the workshop. See <https://ollama.com/download/mac> and <https://github.com/cgamamx/llm-workshop>

### Agenda

*Note:* If time permits, we will cover all four interactive use cases during the workshop. However, if we are short on time, demos #3 and #4 will be assigned as take-home exercises for participants to complete on their own.

1. Pre-Workshop Requisites Check
2. Introduction
  - LLMs and LLaMa Overview
  - What is RAG?
  - LLM Agent Architecture

## New Era AI Enablement Workshops

- Security and Privacy considerations
3. Interactive Session
    - *Basic Agent*: Dive into a Jupyter notebook and get familiar with a basic agent. Inspect each block, make changes, and see how it affects the agent's behavior.
    - *Data Retrieval*: Learn how to extend the basic agent to connect to a database for data retrieval. Discover how this approach can be applied to fetch information from third-party APIs or RESTful endpoints.
    - *GenAI Model Chaining*: Witness the power of chaining GenAI models together. See how Llama can create prompts for diffusion models to generate animations.
    - *Web Application*: Take an LLM agent from a notebook and transform it into a Flask application. Experience the process of bringing your agent to life on the web.
  4. Final Notes
    - More examples of industry applications.
    - Instructions to deploy on cloud.
    - Instructions to deploy on premises.

### Presenter Bios:

#### Prakash Murugesan, Machine Learning Engineer, Meta



Prakash Murugesan is a Machine Learning Engineer at Meta, leading the development of Multimodal LLM foundational models for international expansion. He has been instrumental in building the AI systems powering Meta's Ray-Ban Smart Glasses, leveraging advanced multimodal techniques to integrate vision and language for an enhanced user experience. Previously, Prakash played a pivotal role in building the ML models responsible for growing Instagram Reels from a new product to one used globally by over a billion users. With a focus on scalable machine learning solutions, Prakash continues to push the boundaries of wearable AI technologies.

Linkedin: <https://www.linkedin.com/in/prakash-murugesan/>

#### Srihari Jayakumar, Machine Learning Engineer and Researcher, Meta



Srihari Jayakumar is a machine learning engineer and researcher at Meta. Srihari's primary research interests span computer vision (scene text recognition), multimodal large language models and NLP in general. Srihari has successfully led projects involving the development of multimodal AI capabilities for wearable devices, including the Ray-Ban Meta smart glasses. With a strong technical background in machine learning, Srihari is focused on creating innovative and impactful technology solutions.

Linkedin: <https://www.linkedin.com/in/srihari-j/>

# New Era AI Enablement Workshops

Track: WTJ: Gen AI for Product Dev – Room IV

2:15 – 3:45 PM	WTJ: Gen AI for Product Dev – Room IV (Hands-on, see prerequisites)
2:15 – 3:45 PM	<a href="#">Generative AI for Product Development and Rapid Prototyping</a>

**NOTE: Hands-On AI Software Training – See Prerequisites**

**Workshop Title:** Generative AI for Product Development and Rapid Prototyping

**Presenters:** Ram Joshi (Staff Engineer at The Climate Corporation), Gunjan Paliwal (Product Development & Marketing Leader)

## Abstract:

This hands-on workshop will explore the application of Generative AI, specifically using Large Language Models (LLMs), for product development and rapid prototyping. Participants will go through a full product development lifecycle from ideation, designing, prototyping, coding, and iterating their product. By leveraging OpenAI's GPT-4o model, attendees will learn how to quickly generate, develop, and test a product idea with minimal coding required.

## Prerequisites:

- A personal computer with a web browser.
- An account at [OpenAI Platform](#) (preferred) or [ChatGPT](#).
- Recommended credit balance of at least \$1 for OpenAI API access: [OpenAI Billing Overview](#).
- No prior programming experience is required, but some familiarity with web application development may help for working through the hands-on prototyping and coding exercises.

## Models:

The workshop will focus on a low-code approach to developing a prototype web application using OpenAI's GPT-4o model.

## Tools:

The workshop will introduce and demonstrate the use of OpenAI API-compatible clients such as [Big AGI](#), [Chatbot UI](#), [Ollama](#), or [ChatGPT](#) for generating product ideas and code.

## Content:

1. Introduction to Generative AI and Product Development:
  - Overview of Generative AI and LLMs.
  - Importance of AI in modern product development.
  - Real-world examples and case studies.
2. Hands-on Session: Ideation and Designing:
  - Using AI to generate product ideas.
  - Designing the product concept.
  - Collaborative brainstorming with AI tools.
3. Prototyping and Coding:
  - Low-code development principles.
  - Setting up the development environment.
  - Using OpenAI's GPT-4o to generate and refine code.
  - Building a prototype web application.
4. Iterating and Testing:

## New Era AI Enablement Workshops

- Gathering feedback from the AI.
- Iterating on the product design.
- Testing the prototype for functionality.

### Format:

- Interactive lecture with live demonstrations.
- Hands-on coding and prototyping exercises.
- Q&A sessions to address participant questions.

### Software Skills:

- Basic understanding of web application development (helpful but not required).
- Familiarity with using web browsers and online tools.

### Tools Needed:

- A personal computer with a web browser.
- OpenAI Platform or ChatGPT account.
- OpenAI API-compatible client (Big AGI, Chatbot UI, Ollama, or ChatGPT).

### What Attendees are Expected to Learn:

- How to leverage Generative AI for product development.
- The process of ideating, designing, and prototyping a product using AI.
- Low-code development techniques for building web applications.
- Practical skills in using AI tools to generate and refine code.
- Strategies for iterating and testing product prototypes efficiently.

### Presenter Bios:

#### Ram Joshi, The Climate Corporation



Ram Joshi is an experienced Staff Engineer at The Climate Corporation in Seattle. With over a decade of expertise in software development across the stack, Ram currently specializes in mobile and web application development, and he has previously worked in distributed systems engineering. He holds a Master's degree in Information Management and Systems, with a focus on Information Retrieval, Artificial Intelligence, and Web Architecture from the University of California, Berkeley.

Ram is committed to education and has taught the INFO 153 Web Architecture and Information Management course at UC Berkeley. He has expertise in various tools and technologies such as Python, Java, Javascript, C and Swift.

With his blend of industry experience and academic background, Ram is always excited to tackle new and interesting challenges in software engineering.

#### Gunjan Paliwal



Gunjan Paliwal is a seasoned, data-driven Product Marketing and Development Leader with over 10 years of experience at industry leaders such as Meta, Newell, Sears, and Microsoft. She specializes in AdTech, Marketplace, E-commerce, and B2B.

# New Era AI Enablement Workshops

Track: WTKa&b - Nvidia LLM Training (2 sessions) – Room V

9:30 AM – 5:00 PM	Nvidia LLM Training (2 sessions) – Room V
9:30 AM – 1:00 PM 1:30 – 5:00 PM	WTKa: <a href="#">Nvidia LLM/RAG Training</a> WTKb: Repeat: Nvidia LLM/RAG Training

**NOTE: Hands-On AI Software Training (3 1/2 hours) – See Prerequisites**  
**Workshop will be held in AM and repeated in PM (Limit of 20 attendees each session)**

**Workshop Title:** Building a GPU-Accelerated Retrieval Augmented Generation (RAG) Pipeline

**Presenters:**

- Kevin Lee, Deep Learning Institute Team, Nvidia
- Suchismita Sahu, Senior Data Scientist, Generative AI, Nvidia

**Abstract:**

Large language models (LLMs) show promising results in understanding and generating text. One limitation of the LLMs is that they are prone to hallucinate — to generate false knowledge. One reason for that is because they are agnostic to up-to-date and domain-specific data. Retrieval augmented generation (RAG) is a proposed solution for that issue, helping practitioners use current domain-specific data to augment LLM capabilities. Learn to create a RAG pipeline on GPU for the Q&A task, going over these steps:

- Understand the main concepts of LLMs and the RAG
- Pre-process the documents in the given document store
- Set up a vector database for retrieving relevant context from an embedding language model
- Combine the retrieved context with query + prompt and feed to an LLM to generate a response

**Hands-on:** Yes

**Takeaways:**

You will complete the **first hours of Nvidia’s hands-on course**, and receive credentials to then complete it on your own, leading to a Certificate of Competence. This may open opportunities for the mid-career SW/CS engineer.

**Attendees:**

Mid-career software developers (see prerequisites) **Class limited to 20.**

**Equipment and software installed:**

Bring your own laptop (*cannot be corporate locked-down*). Workshop includes working with Nvidia courseware and a dedicated Azure-based development environment.

**Prerequisites:**

The target audience is expected to have intermediate-level understanding of ML/DL and NLP pipelines.

**Basic knowledge of LLMs, [TensorFlow/Pytorch] and Python programming is required.**

**Presenter Bios:**



## New Era AI Enablement Workshops

**Kevin Lee**, Deep Learning Institute Team, Nvidia



Kevin Lee is a senior technical content developer on the Deep Learning Institute Team at NVIDIA. Kevin's work focuses on raising awareness and driving adoption for GPU-accelerated technologies by creating developer-focused, hands-on training with an emphasis on Data Science, Computer Vision, and Large Language Models. Prior to NVIDIA, Kevin led a risk analytics team at Morgan Stanley and taught Data Science and Machine Learning at the University of California, Berkeley.

**Suchismita Sahu**, Senior Data Scientist, Generative AI, Nvidia



Suchismita Sahu is a Senior Data Scientist at NVIDIA, where she works on cutting-edge Generative AI projects across diverse domains. With over 7 years of industry experience in Machine Learning, Deep Learning, and Conversational AI, she has a strong background in developing and deploying innovative AI solutions for real-world use cases. She enjoys mentoring and coaching the next generation of AI talent, as part of the Break Through Tech AI program, helping them gain the skills and confidence to pursue their AI career goals. She holds a Master's degree in Electrical Engineering from USC, and multiple certifications in Deep Learning from Coursera and NVIDIA.

# New Era AI Enablement Workshops

Track: WTL: Prompt Engineering – Room VI

9:45 AM – 12:00 PM	<b>NEW</b> WTL: Building AI Applications – Room VI (Hands-on – see prerequisites)
9:45 AM – 12:00 PM	<a href="#">Learn to build AI applications with no code, low code, and using AI powered coding assistant</a>

**NOTE: Hands-On AI Software Training – See Requirements & Prerequisites**

**Workshop Title:** Learn to build AI applications with no code, low code, and using AI powered coding assistant

**Presenters:**

- Ashish Vaidya, Principal Engineer, Amazon Alexa
- Abhai Pratap Singh, Senior Product Manager-Technical, Amazon Alexa
- Ramakanth Damodaram, Technical Account Manager at Amazon Web Services
- Neha Shetty, Amazon Web Services

**Abstract:**

Join this immersive **hands-on workshop** to learn building simple AI applications using PartyRock – a gen AI playground, using Bedrock to compare and use latest and greatest large language models, and using Codewhisperer to further accelerate application development. By the end of the workshop, participants would understand the difference between these AWS AI offerings, and which one to use where.

- Part1: We will start with PartyRock – an easy-to-use AI playground that allows users to quickly turn their ideas into working prototypes. We will cover key features of PartyRock i.e. creating apps from scratch, remixing existing apps, and leveraging pre-built prompts to get started. *This portion does not require any coding.*
- Part2: Next we will dive into Bedrock that enables access to the high-performing foundation models (FMs) from leading AI companies like AI21 Labs, Anthropic, Cohere, Meta, Mistral AI, Stability AI, and Amazon through a single API, You would learn to experiment with and evaluate different foundation-models for your usecase, and to access them from your application. *This would be a low-code portion* where you will create a simple application to access the model programmatically.
- Part 3: Lastly, we will look into Amazon Q developer (Codewhisperer), configuring it for your development environment and leveraging its capabilities for quickly building a simple app and also look at some more advanced usecases.

**Key Takeaways:**

1. Learn to build simpler AI apps without writing any code
2. Learn to build simple to moderately complex AI apps with minimal code
3. Learn to build more complex AI apps with AI powered coding assistant

**Target Audience:** Anyone interested in learning to build AI apps.

**For Attendees:**

- Required Equipment: Laptop
- Installed software: Visual Studio code
- Accounts created:
  - Partyrock account (can be created during the workshop)

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- AWS account for accessing Bedrock and Amazon Q Developer(can be created during the workshop)
- Prerequisite Knowledge:
  - AI/ML: none
  - Coding experience: Beginner level or above is helpful for the latter half of the workshop.

The certificate will be mailed to you upon completion of the workshop.

### Presenter Bios:

**Ashish Vaidya**, Principal Engineer for Amazon Alexa



Ashish Vaidya is a Principal Engineer in Amazon and works on continuously improving Alexa-Amazon's voice AI. He has 16 years of experience in the software engineering industry, with a proven track record of designing, developing and delivering high-quality solutions across diverse technological domains. His expertise spans enterprise operating systems, file transfer protocols, mobile and wearable applications, advertising systems, language translation, cloud technologies, and currently, voice-controlled virtual assistants. He has four patents granted by the USPTO and two more under review. He is also an IEEE Senior member.

See <https://www.linkedin.com/in/connect2avaidya/>

**Abhai Pratap Singh**, Senior Product Manager-Technical at Amazon Alexa



Abhai Pratap Singh is currently Senior Product Manager-Technical at Amazon's Alexa division, where he drives strategic initiatives to enhance Alexa's audio experiences through innovative AI and machine learning capabilities, including generative AI and multimodal interaction.

See <https://www.linkedin.com/in/abhaipsingh1>

**Ramakanth Damodaram**, Technical Account Manager at Amazon Web Services



Ramakanth Damodaram is currently Technical Account Manager at Amazon Web Services Inc. where he is responsible for leading customers AWS-Cloud Strategy, Enablement, Governance & FinOps practices. He is certified in AWS Partner: Generative AI Essentials.

See <https://www.linkedin.com/in/ramdamodaram>

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**Neha Shetty, Principal Software Development Engineer at Amazon Web Services**

Neha Shetty is a Principal Engineer at Amazon Web Services focusing on Application Load Balancing. Neha has been a software developer at Amazon since 2013 working in building multiple distributed systems in Amazon S3, AWS ELB and AWS VPC Lattice. She has over 14 years of experience across networking, distributed systems, load-balancing and security.

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Track: WTM: AI on AMD’s Hardware and Software Ecosystem – Room VI

1:00 PM – 3:15 PM	WTN: AI on AMD’s Hardware and Software Ecosystem – Room VI
1:00 PM – 3:15 PM	<a href="#">Enabling AI on AMD’s Hardware and Software Ecosystem</a>

**Workshop Title:** Enabling AI on AMD’s Hardware and Software Ecosystem

**Presenters:**

- Hari Sadasivan, Member of Technical Staff SDE, AMD
- Kalin Ovtcharov, AI Solutions Architect, AMD
- Mahesh Ravishankar, Senior Software Development Manager, AMD

**Abstract:**

This workshop is meant to provide an overview of AMD’s cutting-edge AI product portfolio and ecosystem. During the talks and demos, you will learn how to develop high-performance AI code for GPUs, how to build generative AI applications on RyzenAI NPUs, and how the open-source IREE compiler and runtime can be used to enable AI workloads on any device. Please join us to learn how you can use AMD technologies to power your AI ambitions!

**Presentations:**

- Hari Sadasivan: “High-Performance AI on AMD GPUs” (90 min)  
This talk provides an overview of AMD’s cutting-edge AI product portfolio and ecosystem. We discuss running AI workloads on AMD GPUs, culminating in a deep dive into Composable Kernels, AMD’s high-performance AI backend. Attendees will gain insights into state-of-the-art GPU technology and its applications in accelerating AI computations.
- Kalin Ovtcharov: “Building GenAI Applications on RyzenAI NPU” (60 min)
- Mahesh Ravishankar: “IREE : An open-source compiler for AI on any device” (30 min)

**Presenter Bios:**

**Hari Sadasivan**, Member of Technical Staff SDE, AMD



Dr. Hari Sadasivan is a Member of Technical Staff SDE at AMD, a part-time faculty member at the University of Washington, Seattle, and an IEEE Senior Member. Hari focuses on systems for AI and life-sciences. Hari drives the AMD Center of Excellence in AI at the Allen School of CSE and is the co-founder of the AMD-omics focus group which collaborates with research institutes world over. Hari holds a PhD in CSE from the University of Michigan Ann Arbor and is a peer-reviewer for several IEEE/ACM venues.

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**Kalin Ovtcharov**, AI Solutions Architect, AMD



Kalin Ovtcharov is an AI solutions architect at AMD in Seattle. As an entrepreneur, he has founded a company of researchers and builders to innovate engaging mobile experiences for artists of the future using the latest in generative AI.

**Mahesh Ravishankar**, Senior Software Development Manager, AMD



Mahesh Ravishankar is a Senior Software Development Manager, with a focus on the fast-growing Shark/IREE projects at AMD, working on front end integration with ML Frameworks, and optimizing generated code on CPUs, GPUs and other devices. He was previously with Nvidia's Deep Learning Compiler team. Mahesh is a graduate of Ohio State University with a PhD in CS&E in high-performance computing.