

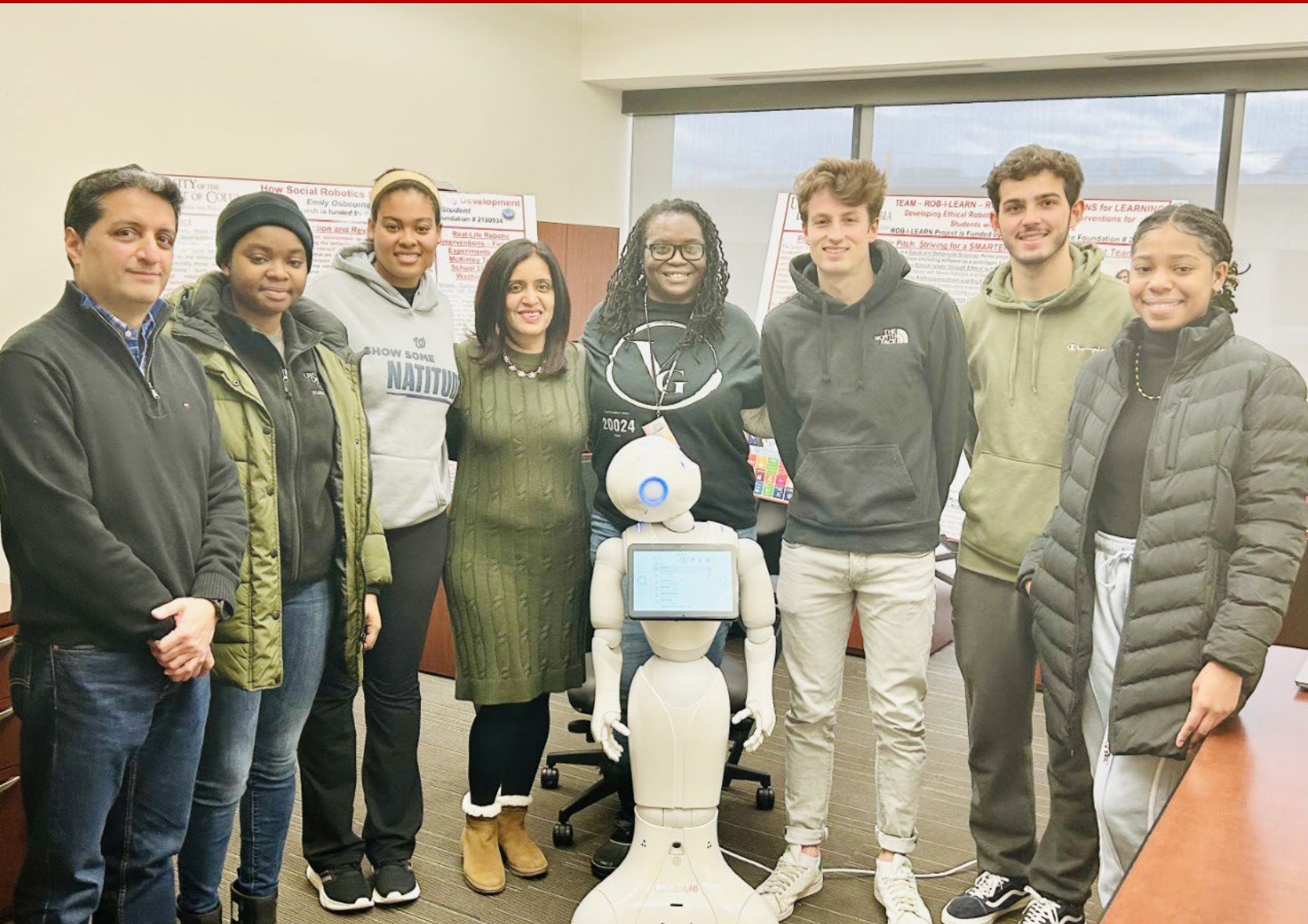
# UDC Research Week 2023

Theme: Serving Our Community Through Research



SBPA Research EXPO

April 3, 2023



UNIVERSITY OF THE  
DISTRICT OF COLUMBIA  
SCHOOL OF BUSINESS AND PUBLIC ADMINISTRATION

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# UDC RESEARCH WEEK 2023

## SBPA RESEARCH EXPO

### MONDAY, APRIL 3, 2023 FROM 9:30 AM – 12:00 PM

Location : [Windows Lounge #207, Building 38](#)

Event Co-ordinators : Dr. Amit Arora and Dr. Anshu Arora

Time	Event	Presenter(s)
9:30 am – 9:35 am	Welcome – Dr. Victor McCrary, Vice President for Research	Dr. Victor McCrary
9:35 am – 9:40 am	Event Coordinators Welcome and Introduction	Dr. Amit Arora Dr. Anshu Arora
9:40 am – 9:45 am	Welcome - Dean Mo Sepehri, Dean, School of Business and Public Administration	Dean Mo Sepehri
9:45 am – 9:50 am	Welcome - Dr. Ravi Chinta, Associate Dean, School of Business and Public Administration	Dr. Ravi Chinta
9:50 am – 11:00 am	Workshop: Managing Social Robotics and Immersive Technologies in the Classroom	Dr. Anshu Arora Dr. Amit Arora Mr. Timothy Gifford (President and Chief Scientist, Movia Robotics)
11:00 am – 11:10 am	<b>Undergraduate Student Presentation:</b> Man vs. Machine: Cognitive or Artificial Intelligence <i>(Research supported by NSF)</i>	Ms. Arlene Marshall
11:10 am – 11:20 am	<b>Undergraduate Student Presentation:</b> How Can Marketers Leverage Artificial Intelligence for Consumers? <i>(Research supported by NSF)</i>	Ms. Camaren Rogers
11:20 am – 11:30 am	<b>Undergraduate Student Presentation:</b> Examining Human-Robot Interaction through Storytelling and Drama <i>(Research supported by NSF)</i>	Ms. Kayleah Shelton
11:30 am – 11:40 am	<b>Undergraduate Student Presentation:</b> Does Human-Robot Interaction Affect Learning and Trust Building? <i>(Research supported by NSF)</i>	Ms. Micah Hamilton
11:40 am – 11:50 am	<b>Undergraduate Student Presentation:</b> Enhancing Sustainability in Supply Chain Logistics <i>(Research supported by NSF)</i>	Mr. Eduardo Bugay
11:50 am – 12:00 pm	<b>Undergraduate Student Presentation:</b> Ensuring Safety of the Food Supply Chains in the United States <i>(Research supported by NSF)</i>	Mr. Louis Mangeon
12:00 pm – 1:00 pm	Opening UDC Research Week 2023 Remarks	Dr. Lawrence Potter, Chief Academic Officer

## 1. Managing Social Robotics and Immersive Technologies in the Classroom

Anshu Arora, [anshu.arora@udc.edu](mailto:anshu.arora@udc.edu)

Amit Arora, [amit.arora@udc.edu](mailto:amit.arora@udc.edu)

Timothy Gifford, [tgifford@moviarobotics.com](mailto:tgifford@moviarobotics.com)

This **Human-Robot Interaction (HRI) research workshop** focuses on issues and challenges for both humans and robots from social, behavioral, technical, and ethical perspectives. The workshop is divided into **four research themes** in HRI: 1) Examining human personality traits in HRI; 2) Managing social robotics through robotic interventions in learning; 3) Curriculum development in social robotics; and 4) Adopting Immersive technology to the learning ecosystem at the University of the District of Columbia. Under **Research Theme 1**, the workshop will focus on examining the relationship between the big five personality traits (extroversion, agreeableness, conscientiousness, neuroticism, and openness), robot likeability, and successful HRI implementation in varying HRI situations. **Research Theme 2** explores social-educational robotics as tools for learning, education, and addressing developmental disorders (e.g., autism spectrum disorder or ASD) through robotic interventions by creating a versatile framework (e.g., Business Model Canvas) for robot design and curriculum development aimed at ASD students. **Research Theme 3** emphasizes on the curriculum development for students in middle and high schools through the use of social robots that are focused on social-emotional learning (SEL) skills - comfort zone, conflict resolution, and job search / college application process. Movia robotics (a high-tech robotics and robotic solutions company based in Connecticut, USA) will present their expertise and engagement on research theme 3. Under **Research Theme 4**, the workshop will focus on the immersive technology asset creation into the classroom,

thus empowering faculty and students across all disciplines.

Please note: NAO Robot will be present at the workshop.

## 2. Man vs. Machine: Cognitive and Artificial Intelligence

Arlene Marshall, [arlene.marshall@udc.edu](mailto:arlene.marshall@udc.edu)

**Faculty Advisor: Dr. Anshu Arora**

Technological advancements make human lives easier. There are few people that would give up the convenience of 24-hour access to an automated teller machine (ATM) for a return to only conducting cash transaction with a human teller during regular business hours. The use of computers in the service industry will translate into fewer human jobs for basic mechanical and even analytics tasks (i.e., ordering inventory, refilling a half-empty glass). Research shows that most service jobs require varying degrees of these intelligences: mechanical, analytical, intuitive, and empathetic. Conceptually, artificial intelligence will supplant human intelligence for mechanical and analytical tasks, and thereby steadily encroaching on intuitive and empathetic tasks. The loss of human jobs to computers (or robotic systems) can spark enthusiastic economical and moral debate. However, as in the example of ATM, businesses cannot ignore innovations like robots and robotic systems that could increase efficiency and effectiveness. This research identifies the nuances within each of the four intelligences that are better suited for computers/robots and/or humans. Thereby, the research provides managerial implications and promises to find more innovative ways for machine-human unification than ever before.

**Keywords:** *artificial intelligence, machine learning, service industry, economics,*



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*automation, human intelligence, economics, robotics*

*Processing, Image Recognition, Speech Recognition, Machine Learning, Post purchase*

## **3. How Can Marketers Leverage Artificial Intelligence for Consumers?**

**Camaren Rogers, [camaren.rogers@udc.edu](mailto:camaren.rogers@udc.edu)**

**Faculty Advisor: Dr. Anshu Arora**

Many marketers are introducing artificial intelligence (AI) into the task of understanding consumer journey and behavior. This research examines how marketers and advertisers can be more effective at understanding and reaching consumers at different stages of the consumer journey through AI. The study highlights two different types of input data: (a) structured data (a traditional, and more standardized dataset, for example basic customer demographics, transaction records, or web-browsing history), and (b) unstructured data (80 percent of the approximately 2.5 billion gigabytes of daily user generated data are unstructured and provided as written texts, speech, and images). To help marketers deepen their understanding of consumer behavior and consumer journey, the research addresses key building blocks or subsequent computations that vastly outperform our natural intelligence when comprehending AI preprocesses and unstructured inputs. The research highlights the opportunities AI creates for marketers by understanding how communications traditionally function along the consumer decision making journey. The study explains traditional advertising tasks for marketers and highlight the subsequent computations of AI that transforms these marketing / advertising tasks.

**Keywords:** *Artificial Intelligence (AI), Structured Data, Unstructured Data, Natural Language*

## **4. Examining Human-Robot Interaction through Storytelling and Drama**

**Kayleah Shelton, [kayleah.shelton@udc.edu](mailto:kayleah.shelton@udc.edu)**

**Faculty Advisor: Dr. Anshu Arora**

Drama and storytelling are well-known instructional techniques that can be employed across the curriculum to engage students in their learning process. Students benefit from a meaningful, multimodal, hands-on learning experience when robots are incorporated into storytelling and theater activities. At all educational levels, from K-12 to the university, educational robotics holds a lot of promise as a teaching tool. Students benefit from a multisensory experience and a fun learning environment when robots are used in storytelling and theater activities through collaborative knowledge construction and skill acquisition. This research investigates the potential and challenges of combining storytelling and drama activities with robotics actions in learning and education. First, the research examines the dual role of humanoid robots in education and the idea of using social robots for learning. Second, the study delves into cultivating students' computational thinking through human-robot interaction (HRI) experimental scenarios with students. Finally, the research provides insights into utilizing humanoid robots in storytelling and dramatic activities for strengthening student engagement, motivation, and enthusiasm.

**Keywords:** *Robots, Storytelling, Theatre, Drama, Learning and Education, Collaborative Knowledge Construction, Skill Acquisition, Student Engagement*

## 5. How Does Human-Robot Interaction Affect Learning and Trust Building?

Micah Hamilton, [micah.hamilton@udc.edu](mailto:micah.hamilton@udc.edu)

**Faculty Advisor: Dr. Anshu Arora**

Research shows that students in their early ages tend to develop love and attachment to robots through human-robot interaction (HRI) in schools. This research explores how HRI results in building trust and attachment among students when robots are fitted in the school curriculum. The research study utilizes a constructivist inquiry approach to using humanoid robots. Since students do not have the same critical analysis skills as adults, there are issues and concerns regarding how students are starting to form attachment and develop emotional bonds with robots through HRI. The question that is now being raised is how the psychological theory of attachment can affect a student's ability to learn and build trust in a specific HRI situation. This research reveals that knowledge can be fostered at proper levels through the process of supplementing agent development activities with interactive robotic learning activities, which can further lead to trust building with robots in HRI situations and contexts.

**Keywords:** *Attachment; Constructivist Inquiry Approach; Human-Robot Interaction; Learning; Trust*

## 6. Enhancing Sustainability in Supply Chain Logistics

Eduardo Bugay, [eduardo.bugay@udc.edu](mailto:eduardo.bugay@udc.edu)

Our daily lives are permeated by the activities of logistics and supply chain, from food and clothing to doorstep deliveries. Globalization has contributed to supply chains becoming longer and more complicated across the world.

This has resulted in increased logistics and transportation activities leading to a significant detrimental impact on the natural environment. In order to mitigate these negative impacts, it has essential to develop and implement sustainable principles and practices in supply chains. As organizations are pressured by stakeholders to adopt more sustainable business practices, decreasing the environmental footprint of logistics operations is one area that has gained enormous attention. This research paper explores various ways and processes to enhance the sustainability of supply chain logistics as well as broadly evaluate of the topic of sustainable logistics. This research also explores steps that organizations take to balance their economic, environmental, and social goals. The questions that will be addressed in this research paper are: What practices can be used by firms to attain sustainable logistics in their supply chains? What is the impact of environment-friendly logistics? How is the globalization affecting supply chains across the world? How does the technology help organizations in achieving a sustainable supply chain?

**Keywords:** *Sustainable Supply Chain, Green Logistics, Globalization, Big Data*

## 7. Ensuring Safety of the Food Supply Chains in the United States

Louis Mangeon, [louis.mangeon@udc.edu](mailto:louis.mangeon@udc.edu)

**Faculty Advisor: Dr. Amit Arora**

In a globalized world, the cultivation, processing, manufacturing, transportation, and retail distribution of food across the world has become increasingly complex. As a result, the process that ensures the food on our store shelves is safe for consumption has also become more complex. This research provides an overview of the food safety supply chain from the perspective of

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government regulations and policies. We examine the safety aspects of “farm to fork” food supply chain in the United States. This includes investigating the use of food processing to ensure food safety as well as food safety techniques from sterilization to refrigeration. The research paper will address the following questions:

How is the safety of food supply chain ensured?

How are food products imported from other countries cleared for consumption? What laws are in place in the United States to ensure food safety?

What role do government agencies, such as the USDA, play in ensuring food safety in the United States? What happens when food products that are not safe for consumption enter the supply chain?

**Keywords:** *food safety supply chain, farm to fork, sterilization, refrigeration*

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