Aditi Singh

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Highlights

* Ph.D. Candidate, Computer Science, Kent State University, Summer 2023 (Anticipated).
* M.S., Computer Science, Kent State University, Fall 2017.
* 11 publications (Five published, three accepted, one under review, two in progress), one Best Presenter Award, one Finalist for Best Paper Award.
* Reviewer for multiple International Conferences and Journals.
* Active Member of IEEE, ACM, ACM-W, and AnitaB.org.
* Over six years of academic teaching experience.
* Practicum Lab Development for Masters in Artificial Intelligence Program.
* Developed Online Synchronous Courses for Undergraduate courses and Graduate courses including Artificial Intelligence.
* Program Committee AIED 2023.
* Honored with Gold Medal Award (summa cum laude) Bachelor of Engineering in Computer Science, India.

Education

2018 – August 2023 (Anticipated)
Kent State University – Kent, OH
Ph.D., Computer Science
Advisor: Professor Arvind K. Bansal *GPA: 3.957.*

2015 – 2017
Kent State University – Kent, OH
Master in Science, Computer Science
Advisor: Professor Arvind K. Bansal *GPA: 3.93.*

2009 – 2013
Sathyabama University – Chennai, India
Bachelor of Engineering, Computer Science, *[Gold Medal (summa cum laude)]*

Honors and Scholarships

2023 Best Presenter Award, 13th Annual Computing and Communications Workshop and Conference.

Spring 2023 Honored with Graduate Student Senate (GSS) Domestic Travel Award, Kent State University.

2022 Hopper for Grace Hopper Celebration of Women in Computing at AnitaB.org.

2021 Honored with Volunteer Award at *International Conference on Human Computer Interaction.*

2017 - Present Graduate Assistant, Department of Computer Science, Kent State University, Ohio.

2018 Finalist for Best Paper Award, International Conference on Computer Applications in Industry and Engineering, USA.

2013 Gold Medal (summa cum laude), Department of Computer Science, Sathyabama University, Chennai, India. *Awarded to University Top Rank Holder (1 out of 90 students).*

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Research Interests

Artificial Intelligence, Machine Learning, Computer Vision, Human-Robot Interaction.

Research Experience

Spring 2018 – Present
Training and Recognition of non-emotional Human Conversational Head Gesture
Advisor: Professor Arvind K. Bansal (Kent State University).
The dissertation focuses on the classification and recognition of non-emotional conversational head gestures for robots using Video Analysis.

Fall 2016 – Fall 2017
Automated Declarative Gesture Generation for non-emotional Human Humanoid Conversation.
Advisor: Professor Arvind K. Bansal (Kent State University).
The thesis focuses on non-emotional conversational head gesture generation for robots.$http://rave.ohiolink.edu/etdc/view?acc_num=kent1512001558726767$.

International Conferences and Journals Publications

2023 A Comprehensive Study of Computer Vision for Physical Human-Robot Interaction *(Journal Paper: In Progress)*

2023 A Study on Conversational Head Gesture *(In Progress)*

2023 Transdisciplinary AI Education: The Confluence of Curricular and Community Needs in the Instruction of Artificial Intelligence *(Accepted, AIET 2023)*

2023 A Survey of AI Text-to-Image and AI Text-to-Video Generators*(Accepted, AIRC 2023)*

2023 An Integrated Analysis for Identifying Iconic Gestures in Human-Robot Interactions *(Accepted, Intelligent Systems Conference)*

2023 A Comparison Study on AI Language Detector. Aditi Singh *(2023 IEEE 13th Annual Computing and Communication Workshop and Conference (CCWC)), Best Presenter Award.*

2023 Synchronized Colored Petri Net-based Multimodal Modeling and Real-time Recognition of Conversational Deictic Gestures. Aditi Singh and Arvind K. Bansal *(Accepted, Computing Conference 2023)*

2022 Automated Real-time Recognition of Non-Emotional Conversational Head-Gestures for Social Robots. **Aditi Singh**, and Arvind K. Bansal. *In: Arai, K. (eds) Proceedings of the Future Technologies Conference (FTC 2022), Volume 3. FTC 2022. Lecture Notes in Networks and Systems, vol 561. Springer, Cham*, doi: https://doi.org/10.1007/978-3-031-18344-729.

2021 Synchronous Colored Petri Net based Modeling and Video Analysis of Conversational Head-gestures for Training Social Robots. **Aditi Singh**, Arvind K. Bansal, and Cheng-Chang Lu. *Proceedings of the Future Technologies Conference (FTC 2021), Volume 2. FTC 2021. Lecture Notes in Networks and Systems, vol 359. Springer, Cham.* doi: https://doi.org/10.1007/978-3-030-89880-936.

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2021 Towards Synchronous Model of Non-Emotional Conversational Gesture Generation in Humanoids. **Aditi Singh**, and Arvind K. Bansal. *Computing Conference, London, UK, July 16-18, 2021, available as Book Chapter in Intelligent Computing: Lecture Notes in Networks and Systems Series, K. Arai et. el. (Editor), Vol. 283(1), 2021, Springer, Cham, Switzerland, pp. 737-756.* doi: https://doi.org/10.1007/978-3-030-80119-947.

2019 Declarative Modeling and Implementation of Robotic Head based Gestures for Human-Robot Interaction. **Aditi Singh**, and Arvind K. Bansal. *International Journal of Computers and Their Application*, Vol. 26, No. 2, March 2019, pp. 49-66, ISSN 1076-5204.

2018 Automated Declarative Modeling for Gesture Generation during Human- Humanoid Conversation. **Aditi Singh**, and Arvind K. Bansal. *Proceeding of 31st International Conference on Computer Applications in Industry and Engineering*, New Orleans, Louisiana, USA, 2018.

International Conference Presentations

2023 A Comparison Study on AI Language Detector. *(, 2023 IEEE 13th Annual Computing and Communication Workshop and Conference (CCWC)), Virtual.*

November 2022 Towards a Transdisciplinary Approach to AI Education, *The 13th Annual WPU Educational Technology Conference*, New Jersey.

October 2022 Automated Real-time Recognition of Non-Emotional Conversational Head-Gestures for Social Robots. *Future Technologies Conference (FTC)*, Canada.

October 2021 Synchronous Colored Petri Net based Modeling and Video Analysis of Conversational Head-gestures for Training Social Robots. *Future Technologies Conference (FTC)*, Canada.

July 2021 Towards Synchronous Model of Non-Emotional Conversational Gesture Generation in Humanoids. *Computing Conference, London, UK, July 16-18, 2021.*

October 2018 Automated Declarative Modeling for Gesture Generation during Human-Humanoid Conversation. *31st International Conference on Computer Applications in Industry and Engineering, New Orleans, Louisiana, USA.*

Invited Talks

December 2021 Understanding the Acceptability of Gestures Generated by Social Robots.
International Conference on Human-Computer Interaction, Kent State University.

February 2018 Automated Declarative Gesture Generation for Non-Emotional Human Humanoid Conversation.*CS Research Day 2018*, Department of Computer Science, Kent State University, USA.

Professional Memberships

2022 – Present AnitaB.org

2019 – Present IEEE

2019 – Present ACM-W

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Professional Activities

International Conferences and Journal Reviewing Activities

2023 Program Committee, *24th International Conference on Artificial Intelligence in Education.*

2019 – 2022 Reviewer for the *MDPI Journals Applied Sciences, Electronics, Robotics and Sensor.*

2019 Reviewer for the *3rd International Conference on Computer Science and Application Engineering*, Sanya, China.

Book Proposal Reviewing Activities

2022 Reviewer for Artificial Intelligence and Python Programming books, Cambridge Press.

2021 Technical Reviewer for a book on Python Programming, The Pragmatic Bookshelf.

Other Synergistic Activities

2023 FlashPitch Competition, Second Place, Kent State University.

2023 Ohio Celebration of Women in Computing (OCWiC)

November 2022 Writing and Designing Winning NSF Proposals Workshop, Grant Training Center.

October 2022 Finalist for 3 Minute Thesis, Kent State University.

December 2021 IHCI-2021 Support Team, *International Conference on Human Computer Interaction*, Kent State University, USA.

2021 Judge, World Artificial Intelligence Competition for Youth (WAICY 2021), USA.

2019 Graduate Professional Academic Development workshop, Kent State University, USA.

2018 Participated in Fashion-Tech Hackathon, Kent State University, USA.

Teaching Experience

Fall 2017 - Present **Graduate Assistant,** Kent State University.

- Developed Practicum Lab for Masters in Artificial Intelligence program.
- Primary Instructor for the undergraduate courses *CS 23022: Discrete Structures For CS* and *CS 33101 Structure of Programming Languages.*
- Developed Hybrid version - online delivery, Face to face tutorial and labs of *CS 54201 Artificial Intelligence.* Mentor: Dr. Arvind K. Bansal.

Spring 2016 - Spring 2017 **Part Time Instructor**, Kent State University

- Upgraded the course and Lab for non-computer science undergraduate students Computer Literacy.
- Developed a Hybrid version - online delivery, face-to-face tutorials, and labs for the *Computer Literacy.* Mentor: Dr. Javed Khan and Dr. Arvind K. Bansal.

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Teaching Interests

Computer Science Programming, Discrete Structures, Web applications, Databases, Data Science, Artificial Intelligence, Machine Learning, Human-Robot Interaction, and others.

Guest Lectures

Spring 2023 - Spring 2022 — Three Lectures on Tensor flow, Keras and PyTorch, Advanced Artificial Intelligence Course (a Graduate Level course), Department of Computer Science, Kent State University, USA.

Fall 2022 — Two Lectures on Tensor flow and Keras, Artificial Intelligence (a Graduate Level course), Department of Computer Science, Kent State University, USA.

Fall 2017 — Four lectures in Advanced Artificial Intelligence Course (a Graduate Level course), Department of Computer Science, Kent State University, USA.

Industry Experience

Summer 2022 — **Engineering Development Group Intern**, MathWorks Inc. – Boston, MA

- Developed an end-to-end project in the DA Core UI Team on a Model-Based System Engineering product.
- Communicated with a team of senior software engineers and architectural modeling specialists.
- Contributed to developing the new feature, metadata management, reducing code complexity, and debugging.
- Bashed the new release of products to find and report software bugs and participated in various KT sessions.

August 2013 - August 2015 — **Programmer Analyst**, Cognizant Technology Solutions – Chennai, India

- Designed and Developed workflows and mappings in Informatica PowerCenter.
- Performed post-production support activities like batch monitoring, Incident creation, and post-data validation.
- Developed and Tested ETL code to load 15 tables by converting data from different source systems through multiple layers of business processing.
- Worked as Junior Data Scientist and conducted workshops to introduce Machine Learning in Industry.

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Student Mentoring

Ph.D. and Masters student peer mentoring, Computer Science Graduate Student Association, Department of Computer Science, Kent State University, USA.

Student Projects in Advanced Artificial Intelligence course, Computer Science Graduate Student Association, Department of Computer Science, Kent State University, USA.

Services and Leadership

Fall 2022 – Present: *Artificial Intelligence Committee Student Representative*, Master in Science Artificial Intelligence Committee, Department of Computer Science, Kent State University, USA.

Fall 2020 – Present: *Graduate Studies Committee Student Representative*, Graduate Studies Committee, Department of Computer Science, Kent State University, USA.

Fall 2019 – Present: *Founding Chair*, Kent State University ACM-W Student Chapter, Kent State University, USA.

Fall 2018 – Present: *President*, Computer Science Graduate Student Association, Kent State University, USA.

Fall 2020 – Fall 2021: *Graduate Student Advisory Committee for Department of Computer Science*, College of Arts and Sciences, Department of Computer Science, Kent State University, USA.

References

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