

Rahul R. Divekar

Asst. Professor at Bentley University

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Summary:

I am excited about Human-AI interactions. I have used my expertise to solve problems primarily in educational technology as a use case of AI with broad implications for human-AI interactions in general. Specifically, I have worked on how a group of humans can learn with a group of conversational AI agents that understand multi-modal input and are situated in an immersive extended reality. To achieve this, I have built systems and interactions, and applied a variety of research methods to solve interaction challenges like: how can an agent know when it is being addressed in a multi-party conversation, how can an agent exhibit conversational cues and affordances that will help a student interact more easily with conversational AI, etc. I have designed and executed research studies that inquired the usability and effectiveness of such human-AI interactions to bring out those challenges and then solved them using heuristics and AI techniques. My methods of inquiry, findings, and subsequent improvements led to a first-of-its-kind for-credit AI class at Rensselaer Polytechnic Institute; it was covered by MIT Tech Review, Associated Press, and The New York Times, among others. A resulting version of the system and interactions sparked a new league at the Automated Negotiating Agents Competition (ANAC) at IJCAI 2020.

Education:

Rensselaer Polytechnic Institute (RPI), Troy, NY, USA

PhD - Computer Science

2020

Thesis title: AI Enabled Foreign Language Immersion: Technology and method to acquire foreign languages with AI in immersive virtual worlds

Committee: Prof. James A. Hendler (chair), Dr. Hui Su (chair), Jeffrey O. Kephart, Yalun (Helen) Zhou, Peter Fox

MS - Information Technology and Web Science

2015 - 2016

University of Mumbai, Mumbai, India

Bachelor of Computer Engineering

2011 - 2015

Courses: Data Structures, Algorithms, Databases, Operating Systems, Distributed Computing, Computer Networks, Soft Computing, etc.

Certifications:

Higher Education Teaching Certificate. Harvard University Online

2025

Academic Appointments:

Assistant Professor, Bentley University

2023-present

Experience Design (XD) Department

Research Assistant, IBM's AI Horizons Network (AIHN) Cognitive Immersive Systems Lab (CISL), RPI

2017-2020

Teaching Assistant, RPI

Fall 15, Spring 15, Fall 16

Mentored students and graded assignments and tests on Data Science, Data Structures, and Intro to Web Science

Instructor, Don Bosco Institute of Technology (DBIT)

October 2014 – April 2015

Led a group that designed the curriculum and conducted a course based on Red Hat Certification Exams for 11 students

Courses Taught:

- Executive Education
 - Conversational User Interfaces - Fall 23
- Regular Semester (Graduate Level)
 - HF764 Intelligent User Interfaces
 - HF760 Immersive and Conversational Interface Design
 - HF701 Directed Study
 - PHD1750 Independent Study
- Regular Semester (Undergraduate Level)
 - XD 386 Investigations in Experience Design
 - XD 375 User Interface Design

- FDS 100 First year seminar

Research and Industry Experience:

Associate Research Scientist, NLP Educational Testing Service (ETS)	2020-2023
Summer Intern , IBM Research, Yorktown Heights, NY	Summer 2018
Team Lead , Amazon Alexa Prize Competition Team, RPI	Spring 17
Engineering Intern , Demandware - A Salesforce Company, MA, USA	Summer 2016

Research Skills:

Research Focus: HCI of AI, Conversational Artificial Intelligence, Multiagent interactions, Multimodal interactions, Immersive environments, Educational Technology, AI in Foreign language education

Technologies: Python, HuggingFace, R, NodeJS, HTML

Other: Designing, planning, and executing IRB-approved human-subject experiments. Natural Language Processing. Data Analytics and Statistics

Service

Organizing

Senate Member , Bentley University	2025-present
Secretary , Speech and Language Technology in Education (SLaTE) Workshop, a SIG of International Speech Communication Association (ISCA)	2022-Present
Conception and Organizing Team , HUMAINE: Human Multi-Agent Immersive Negotiation Competition, An Automated Negotiating Agents Competition (ANAC) League at International Joint Conference on AI (IJCAI)	2018-2020
Student Representative , Graduate Curriculum Committee at Dept. of CS at RPI	Fall 2019 - Spring 2020
Student Volunteer , 28th International Joint Conference on Artificial Intelligence (IJCAI), Macau	2019
Task Force Member , Graduate Research Symposium (GRS 2019), RPI	2019
Representative , Graduate Student Council, RPI	Fall 2019 - Spring 2020
Student Volunteer , 25th International World Wide Web (WWW) Conference, Canada	2016
Vice Chairperson , ACM Student Chapter, DBIT	2015

Program Committee

Conversations 2025	2025
ACM Intelligent User Interfaces (IUI) 2024 , Full Papers	2024
ACM Learning at Scale (L@S), 2024 , Full papers	2024
Associate Chair , ACM CHI 2024 Full Papers (User Experience and Usability)	23-24
Program Committee/Reviewer , BEA at NAACL 2023	2023
Associate Chair/Program Committee , ACM CHI Full papers (Learning, Education, and Families)	2022
Associate Chair/Program Committee , ACM Intelligent User Interfaces	2022
Program Committee/Reviewer , BEA at NAACL 2022	2022
Program Committee , Conversational User Interfaces (CUI) 2022	2022
Program Committee , Human-Centered AI (HCAI) workshop at NeurIPS 2022	2022
Program Committee , Human-Centered AI (HCAI) workshop at NeurIPS 2021	2021
Program Committee , ACM IUI 2022 Full Papers	2021
Program Committee, Associate Chair (AC) . ACM Conference on Human Factors in Computing Systems <i>Full Papers</i> (ACM CHI '21)	2020
Associate Chair (AC) . ACM Conference on Human Factors in Computing Systems <i>LBW</i> (ACM CHI '21)	2020
Associate Chair (AC) . ACM Conference on Human Factors in Computing Systems Late Breaking Works (ACM CHI LBW '20)	2020

Editing

Guest Editor , ACM XRDS Magazine (Spring '17)	2017
Coordinated the article line-up and contributed articles based on interviews with technology leaders.	

Reviewing

Associate Chair , CHI 2024 (UX Subcommittee)	2024
Program Committee , IUI 2024	2024
Reviewer , ACM EICS LBW	2024
Reviewer , NAACL Industry Track	2024
Reviewer , EMNLP Industry Track	2023
Reviewer , US Air Force Office of Scientific Research (AFOSR) Grant Review	2023
Reviewer , WiNLP 2023	2023
Reviewer , ACL Industry Track	2023
Reviewer , American Education Research Association (AERA) SIG: Advanced Tech. and Learning; Design & Tech.; Tech, Instruction, Cognition & Learning	2022-23
Reviewer , EMNLP Industry Track 2022	2022
Reviewer , Widening NLP (WiNLP) 2022	2022
Reviewer , ACM EICS LBW	2022
Reviewer , NAACL Industry Track	2022
Reviewer , ACL Rolling Reviews	2023
Reviewer , ACM DIS 2022	2022
Reviewer , ACM CHI 2022 LBW	2022
Reviewer , ACM IUI 2022 Demos, and Posters	2022
Reviewer , NAACL 2022 Industry Track	2022
Reviewer , Taylor and Francis Routledge Computer Assisted Language Learning (TOP-100 Reviewers)	21,22,23,24
Reviewer , AERA 2022 SIG Design and Technology	2021
Reviewer , ACM CSCW (2021)	2021
Reviewer , Demos track, Conversational User Interfaces (CUI 2021)	2021
Reviewer , ACM Intelligent User Interfaces (IUI) Posters and Demos 2021	
External Reviewer , ACM Conference on Human Factors in Computing Systems (ACM CHI '20)	2020
Reviewer , American Education Research Association (AERA) Annual Meeting 2021	2020

Formal Mentoring and Panels

Panel Member , AI and the classroom. Board of Trustees, Bentley University	2025
Intern Mentor , Educational Testing Service (ETS)	2022
Panel Member , Early Careers Pathways Panel, Rensselaer Polytechnic Institute	2023
Panel Member , The Post-Pandemic Job Market: Prepping for Careers Beyond Academia, The Society for the Study of Social Problems	2023
Panel Member , Career Panel, Bombay Cambridge International School	2021, 2023

Task Force and Working Groups

VR in Education (lead: Mark Frydenberg), Bentley University	2025
AI in Education (lead: David Szymanski), Bentley University	2025

Fellowships, Honors and Awards

Inclusive Teaching Fellow, Bentley University (2024)	
SPOT Award, ETS	
Runner-up, 3-Minute Thesis - RPI, Troy NY	
Outstanding student with great potential for fellowship programs, RPI, Troy NY	
Outstanding Poster, 2018 AI Horizons Colloquium. IBM Research AI. Cambridge MA	
Graduate TA Scholarship - RPI, Troy NY	
Best Technical Student - Department of CS, Don Bosco Institute of Technology, Mumbai, India	

Patent

Grants

Valente Center Student Research Assistance Award, Bentley University	2024, 2025
Faculty Affairs Committee, Bentley University	2024
Faculty Seed for Success (FSS)	2024
Educational Testing Service	2024

Refereed Publications and Posters

Most updated list can be found on Google Scholar:

<https://scholar.google.com/citations?user=wkEsAEsAAAAJ&hl=en>

Divekar, R. R., Guerra, S., Gonzalez, L., Boos, N., & Zhou, Y. (2025, July). Exploring undercurrents of learning tensions in an LLM-enhanced landscape: A student-centered qualitative perspective on LLM vs Search. In *International Conference on Artificial Intelligence in Education* (pp. 380-387). Cham: Springer Nature Switzerland.

Divekar, R. R., Gonzalez, L., Guerra, S., Boos, N., & Divekar, R. (2025). Can Generative AI Replace Search Engines for Learning? Understanding Student Preferences, Use and Perceived Proficiency in Using AI. *TechTrends*, 1-16.

Zhou, Y., & **Divekar, R.** (2025). Immersive, Task-Based Language Learning Through XR and AI: From Design Thinking to Deployment. *TechTrends*, 69(2), 427-446.

Pepe, S., **Divekar, R.**, Timpe-Laughlin, V., Sydorenko, T., Dombi, J., & Oh, S. (2025). Error and Recovery Analysis of Intent-based and LLM-based SDS. In *Proc. SLaTE 2025* (pp. 86-90).

Timpe-Laughlin, V., **Divekar, R.**, Sydorenko, T., Dombi, J., & Oh, S. (2025). Intent-Based Versus GPT-Based Conversational Agents: Benefits and Challenges for Practicing and Assessing Oral Interaction. *TESOL Quarterly*.

Guyre, M., Holland, L., Shah, N., & **Divekar, R. R.** (2024, July). Prompt Engineering an LLM into Roleplaying a Management Coach: a Short Guide by and for Non-NLP Experts. In *Proceedings of the 6th ACM Conference on Conversational User Interfaces* (pp. 1-10).

Divekar, R. R. (2024, June). Externalizing Internal Conversations: Toward a New Paradigm of Interacting with Our Internal Voice via an External Technological Interface. In *International Conference on Human-Computer Interaction* (pp. 53-64). Cham: Springer Nature Switzerland.

Zhang, X., **Divekar, R.**, Ubale, R., & Yu, Z. (2023, July). GrounDialog: A Dataset for Repair and Grounding in Task-oriented Spoken Dialogues for Language Learning. In *Proceedings of the 18th Workshop on Innovative Use of NLP for Building Educational Applications (BEA 2023)* (pp. 300-314).

Divekar, R. R., Drozdal, J., Chabot, S., Zhou, Y., Su, H., Chen, Y., ... & Braasch, J. (2022). Foreign language acquisition via artificial intelligence and extended reality: design and evaluation. *Computer Assisted Language Learning*, 35(9), 2332-2360.

Divekar, R. R., Lepp, H., Chopade, P., Albin, A., Brenner, D., & Ramanarayanan, V. (2021, July). Conversational agents in language education: where they fit and their research challenges. In *International Conference on Human-Computer Interaction* (pp. 272-279). Cham: Springer International Publishing.

Divekar, R. R., Su, H., Kephart, J. O., DeBayser, M. G., Guerra, M., Mou, X., ... & Chen, L. (2020, April). HUMAINE: human multi-agent immersive negotiation competition. In *Extended abstracts of the 2020 CHI conference on human factors in computing systems* (pp. 1-10).

Divekar, R. R., Mou, X., Chen, L., De Bayser, M. G., Guerra, M. A., & Su, H. (2019, August). Embodied Conversational AI Agents in a Multi-modal Multi-agent Competitive Dialogue. In *IJCAI* (pp. 6512-6514).

Divekar, R. R., Kephart, J. O., Mou, X., Chen, L., & Su, H. (2019). You talkin' to me? A practical attention-aware embodied agent. In *Human-Computer Interaction—INTERACT 2019: 17th IFIP TC 13 International Conference, Paphos, Cyprus, September 2–6, 2019, Proceedings, Part III* 17 (pp. 760-780). Springer International Publishing.

Allen, D., **Divekar, R. R.**, Drozdal, J., Balagyozyan, L., Zheng, S., Song, Z., ... & Su, H. (2019, July). The Rensselaer Mandarin Project—A cognitive and immersive language learning environment. In *Proceedings of the AAAI Conference on Artificial Intelligence* (Vol. 33, No. 01, pp. 9845-9846).

Zhao, R., Wang, K., **Divekar, R.**, Rouhani, R., Su, H., & Ji, Q. (2018, May). An immersive system with multi-modal human-computer interaction. In *2018 13th IEEE International Conference on Automatic Face & Gesture Recognition (FG 2018)* (pp. 517-524). IEEE.

Divekar, R. R., Peveler, M., Rouhani, R., Zhao, R., Kephart, J. O., Allen, D., ... & Su, H. (2019). Cira: An architecture for building configurable immersive smart-rooms. In *Intelligent Systems and Applications: Proceedings of the 2018 Intelligent Systems Conference (IntelliSys) Volume 2* (pp. 76-95). Springer International Publishing.

Divekar, R. R., Zhou, Y., Allen, D., Drozdal, J., & Su, H. (2018). Building human-scale intelligent immersive spaces for foreign language learning. *iLRN 2018 Montana*, 94.

Divekar, R. R., Drozdal, J., Zhou, Y., Song, Z., Allen, D., Rouhani, R., ... & Su, H. (2018, June). Interaction challenges in ai equipped environments built to teach foreign languages through dialogue and task-completion. In *Proceedings of the 2018 Designing Interactive Systems Conference* (pp. 597-609).

M Si, **RR Divekar**. “Establishing Social Presence with a Voice-Only Chatbot”. In *Fifth Annual Conference on Advances in Cognitive Systems*, 2017

Ji, J., Wang, Q., Battad, Z., Gou, J., Zhou, J., **Divekar, R.**, ... & Si, M. (2017). A two-layer dialogue framework for authoring social bots. *Alexa Prize Proceedings*.

Invited/Selected Talks/Colloquiums

“AI and Ethics at Work”. Mary Marcel and **Rahul Divekar**. Association of Business Communication (ABC 2025).

“Designing Experiential Learning in the classroom with Generative Artificial Intelligence”, **Rahul Divekar**, Melissa Hey, Ahmad Aljanaideh. 7 Experiences Summit, Bentley University

“Spoken Dialogue Technology Versus ChatGPT: Benefits and Challenges for Practicing and Assessing Oral Interaction”, Veronika Timpe-Laughlin, Tetyana Sydorenko, Judit Dombi, Saerhim Oh, **Rahul Divekar**. Task Based Language Teaching (TBLT) Conference, Groningen, Netherlands. April 2025

“Spoken Dialogue Technology Versus ChatGPT: Benefits and Challenges for Practicing and Assessing Oral Interaction”, Veronika Timpe-Laughlin, Tetyana Sydorenko, Judit Dombi, Saerhim Oh, **Rahul Divekar**. Artificial Intelligence Research in Applied Linguistics (AIRiAL 2024), Columbia University

“Spoken Dialogue Technology Versus ChatGPT: Benefits and Challenges for Practicing and Assessing Oral Interaction”, Veronika Timpe-Laughlin, Judit Dombi, **Rahul Divekar**, Saerhim Oh, Tetyana Sydorenko, Jung In Lee. Technology for Second Language Learning Conference (TSSL 2024), Iowa State University.

“Algorithmic Bias in NLP Systems”. **Invited talk** at AI Ethics class, University of Albany (October 2022)

“Conversational Agents in Language Education: Where They Fit and Their Research Challenges”. **Selected talk** at the Conversational User Interfaces Workshop @ ACM Intelligent User Interfaces (ACM IUI) Conference (April 2021)

“HUMAINE: Human Multi-Agent Negotiation Competition”. **Invited talk** in the Cognitive Computing Course at Rensselaer Polytechnic Institute (October 2020)

“Are you talking to me? - An attention-aware embodied agent” - **Selected Talk** at *AI Systems Day, IBM Research, Cambridge, MA (2018)*

“Introduction to Artificial Intelligence and Careers in AI”. **Invited talk** at *Bombay Cambridge International School, Mumbai.* (September 2020)

“Foreign Language Acquisition with AI Agents in Immersive Environments”. **Invited talk** at *Don Bosco Institute of Technology, Mumbai, India* (June 2020)

“The Design and Role of AI/VR/XR in Second Language Classroom” - Helen Zhou, Hui Su, Rahul Divekar, Samuel Chabot. **Invited talk** at *Wellesley College, MA, USA* (Dec 2019)

“AI in Higher Ed: Preparing the Next Generation”- Rahul Divekar, Melissa Hey, Ahmad Aljanaideh, Steven Randazzo. Invited panelist at “AI Summit on Life Sciences” *Bentley University, MA* (May 2024)

Demos (D), and Posters (O)

[D1] **Demo** of *The Mandarin Project* to RPI-IBM Steering Committee, Dr. Shirley Ann Jackson (President of RPI), Dr. Greg Hyslop (CTO of The Boeing Company), and several media outlets (2018-2020)

[O1] **Poster** - “Are you talking to me? - An attention-aware embodied agent” - **Rahul R. Divekar**, Jeffrey O. Kephart, Xiangyang Mou, Lisha Chen, Hui Su. *Poster at AI Horizons Colloquium, Cambridge, MA (2018)*

[O2] **Poster** - “The Rensselaer Mandarin Project - A Cognitive and Immersive Language Learning Environment” - D Allen, **RR Divekar**, J Drozdal, L Balagoyozyan, S Zheng, Z Song, H Zou, J Tyler, X Mou, R Zhao, H Zhou, J Yue, JO Kephart, and H Su. *Poster at AI Horizons Colloquium, Cambridge, MA (2018)*

[O3] **Poster** - “Teaching Mandarin as a Second Language through a Cognitive Immersive Classroom”. **RR Divekar**, D Allen, B Chang, E Dai, J Drozdal, R Pisacano, R Rouhani, M Si, Z Song, H Su, K Wang, Rui Zhao, C Zheng, H Zhou, Y Zhu. *Poster in 6th IBM Research Cognitive Colloquium, Yorktown Heights, NY (2017)*

[O4] **Poster** - “Wise Macaw - A Social Chat-bot built on Amazon’s Alexa Skills” C Battad, C Carlson, **RR Divekar**, J Ji, Q Wang, M Si. *Poster in Graduate Research Symposium, RPI (2017)*

[O5] **Poster** - “Predictive Page Replacement Algorithm, RPI” **Rahul Divekar** and David Goldschmidt. *Poster in Graduate Research Symposium, RPI (2016)*

Media Coverage of Projects

- [M1] “Virtual Learning: Using AI, Immersion to Teach Chinese” by **Associated Press, ACM Tech News, US News**
- [M2] “IBM teams up with college to teach Mandarin using AI” by **EdScoop**
- [M3] “IBM’s Holodeck-style classroom tech makes language-learning apps look primitive” by **DigitalTrends**
- [M4] “Mandarin Language Learners Get a Boost From AI” by **IBM Research Blog**
- [M5] “Rensselaer Polytechnic Institute finds bold new way to teach Mandarin” by **Times Union**
- [M6] “A new immersive classroom uses AI and VR to teach Mandarin Chinese” by Karen Hao, **MIT Tech Review**
- [M7] “Is it a Video Game - or a better way to learn foreign languages?” by Shira Feder, **The Daily Beast**
- [M8] “A floating panda, tai chi in China: Learning Mandarin in a VR classroom” by Sowmiya Ashok, **The Indian Express**
- [M9] “How Technology Is Changing the Future of Higher Education” by Jon Marcus, **The New York Times**
- [M10] “IBM Watson Helps University Students Learn Mandarin” by Brian T. Horowitz, **PC Mag**
- [M11] “Innovation Hall: The Mandarin Project”, **WMHT, NY**
- [M12] “Pushing the Boundaries of Learning With AI”, **Inside Higher Ed**
- [M13] “Rensselaer Team Is Finalist in \$2.5 Million Amazon Alexa Prize”, Rensselaer Polytechnic Institute
- [M14] "AI to the Rescue: It’s an all-purpose study tool — and it’s changing students’ relationships with professors and peers" by Beth McMurtrie, **The Chronicle of Higher Education** [Article Link](#)

Other Articles

- [A1] **Divekar, Rahul R.**, and Nidhi Rastogi. "Managing crises, one text at a time." XRDS: Crossroads, The ACM Magazine for Students 23, no. 3 (2017): 36-37.
- [A2] Rastogi, Nidhi, and **Divekar, Rahul R.** "Serving people in crisis to make the world a better place." XRDS: Crossroads, The ACM Magazine for Students 23, no. 3 (2017): 38-39.
- [A3] **Divekar, Rahul R.**, and Nidhi Rastogi. "Tech for crises." XRDS: Crossroads, The ACM Magazine for Students 23, no. 3 (2017): 8-9.
- [A4] **Divekar, Rahul R.** “#IJCAI2019 mini-interviews – Claus Aranha from University of Tsukuba”. AIHub.org, Aug 2019
- [A5] **Divekar, Rahul R.** “#IJCAI2019 mini-interviews – Dimmy Wang from Tencent Cloud AI”. AIHub.org, Aug 2019