

Khang Dang

New Jersey, USA

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EDUCATION

New Jersey Institute of Technology (NJIT)

Dec 2025

Ph.D., Information Systems

Committee: Prof. Sooyeon Lee (advisor), Prof. Alisha Pradhan, Prof. Margarita Vinnikov, Prof. Misha Sra

PhD Dissertation: Immersive, Interactive, Intelligent, and Individualized Audio Description in 360° Virtual Reality Musical Performances for Blind and Low-Vision Users

**Vietnam National University – Ho Chi Minh City (VNU–HCM) &
National Institute of Applied Sciences of Lyon, France (INSA Lyon)**

2018

Combined B.S./M.S. ([Diplôme d'Ingénieur](#)), Civil Engineering (Building & Energy)

RESEARCH EXPERIENCE

My research focuses on human–computer interaction (HCI), extended reality (XR), multimodal AI, data science, and accessibility. I use a mixed-methods approach (both quantitative and qualitative) to design and evaluate XR, AI, and mobile applications that enhance human experiences. More broadly, I study how emerging technologies can be leveraged to advance inclusive human–computer interaction for diverse user groups.

New Jersey Institute of Technology, Newark, NJ

Jan 2021–Dec 2025

Ying Wu College of Computing

Graduate Research Assistant

- **Accessible VR Music for the Blind and Low-Vision (Ph.D. Dissertation):** Led IRB-approved human-subjects studies (100+ survey; 50+ interviews) [[SUI '23](#); [ASSETS '24](#)]; conducted design/analysis of a headset-run framework for *Immersive, Interactive, Intelligent, and Individualized* audio description (AD) in 360° VR. Implemented Spatial, View-Dependent, and multimodal-AI Explorative AD on Meta Quest [[ASSETS '24](#); [ISMAR-Adjunct '25](#)] and ran a within-subjects study with 15 blind and low-vision participants; results showed gains in spatial awareness, immersion, engagement vs. Traditional AD.
- **Ophthalmology Q&A with RAG (with University College London):** Contributed to a retrieval-augmented clinical Q&A study; ran benchmarking experiments for open-source and proprietary LLMs, maintained Python evaluation notebooks/pipelines, computed accuracy, citation-grounding, and hallucination metrics, and supported clinician-in-the-loop error analysis and ablations [[TVST '25](#)].
- **Non-speech Information (NSI) Captioning for the d/Deaf and Hard-of-Hearing (with Stanford & NYU):** Built a reproducible PyData + SQL pipeline to curate ~715,000 YouTube videos and analyze ~273 million caption lines (2013–2022); audited the prevalence and forms of NSI (e.g., [[music](#)], [[laughter](#)]), quantified temporal trends and disparities across channels/genres, and surfaced measurement bias. Coauthored two papers that (i) map

NSI practices at scale and release research artifacts [[CHI '24](#)] and (ii) synthesize challenges/opportunities with design recommendations for non-speech captioning [[Frontiers '25](#)].

- **Human Behavior Detection (with Qualcomm):** Built an Android sensing application for fitness and health-related data collection (phone sensors + Polar HR/physio) and a HIPAA-aware AWS ingestion/labeling pipeline; collected ~800 hours of behavioral data from 67 participants; supported privacy-preserving federated learning experiments [[App](#)].

Clemson University, Clemson, SC
School of Civil and Environmental Engineering and Earth Sciences
Research/Project Assistant

Aug 2019–Dec 2020

- **Acoustic Safety Cues for Construction Workers:** Curated a corpus of 29,032 construction-site audio clips; engineered digital signal processing features and trained deep models for hazard-cue detection (>97% accuracy on held-out data) [[ISARC '20](#)]. Led a systematic literature review on auditory safety cues to identify gaps for real-world systems [[Sensors '22](#)].

TEACHING EXPERIENCE

New Jersey Institute of Technology, Newark, NJ
Graduate Teaching Assistant &
Instructor of Record

2022–2025

- TA: Discovering User Needs for UX (IS 375); Designing the User Experience (IS 247)
- Instructor of Record: Designing the User Experience (IS 247 – Fall '24); teaching 37 students and achieving a 67.6% evaluation response rate with mean scores on every course and instructor metric exceeded the department, college, and university averages [[Instructor Evaluation](#)].

Rutgers University, New Brunswick, NJ
Teaching Assistant

2023, 2024

- Data Carpentry Workshop: *Data Management & Analysis for Genomics Research*
- Assisted researchers with no prior computational experience in genomics data management and analysis.

Clemson University, Clemson, SC
Teaching Assistant

2019-2020

- Courses: Economic Evaluation of Projects; Planning & Scheduling; Equipment Selection & Maintenance

INVITED TALKS & MEDIA COVERAGE

“Designing and Measuring VR Accessibility with and for Blind and Low-Vision People: A Human-Centered Approach”,
Johns Hopkins University, Baltimore, MD

Nov 2025

- Invited by Dr. Gislin Dagnelie (Professor of Ophthalmology)
- Attendees: Researchers and clinicians from Lions Vision Research and Rehabilitation Center, Johns Hopkins Hospital

“From Real-World Data Systems to Expert-Guided Digital Twins”,
Rutgers University, New Brunswick, NJ

Nov 2025

- Invited by Dr. Ioannis Androulakis (Professor of Chemical and Biochemical Engineering)
- Attendees: Researchers and clinicians from School of Engineering and Division of Pulmonary and Critical Care Medicine

“I4AD: Diverse Perspectives from Blind and Low-Vision Users on Designing Immersive, Interactive, Intelligent, and Individualized Audio Description for Virtual Reality Musical Performances”,
The Seventh Annual XR Access Symposium: 3D Diversity, [[Website](#)]
Cornell Tech, New York City, NY

Jun 2025

- 193 in-person and 286 remote registered attendees
- MEDIA COVERAGE: “*Bridging the Gap: How I4AD is Revolutionizing XR Audio Descriptions.*” Feature on I4AD presentation and research; published by American Foundation for the Blind (AFB), 07/25/2025. [[Article](#)]

“Virtual Reality: Trends, Applications, and Future Prospects”,
Symposium: Applying Virtual Reality Technology in Tourism Development, [[Website](#)]
Institute of Social Sciences and Humanities Research, Ho Chi Minh City, Vietnam

Jun 2025

- 110+ online attendees across academia, government, and industry
- MEDIA COVERAGE: “*Vietnam’s Tourism Sector Gets High-Tech Makeover to Woo Global Travellers.*” Commentary quoted on XR/VR and cultural heritage; published by Vietnam Ministry of Culture, Sports and Tourism (bvhttdl.gov.vn); Vietnam Times (vietnamtimes.thoidai.com.vn); Vietnam Plus (en.vietnamplus.vn); Vietnam News Agency (VNA) Magazine & Vietnam Pictorial (vietnam.vnnet.vn); and The Holiday and Travel Magazine; 07/16/2025. [[Article](#)]

PUBLICATIONS

Journal Articles

- **Omnidirectional Audio Descriptions in Virtual Reality: A Conceptual Framework for Musical Performances Accessible to Blind and Low-Vision Users.**
Khang Dang, Grace Burke, Hamdi Korreshi, Sooyeon Lee.
ACM Transactions on Accessible Computing (TACCESS), 2025. *Under review; minor revision invited.*
- **Advancing Question-Answering in Ophthalmology With Retrieval-Augmented Generation: Benchmarking Open-Source and Proprietary Large Language Models.**
Quang Nguyen, Duy-Anh Nguyen, **Khang Dang**, Siyin Liu, Sophia Y Wang, William A Woof, Peter BM Thomas, Praveen J Patel, Konstantinos Balaskas, Johan H Thygesen, Honghan Wu, Nikolas Pontikos.
Translational Vision Science & Technology (TVST), *The Association for Research in Vision and Ophthalmology*, 2025.
- **Choices? That’s The Dream: Challenges and Opportunities in Non-Speech Information Closed-Captioning.**
Lloyd May, Michael Clemens, **Khang Dang**, Keita Ohshiro, Sripathi Sridhar, Pauline Wee, Magdalena Fuentes, Sooyeon Lee, Mark Cartwright.
Frontiers in Computer Science, 2025.
- **Augmented Hearing of Auditory Safety Cues for Construction Workers: A Systematic Literature Review.**
Khang Dang, Kehinde Elelu, Tuyen Le, Chau Le.
Sensors, 2022.

Peer-Reviewed Conference Papers

- **Personalized Conversational Audio Descriptions in 360° Virtual Reality for Blind and Low-Vision Users.**
Khang Dang, Sooyeon Lee.
IEEE International Symposium on Mixed and Augmented Reality – Adjunct (ISMAR-Adjunct), 2025.
- **Participant Recruitment in Accessibility Research.**
Lloyd May, Saad Hassan, **Khang Dang**, Sooyeon Lee, Oliver Alonzo.
Proceedings of the 27th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '25), 2025.
- **Musical Performances in Virtual Reality with Spatial and View-Dependent Audio Descriptions for Blind and Low-Vision Users.**
Khang Dang, Sooyeon Lee.
Proceedings of the 26th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '24), 2024.
- **Towards Accessible Musical Performances in Virtual Reality: Designing a Conceptual Framework for Omnidirectional Audio Descriptions.**
Khang Dang, Grace Burke, Hamdi Korreshi, Sooyeon Lee.

Proceedings of the 26th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '24), 2024.

- **Unspoken Sound: Identifying Trends in Non-Speech Audio Captioning on YouTube.**
Lloyd May, Keita Ohshiro, **Khang Dang**, Sripathi Sridhar, Jhanvi Pai, Magdalena Fuentes, Sooyeon Lee, Mark Cartwright.
Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '24), 2024.
- **Opportunities for Accessible Virtual Reality Design for Immersive Musical Performances for Blind and Low-Vision People.**
Khang Dang, Hamdi Korreshhi, Yasir Iqbal, Sooyeon Lee.
Proceedings of the ACM Symposium on Spatial User Interaction (SUI '23), 2023.
- **A Novel Audio-based Machine Learning Model for Automated Detection of Collision Hazards at Construction Sites.**
Khang Dang, Tuyen Le.
Proceedings of the International Symposium on Automation and Robotics in Construction (ISARC '20), 2020.

PEER REVIEW CONTRIBUTIONS

- ACM Conference on Human Factors in Computing Systems (CHI) – 9 reviews; 2× *Special Recognition for Outstanding Reviews*
- Annual Conference of the Cognitive Science Society (CogSci) – 10 reviews
- ACM Conference on Conversational User Interfaces (CUI) – 7 reviews
- IEEE Symposium on Mixed and Augmented Reality (ISMAR) – 6 reviews
- ACM Conference on Intelligent User Interfaces (IUI) – 5 reviews
- ACM Conference on Virtual Reality Software and Technology (VRST) – 4 reviews
- ACM Conference on Interactive Media Experiences (IMX) – 3 reviews
- ACM Conference on Designing Interactive Systems (DIS) – 2 reviews; 1× *Special Recognition for Outstanding Review*
- ACM Conference on Interaction Design and Children (IDC) – 2 reviews
- ACM Symposium on Spatial User Interaction (SUI) – 2 reviews
- ACM Conference on Mobile Human-Computer Interaction (MobileHCI) – 1 review
- ACM Conference on Tangible, Embedded, and Embodied Interaction (TEI) – 1 review

SERVICE

ACM SIGACCESS ASSETS '25 Workshop: Participant Recruitment in Accessibility Research Workshop Co-Organizer [Website]	<i>Oct 2025</i>
ACM SIGCHI Conversational User Interfaces (CUI) Associate Chair (AC1)	<i>2024, 2025</i>
ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (I3D) Student Volunteer	<i>May 2025</i>

AWARDS

Kanden System Solutions Scholarship , Osaka, Japan Merit scholarship recognizing academic excellence and research potential.	<i>2017</i>
Outstanding Graduate Student , Vietnam National University	<i>2016</i>
TF SCALE Grant , Temasek Foundation, Singapore Specialists' Community Action & Leadership Exchange Program (3 weeks in Singapore; 2 weeks in Vietnam).	<i>2015–2016</i>

CERTIFICATIONS & MEMBERSHIPS

American Society of Civil Engineers (ASCE) <i>Certified Expert Peer-Reviewer</i>
International Association of Accessibility Professionals (IAAP) <i>Certified Professional in Accessibility Core Competencies (CPACC)</i>
National Federation of the Blind (NFB) <i>Member</i>

MENTORING

Ph.D. Students

- **Huong Nguyen** – NJIT *2025*
- **Phuong Dang** – Auckland University of Technology (AUT), Auckland, New Zealand *2025*

Undergraduate Students

- **Vanshik Waghela** – SVKM's Dwarkadas J. Sanghvi College of Engineering, Mumbai, India *2025*
- **Prajwal Shah** – NJIT *2024–2025*
- **Xavier Sylvers** – NJIT *2024–2025*
- **Grace Burke** – NJIT *2024*

- **Arslan Asghar** – New York University (NYU) 2024
Now Research Assistant at New York University Abu Dhabi
- **Hamdi Korreshi** – NJIT 2023–2024
- **Yasir Iqbal** – NJIT 2023–2024
Now Co-Founder & CEO at Clab AI

High School Students

- **Julie Chua** – Livingston High School, Livingston, NJ 2025
- **Ayden Hawkesworth** – Don Bosco Preparatory High School, Ramsey, NJ 2025
- **Michael Hawkesworth** – Don Bosco Preparatory High School, Ramsey, NJ 2025