# Duy H Ho

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| INSTITUTION AND LOCATION | DEGREE *(if applicable)* | Completion Date MM/YYYY | FIELD OF STUDY |
|---|---|---|---|
| University of Missouri-Kansas City, Kansas City, MO, USA | BS | 2018 | Computer Science |
| University of Missouri-Kansas City, Kansas City, MO, USA | MS | 2019 | Computer Science |
| University of Missouri-Kansas City, Kansas City, MO, USA | PhD Candidate | Ongoing anticipated completion is 3/2024 | Computer Science |

## A. Personal Statement

Duy Ho, a distinguished Ph.D. candidate at UMKC's School of Science and Engineering, boasts over five years of specialized AI and Deep Learning research. His areas of expertise encompass Object Detection, Image Segmentation, Natural Language Processing, Augmented, Virtual, and Extended Reality (AR/VR/XR), and Robotics. Utilizing advanced models such as Transformers, CNNs, and GANs, Duy's drive for research and development has earned him multiple university awards and extensive support.

In the ever-evolving healthcare sector, Duy's skills as a data scientist stand out, particularly in managing multi-modal data. His aptitude in data integration, visualization, and automation addresses challenges in Electronic Health Records (EHR), enhancing efficiency while focusing on patient care. Duy is also a pioneer in integrating AR/VR/XR and Robotics into healthcare, revolutionizing not only diagnostics and patient care but also surgical procedures and operations. With a diverse and specialized skill set, Duy remains at the cutting edge of technological advancements, particularly in optimizing EHR systems and adopting emerging technologies.

The sum of these experiences has afforded me an extensive skill set, encompassing mobile technology, data analytics, methodologies for public engagement, and cross-disciplinary project management. Therefore, Duy would be a valuable asset in any research or technical team requiring such expertise.

## B. Positions, Scientific Appointments, and Honors

**2019-2022: Graduate Teaching Assistant, UMKC.**

**Role as Lab Instructor**: Contributed to curriculum development for multiple graduate-level courses.

- Courses include CS5590: AI for Cybersecurity and CS5560: Knowledge Discovery and Management.

**2019-2022: Graduate Research Assistant, UMKC.**

- **WeListen Initiative (Jackson County, Missouri)**
  - Managed technical teams responsible for developing a specialized mobile application for collecting speech and multi-lingual data.
  - Facilitated public engagement through focus meetings that directly influenced policy decisions.
- **National Science Foundation's SOAR Project**
  - Led the technical aspects, employing cutting-edge techniques in mobile data collection.
  - Implemented natural language processing algorithms to analyze multilingual speech data, thus ensuring diversity in research datasets.
- **National Science Foundation IUCRC Center for Big Learning**

- Pioneered the development a Peer-to-Peer (P2P) federated learning model for distributed deep learning.
- The focus was on privacy preservation and the efficient construction of deep learning models using real-world datasets.

- **NSF Smart Connected Communities (SCC)**
  - Created a comprehensive public data repository by integrating various databases.
  - Databases included Census statistics, 311 service reports, crime data, and resident satisfaction surveys, synthesizing cross-disciplinary insights for nuanced community solutions.
- **Collaboration with UMKC's School of Medicine (Dr. Gary Sutkin)**
  - Developed Reinforcement Learning and Imitation Learning algorithms for AI-powered surgery robots.
  - Incorporated AR/VR techniques to facilitate virtual robot and real-robot collaborations for medical procedures.

**2024: Data Scientist, AI2Insight.**

**Honors:**

2023 UMKC School of Graduate Studies' Research Grant Award (SurgERy: Surgical Operations with AI-enhanced Extended Reality)
2022 Rising Star Award for Supporting Research
Fall 2022 UMKC Hack-A-Roo 3rd Place - AR/VR Specialized Track
Spr 2022 UMKC Hack-A-Roo 1st Place - AR/VR Specialized Track
2021 Outstanding Student Award, UMKC
Spr 2021 UMKC Hack-A-Roo 1st Place - IT/CS Track
Fall 2021 UMKC Hack-A-Roo 1st Place - IT/CS Track
2020 UMKC Hack-A-Roo 1st Place - IT/CS Track
2019 UMKC Hack-A-Roo 1st Place - IT/CS Track
2018 Honors Graduate, UMKC

**C. Contributions to Science**

Duy is actively engaged in various research initiatives, among them the application of AR/VR/XR in educational settings and the automation of robots for specialized medical procedures, like MUS operations, using Imitation Learning. He employs human demonstrations as initial learning resources for robots and utilizes a carefully designed reward and penalty system to guide the robot through critical points, thereby minimizing errors like puncturing the bladder or blood vessels.

His proven track record includes expertise in:

1. Wang, Ye, Erin Willis, Vijaya K. Yeruva, **Duy Ho**, and Yugyung Lee. "A case study of using natural language processing to extract consumer insights from tweets in American cities for public health crises." *BMC Public Health* 23, no. 1 (2023): 1-16.
2. **Ho, Duy H.,** Yugyung Lee, Srichakradhar Nagireddy, Charan Thota, Brent Never, and Ye Wang. "OpenComm: Open community platform for data integration and privacy preserving for 311 calls." *Sustainable Cities and Society* 83 (2022): 103858.
3. **Ho, Duy H.,** and Yugyung Lee. "Big data analytics framework for predictive analytics using public data with privacy preserving." In *2021 IEEE International Conference on Big Data (Big Data)*, pp. 5395-5405. IEEE, 2021.
4. DeLisle, Jim, Hye-Sung Han, **Duy H. Ho**, Yugyung Lee, Brent Never, and Ye Wang. "Deep learning visual methods for identifying abandoned houses." *Cityscape* 24, no. 2 (2022): 23-52.
5. Wang, Ye, Srichakradhar Reddy Nagireddy, Charan Tej Thota, **Duy H. Ho**, and Yugyung Lee. "Community-in-the-loop: Creating Artificial Process Intelligence for Co-production of City Service." *Proceedings of the ACM on Human-Computer Interaction* 6, no. CSCW2 (2022): 1-21.
6. **Ho, Duy H.,** Raj Marri, Sirisha Rella, and Yugyung Lee. "DeepLite: Real-time deep learning framework for neighborhood analysis." In *2019 IEEE International Conference on Big Data (Big Data)*, pp. 5673-5678. IEEE, 2019.
7. Walunj, Vijay, Gharib Gharibi, **Duy H. Ho**, and Yugyung Lee. "Graphevo: Characterizing and understanding software evolution using call graphs." In *2019 IEEE international conference on big data (big data)*, pp. 4799-4807. IEEE, 2019.