

Mostafa Habibi Dehsheikhi

Ph.D. Student at the University of Texas at Dallas

F-1 (Green Card and EAD processing)

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KEY QUALIFICATIONS

- Ph.D. Candidate in Computer Engineering specializing in AI, computer vision, machine learning, large language models, and data-driven system development.
- 2+ years of experience working with AWS services, including EC2, S3, Lambda, and API Gateway, for building and deploying scalable cloud-based solutions.
- 3+ years of experience building intelligent systems for video analysis, object detection, patient monitoring, and healthcare-focused AI applications.
- Strong expertise in Python, PyTorch, OpenCV, YOLO, SQL, and machine learning workflows for developing, testing, evaluating, and deploying AI models.
- Experienced in designing end-to-end computer vision pipelines, including image analysis, activity recognition, 3D tracking, stereo vision, and multi-camera systems.
- Hands-on experience with LLM-based applications, including retrieval-augmented generation (RAG), agentic AI systems, and multi-agent workflows using LangChain and LangGraph.
- Skilled in designing AI workflows and automation pipelines using n8n for integrating tools, decision logic, and intelligent task orchestration.
- Proven ability in research, complex data analysis, model optimization, problem solving, algorithm design, experimental validation, and interdisciplinary collaboration to develop practical and scalable AI solutions.

EXPERIENCE

Graduate Research Assistant, *University of Texas at Dallas, Richardson, TX*

Spring 2023 – Present

- Led AI-driven healthcare monitoring projects for patient ambulation assessment, posture recognition, behavioral analysis, and human-object interaction using YOLO, MediaPipe, Random Forest, monocular depth estimation, and multi-camera 3D localization.
- Developed scalable vision-language systems that combine computer vision outputs with LLM-based summarization to generate clinically relevant patient behavior reports for caregivers.
- Designed a dual-camera behavioral assessment platform integrating YOLO, DeepFace, SIFT-based matching, epipolar geometry, and triangulation for robust tracking and interaction analysis in healthcare environments.
- Built an agentic AI platform for converting unstructured clinical notes into standardized, queryable, FHIR-compliant structured data using multi-agent workflows, adaptive auditing, schema evolution, and locally deployed open-weight LLMs.
- Implemented LLM and multi-agent orchestration pipelines using LangChain and LangGraph.
- Developed AI-based sports analytics systems for runner posture classification, kinematic analysis, and performance ranking.
- Conducted machine learning and deep learning research in low-light object detection, MRI-based radiogenomic classification, and contrast-free feature reconstruction.
- Developed cloud-connected and data-driven AI workflows using AWS services.

Teaching Assistant, *University of Texas at Dallas, Richardson, TX*

5 Semesters

- Assisted with *Introduction to Electrical and Computer Engineering* and *Introduction to Digital Systems* through lab support, grading, office hours, assignment guidance, and technical troubleshooting.
- Helped students understand core engineering and programming concepts, solve implementation issues, and complete coursework successfully.

Selected Academic Projects

- Designed and implemented a relational database project using EER modeling, schema design, normalization, SQL, constraints, and view development.
- Designed AI workflow automation pipelines using n8n for multi-step orchestration and tool integration.

Research Assistant, *Shahid Bahonar University, Kerman, Iran*

Aug 2013 – Aug 2015

- Conducted research in computer science focused on mobile ad hoc networks (MANETs), routing algorithms, and intelligent systems.

- Fully funded by the Ministry of Science, Research, and Technology.

SKILLS

AI, Machine Learning, and Computer Vision: Computer vision, deep learning, machine learning, object detection, image enhancement, low-light vision, posture classification, activity recognition, human-object interaction detection, 3D localization, stereo vision, multi-camera tracking, vision-language systems, model development, evaluation, and optimization.

LLM and Agentic Systems: LLMs, RAG, agentic AI, multi-agent systems, prompt engineering, structured data extraction, LangChain, LangGraph, n8n, workflow automation, orchestration pipelines, tool calling, and intelligent decision workflows.

Programming, Libraries, and Frameworks: Python, Java, C/C++, HTML, CSS, JavaScript, SQL, SQL Server, PyTorch, OpenCV, YOLO, MediaPipe, DeepFace, Flask, MATLAB, Bash, pandas, NumPy, scikit-learn, matplotlib, and LaTeX.

Cloud, Databases, and Data Systems: AWS EC2, S3, Lambda, API Gateway, cloud deployment, data pipelines, relational databases, EER modeling, schema design, normalization, SQL query development, constraints, referential integrity, and data integration.

Analytics, Algorithms, and Research: Feature engineering, PCA, clustering, Random Forest, SVM, ranking models, optimization, algorithm design, experimental validation, technical communication, problem solving, and interdisciplinary research collaboration.

Computer Networking and Hardware: CCNA, TCP/IP, Windows server, and CompTIA A+.

EDUCATION

Ph.D. Candidate, Computer Engineering Present
The University of Texas at Dallas, Richardson, TX, USA GPA: 3.94/4.00
Research: AI-powered video monitoring, computer vision, argentic AI, and healthcare analytics.
Relevant Coursework: Database Design, Virtual Reality, Machine Learning and Pattern Recognition, Computer Vision.

Master of Science, Computer Science Aug 2015
Shahid Bahonar University, Kerman, Iran GPA: 3.60/4.00
Thesis: *Bee-Hopnet Routing Algorithm in Mobile Ad Hoc Networks (MANETs)*.
Relevant Coursework: Advanced AI, Image Processing, Machine Learning, Logic Programming, Issues in Smart Systems, Theory of Computer Sciences.

Bachelor of Science, Computer Science Aug 2012
Shahid Bahonar University, Kerman, Iran GPA: 3.46/4.00
Ranked 1st in the Computer Science Department.
Achieved 4th place in the ACM Programming Competition, Shahid Beheshti University, Tehran, 2011.
Project: Design, Development, and Implementation of a Finance and Human Resource System deployed in Java.

CERTIFICATIONS

- **AI and Agentic Systems:** Understanding Prompt Engineering; Introduction to AI Agents; Building Scalable Agentic Systems; Multi-Agent Systems with LangGraph; Building AI Agents with Google ADK (DataCamp).
- **Generative AI:** Introduction to Generative AI Learning Path (Coursera / Google Cloud). AWS Certified AI Practitioner (Amazon)
- **Data Science:** IBM Data Science Professional Certificate; Introduction to Data Science (Coursera / IBM).
- **Technical and Vocational Certifications:** CCNA; Fundamentals of Robotics; Java.

AWARDS

- **ECE Doctoral Excellence Award, The University of Texas at Dallas** Spring 2026
Awarded in recognition of academic and research excellence by the Department of Electrical and Computer Engineering.
- **IEEE Best Paper Award, ICHI 2025** June 2025
Awarded for the paper *Video-Based Human-Object Interaction Analysis for Patient Behavioral Monitoring* at the 13th IEEE International Conference on Healthcare Informatics, Rende, Italy.

PROFESSIONAL MEMBERSHIP & SERVICE

- IEEE, IEEE Young Professionals
- IEEE Engineering in Medicine and Biology Society (EMBS)
- Reviewer, IEEE Southwest Symposium on Image Analysis and Interpretation (SSIAI)

- Reviewer, IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI)

Selected Publications

1. **M. Habibi** and M. Nourani, "Agentic AI to Augment Unstructured Data for Information Exchange and LLM," *IEEE Journal of Biomedical and Health Informatics (JBHI)*, 2026. (Manuscript under review)
2. F. Parsaee, M. C. Stefan, and **M. Habibi**, "Reconstruction of T1-Weighted Contrast-Enhanced MRI for Glioblastoma Radiogenomic Classification," *IEEE Engineering in Medicine and Biology Society (EMBC)*, 2026. (Submitted)
3. **M. Habibi** and M. Nourani, "An Integrated Deep Learning Architecture for Illumination-Aware Object Detection," *IEEE Southwest Symposium on Image Analysis and Interpretation (SSIAI)*, Santa Fe, New Mexico, USA, March 22-24, 2026.
4. **M. Habibi**, M. Nourani, and M. M. Nourani, "AI-Based Performance Analysis for Track and Field Athletes," in *47th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Copenhagen, Denmark, July 14–17, 2025.
5. **M. Habibi** and M. Nourani, "Utilizing Generative AI for Patient Behavioral Assessment," in *2025 IEEE 18th Dallas Circuits and Systems Conference (DCAS)*, 2025, pp. 1–2.
6. **M. Habibi**, Z. Delaram, M. Nourani, and D. H. Sullivan, "Video-Based Human-Object Interaction Analysis for Patient Behavioral Monitoring," in *2025 IEEE 13th International Conference on Healthcare Informatics (ICHI)*, Rende, Italy, 2025. (Best Paper Award)
7. **M. Habibi**, M. Nourani, and D. H. Sullivan, "A Scalable Dual-Camera Platform for Behavioral Assessment in Healthcare," *Journal of Healthcare Informatics Research (JHIR)*, 2025. (Manuscript submitted for publication)
8. **M. Habibi**, M. Nourani, and D. H. Sullivan, "An AI-Driven Camera-Based Platform for Patient Ambulation Assessment," in *2024 46th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 2024, pp. 1–4.
9. **M. Habibi**, M. Nourani, and M. M. Nourani, "AI-Based Kinematic Analysis for Track Athletes," in *2024 IEEE International Conference on Smart Computing (SMARTCOMP)*, Osaka, Japan, 2024, pp. 338–343.
10. **M. Habibi**, Z. Delaram, and M. Kouchaki, "HOPNET Enhanced Routing Protocol Using Bee Colony (Bee-HOPNET)," in *18th International Conference on Recent Research in Science and Technology*, Dec. 16, 2019.