

Jiashuo Zhang

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EDUCATION

Johns Hopkins University

M.S. in Computer Science · GPA: 3.96/4.0

Coursework: Machine Learning for Healthcare, Deep Learning, Computer Vision, Vision as Bayesian Inference, etc.

Dec. 2025

Baltimore, MD

Shandong University

B.E. in Software Engineering · GPA: 89.29/100

June 2024

Jinan, China

PUBLICATIONS

[CHIL 2026] Wang, A., **Zhang, J.**, Oberst, M. Revisiting Performance Claims for Chest X-Ray Models Using Clinical Context. *arXiv preprint arXiv:2509.19671*. (2025).

[arXiv] Zhang, Y., **Zhang, J.**, Safari, M., Yang, X., Zhao, L. Explainable Cross-Disease Reasoning for Cardiovascular Risk Assessment from LDCT. *arXiv preprint arXiv:2511.06625*. (2025).

[J. Chem. Inf. Model.] **Zhang, J.**, Wang, R., Wei, L. MuLiPred: Multi-Level Contrastive Learning for Predicting Nucleic Acid Binding Residues of Proteins. *Journal of Chemical Information and Modeling* 64, 1050–1065. (2024).

INDUSTRY EXPERIENCE

Visilant Inc.

Machine Learning Engineer · Part-time

Feb. 2026 – Present

Baltimore, MD

- Led design and implementation of an auto-capture pipeline integrating multi-stage validation to enhance anterior segment image quality.
- Participated in training segmentation models and supervised fine-tuning of vision-language models.

Bosch

Software Engineer · Internship

Oct. 2023 – Mar. 2024

Suzhou, China

- Developed full-stack web application with Angular and ASP.NET Core, integrating Microsoft RESTful APIs and validating backend services via Postman and Node-RED.
- Implemented OpenID Connect (OIDC)-based Single Sign-On to streamline authentication across existing systems.

RESEARCH EXPERIENCE

Retrieval-Augmented Generation System for Evidence-Based Nursing Shared Decision-Making

Supervisor: Prof. Michael Oberst, Johns Hopkins University

- Built a RAG system enabling nurses to query clinical guidelines via a conversational interface, with answer generation grounded in authoritative sources.
- Introduced a vector-database-free retrieval strategy using LLM-based semantic section routing, outperforming FAISS vector retrieval at practical top- k settings while retrieving fewer, higher-quality sections.
- Designed prompting strategy and citation rendering pipeline to ground responses in verbatim guideline text, enabling direct traceability to exact guideline sections.

Explainable Cross-Disease Reasoning for Cardiovascular Risk Assessment from LDCT

Supervisor: Prof. Liang Zhao, Emory University

- Preprocessed and curated large-scale DICOM data from the National Lung Screening Trial (NLST) cohort, including quality control, volumetric resampling, and cardiac ROI extraction.
- Built a multimodal fusion architecture combining lung risk prior, 3D cardiac feature extractor, and LLM-based pulmonary-to-cardiac reasoning for cardiovascular risk prediction.
- Conducted experiments and ablation studies, achieving state-of-the-art CVD screening AUROC of 0.919.

Revisiting Performance Claims for Chest X-Ray Models Using Clinical Context

Supervisor: Prof. Michael Oberst, Johns Hopkins University

- Revealed hidden stratification in CXR benchmarks by showing that vision model performance degrades systematically for patients with high pre-test disease probability derived from prior clinical notes.
- Introduced prior mention as a stratification axis, identifying performance disparities based on explicit disease-relevant term presence in prior clinical notes.
- Contributed to experimental analyses and robustness evaluations across model architectures and disease labels.

Assisted Auto-Capture System for Enhancing Anterior Segment Image Quality

Supervisor: Prof. Kunal Parikh, Johns Hopkins Medicine & Visilant Inc.

- Developed an Android application integrating a fine-tuned YOLO11n model for real-time anatomical structure detection (pupil, iris, eye) with 99.5% mAP50 and <20ms inference on mid-range smartphones.
- Designed multi-stage auto-capture pipeline with sequential validation of framing, distance, centering, and gaze direction, with real-time voice/visual guidance to direct user positioning.
- Implemented post-capture sharpness scoring via Laplacian variance on detected iris ROI, enabling burst capture with ranked quality selection.

Multi-Level Contrastive Learning for Nucleic Acid Binding Residues of Proteins

Supervisor: Prof. Leyi Wei, Shandong University

- Proposed BERT-based framework for unified DNA- and RNA-binding residue prediction, achieving state-of-the-art AUROC of 0.86/0.84 on benchmark datasets.
- Introduced dual contrastive learning at residue level to address class imbalance between binding and non-binding residues, and at type level to align molecule-type-specific binding representations.
- Conducted ablation studies on feature vector selection, type information fusion, and dimensionality reduction to determine the optimal model configuration.

PRESENTATIONS

Zhang, J., Skalnes, E., Orellana, A., Martin, S., Commodore-Mensah, Y., Dennison Himmelfarb, C., Chen, Y., Oberst, M. [Development and Evaluation of an AI Agent to Augment Multidisciplinary Care Teams in Shared Decision-Making for Improving Cardiovascular Health](#). *2026 Welch Center Research Day*. Baltimore, MD, Apr. 2026.

Zhang, J., Skalnes, E., Commodore-Mensah, Y., Dennison Himmelfarb, C., Chen, Y., Oberst, M. [Guideline and Evidence-Based Shared Decision-Making: Healthcare Knowledge Q&A System](#). *The 9th Annual Johns Hopkins Research Symposium on Engineering in Healthcare*. Baltimore, MD, Dec. 2025.

HONORS & AWARDS

Bachelor's Degree with Honors, Shandong University

2024

Awarded to 14 of 476 graduates in the School of Software, Class of 2024.

Academic Scholarship, Shandong University

2021, 2022