

Professional Summary | Senior Researcher | 10+ Years in Computer Vision & Generative AI

PhD-trained Senior Researcher & Machine Learning Engineer with 10+ years of experience designing, developing, and deploying scalable deep learning systems. Proven expertise in managing the full ML lifecycle—from requirements gathering data and model development (including recommendation, classification, and optimization solutions) to production deployment on distributed and GPU-accelerated environments. Adept at collaborating with cross-functional teams to deliver business-impact solutions.

Key Skills

- **Machine Learning / AI:**
 - End-to-end ML Lifecycle Management
 - Recommendation Systems, Classification, Pattern Recognition, Data Mining
 - Deep Learning (CNNs, VAEs, GANs, Diffusion Models, Self-Supervised Learning)
 - Model Optimization & Scalability (e.g., quantization, distributed training, Binarization)
- **Software Engineering & Systems:**
 - Proficient in Python, Shell Scripting; working knowledge of JavaScript, PHP, and C++
 - Agile Development, Code Reviews, Testing, CI/CD
 - Experience with distributed clusters, and GPU-based environments
 - Containerization & Orchestration: Docker, Kubernetes, Airflow
 - Cloud Platforms: AWS SageMaker; Linux environments
- **Technical Domains:**
 - Medical Imaging & Pharmaceutical Applications
 - Embedded Systems and Real-Time Inference
 - Large-scale data processing and scalable software architectures

Professional Experience

Senior Researcher (AI/ML)

Children's Hospital of Orange County (CHOC), Irvine, CA | **2022–Present**

- **Led end-to-end development** of self-supervised CV pipelines for pediatric disease detection, reducing manual annotation costs via custom SSM and CNN-Transformer frameworks.
- **Deployed Docker/Kubernetes-based segmentation models** for MRI analysis, improving diagnostic accuracy by **25%** in neonatal care (aligns with pharmaceutical imaging needs).
- **Cleft lip automated annotation tool** provided a Windows based, Web application (under construction) for physicians at CHOC and UCI

Consultant (AI Systems Optimization)

Rekovar Inc., Lake Forest, CA | **2024–Present**

- **Optimized CNN models (TensorRT)** for embedded neonatal sensors,
- **Quantize AI models (TFLite)** for embedded devices, ensuring scalable deployment in resource-constrained environments.
- **Worked alongside software engineering** teams to integrate ML deliverables into existing platforms, focusing on cross-functional collaboration, proactive testing, and continuous integration practices.

- **Advised on research grants** for the future research direction
- **Explored and prototyped recommendation algorithms** to improve personalized sensor data analysis and clinical feedback loops.

Research Bioinformatician II

Cedars-Sinai Medical Center, Los Angeles, CA | **2022–2023**

- **Designed explainable VAE frameworks** for spatial transcriptomics,
- **Architected PyTorch-based WSI analysis pipeline**, reducing processing time from hours to minutes for large-scale biomedical datasets.

Postdoctoral Researcher (AI Innovation)

Stanford University School of Medicine | **2020–2022**

- Enabled causal variant discovery in Alzheimer's research (published in Nature Machine Intelligence) by designing scalable deep learning models integrated within robust data pipelines.

Postdoctoral Researcher (AI Innovation)

Tulane University School of Medicine | **2018–2020**

- Developed multi-modal models and causal modeling frameworks that integrated brain imaging and genomic data, resulting in enhanced predictive capabilities for neurological research.

Education

Postdoctoral Researcher, *Stanford University, School of Medicine, Stanford, CA, 2020 – 2022*

Postdoctoral Researcher, *Tulane University, New Orleans, LA, 2018 – 2020*

Ph.D. in Electrical Engineering (computer vision), *Yonsei University, Seoul, South Korea, 2013 – 2018*

M.Sc. in Computer Science, *Kharazmi University, Tehran, Iran, 2010 – 2013*

B.Sc. in Applied Mathematics, *Basic Sciences University, Guilan, Iran, 2004– 2008*

Awards

2013~2018 Among top students of Electrical Engineering Department, Yonsei University.

2015 ICCAS 2015, Best Student Paper Award, Busan, South Korea.

2013 ~ 2017 Granted 4 years Scholarship (Outstanding Foreign Student), Yonsei University.

2011~2013 Among top students of Computer Science Department, Kharazmi University.

Technical Leadership & Innovation

Generative AI & Data Augmentation:

Pioneered novel ML/CNN frameworks for generative AI & data augmentation to boost training data diversity.

Optimization & Scalability:

Reduced SVM training time by 90% using approximate violation constraint minimization and led efforts to integrate distributed training and GPU acceleration.

Quality & Best Practices:

Thorough code reviews, automated testing, and CI/CD pipelines—to ensure high-quality, production-ready deployments.

Selected Papers

MICCAI 2025 (Submitted)	H. Kassani, P., et. al, "Dual Attention Mechanism in Pixel Grouping for Patent Ductus Arteriosus Prediction"
ICCV 2025 (Submitted)	H. Kassani, P., "Revisiting Sharpening Effects in Cosine Similarity Convolutions for Improved Feature Extraction"
NeurIPS 2025 (Will be submitted)	H. Kassani, P., "Accelerating SVM Training with Leveraging Linear Programming and Mini-Batch SGD"
Nature Pediatric Research 2023	H. Kassani, P., Emheurepha, L, Martin-King, C., Gibbs, M, "Developing explainable deep neural networks for juvenile dermatomyositis prediction through nailfold images"
Nature Machine Intelligence 2022	H. Kassani, P., Lu, F., Guen, Y.L., He, Z., "Deep neural networks with controlled variable selection for the identification of putative causal genetic variants"

Relevant courses

Explainable Deep Learning, Support Vector Machines, Granger Causality, Digital Image Processing, Special Topics in Pattern Recognition, Statistical Pattern Recognition, Neural Networks, Special Topics in Biometrics, Linear Algebra, Graph Theory, Convex Optimization

References

Available on request