

ILKIN ISLER, Ph.D.

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PROFESSIONAL SUMMARY

Senior AI Engineer working in a forward-deployed role: meets with business teams, scopes complex business needs, and builds the AI solution from first prototype to trusted production. Builds models, not just uses them: Ph.D. in Computer Science focused on designing novel neural network architectures, with hands-on work across computer vision, NLP, LLMs, agentic systems, automation, and dataset creation. Built RAG, hallucination detection, and evaluation systems and an enterprise AI platform from scratch, designed to enterprise security and governance standards. Leads an AI engineering team across AI infrastructure, finance automation, and cost estimating.

TECHNICAL SKILLS

Languages & Cloud: Python, SQL (database schema design, data modeling), Azure, Google Cloud (Cloud Run)

LLMs & Frameworks: Azure OpenAI, OpenAI, Anthropic Claude, LlamaIndex, LangChain, LangGraph, FastAPI

Search & Vector Databases: SQLite FTS5 (full-text search), pgvector (Postgres), Pinecone, Weaviate, Qdrant, Chroma, FAISS

LLM & Agentic AI: Retrieval-Augmented Generation (RAG), Hybrid Search (BM25 + Vector), Document Ingestion Pipelines, Multi-Agent Systems, Agent Orchestration, Model Context Protocol (MCP) Server Development, Function Calling and Tool Use, Agent Skills, LLM Integration, Prompt Engineering, Vision-Language Model Fine-Tuning

Evaluation & Trustworthy AI: Hallucination Detection, Groundedness Evaluation, Vectara HHEM, Citation Verification, LLM-as-Judge, RAGAS, DeepEval, BERTScore, ROUGE, Mean Reciprocal Rank (MRR), Benchmark Dataset Creation, Synthetic Data Generation for RAG Evals, Failure Analysis, Uncertainty Quantification, Explainable AI, AI Safety and Governance

Deep Learning & Computer Vision: PyTorch, Multi-GPU Distributed Training (PyTorch DDP), Multi-Source Dataset Curation, Data Augmentation, MONAI, Neural Network Architecture Design, Self-Supervised Pretraining, Transfer Learning & Fine-Tuning (Swin UNETR, foundation models), Custom Loss Function Design, Medical Image Segmentation, Segmentation Metrics (Dice, HD95), NLP, Anomaly Detection

AI Platform & Architecture: Enterprise AI Architecture, Human-in-the-Loop Systems, Access Control (RBAC, ABAC), Model-Serving APIs, Workflow Automation, Observability and Monitoring

PROFESSIONAL EXPERIENCE

UNIVERSAL CREATIVE

Orlando, FL

Senior AI Engineer, *AI Strategy & Solutions*

Aug 2025 – Present

- Lead the AI engineering team as technical lead and accountable owner across the enterprise AI platform, finance, and cost-estimating workflows.
- Architected and built an in-house enterprise AI platform for deploying, orchestrating, governing, and monitoring AI tools, agents, and multi-agent workflows, including MCP servers, tool calling, and agent skills, across multiple business units.
- Co-developed an enterprise ingestion pipeline that makes large volumes of structured and unstructured documents searchable, including invoices, RFIs, presentations, emails, and screenshots.
- Built LLM evaluation pipelines that score hallucination, groundedness, citation correctness, and factual consistency, used to gate new methods before production, monitor live assistants, and select the best grounded answer at runtime or decline when none is grounded.
- Co-authored AI engineering guidance covering build and deployment, retrieval, topic modeling, metadata tagging, hallucination detection, evaluation, and data security; ran AI lunch-and-learns and advised senior leaders on AI adoption.
- Built human-in-the-loop AI tools that replace spreadsheet-heavy finance reporting and forecasting with a single, adaptable source of truth.
- Architected a human-in-the-loop cost-estimating system of purpose-built AI tools that generate scope from design drawings, structure messy scope lists into estimates, and retrieve historical pricing.
- Building a project-tracking tool that unifies design, scheduling, estimating, budgeting, and finance data into one view for senior leadership.

AI Software Engineer, *Engineering & Safety*

Jan 2025 – Aug 2025

- Independently researched and built a retrieval-enabled chatbot over engineering specifications, including its RAG, hallucination detection, groundedness scoring, citation verification, topic modeling, metadata tagging, and structured information extraction, evaluated with self-built benchmark datasets, including synthetic question-answer data generated for RAG evaluation, and metrics (MRR, RAGAS, DeepEval, BERTScore, ROUGE, LLM-as-judge); this work grew into the core of the enterprise AI platform.

UNIVERSITY OF CENTRAL FLORIDA, COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

Orlando, FL

Graduate Teaching Assistant

Aug 2023 – Dec 2024

- Assisted with Advanced Artificial Intelligence and Advanced Computer Networks courses, and taught ~4 lectures.

Graduate Research Assistant

Jan 2021 – Aug 2023

- Designed novel 3D neural network architectures and compound loss functions combining overlap and boundary-distance objectives for tumor and organ-at-risk segmentation, trained with multi-GPU distributed training (PyTorch DDP) on ~1,000 3D CT and MRI volumes merged and harmonized from multiple datasets, expanded with extensive data augmentation; self-supervised and uncertainty-guided coarse-to-fine approaches achieved state-of-the-art results at publication (IEEE ICECCME 2023, IEEE ACDSA 2025), including raising Swin UNETR Dice from 0.47 to 0.64, and an improved U-Net reached ~80% vs. 63% Dice over baseline (SPIE Medical Imaging 2022).
- Developed uncertainty quantification, explainability, and anatomy-aware post-processing methods that guided the model to refine its uncertain regions, improving accuracy, and gave clinicians uncertainty estimates showing when to rely on its output; validated reliability with a broad set of segmentation metrics, including Dice and HD95, alongside confidence and failure analysis.
- Led multi-institutional collaborations, including with Northwestern Radiology, and co-authored a five-center pancreas segmentation study (767 MRI scans from 499 participants, plus CT from 1,350 patients) published in Medical Image Analysis.

Earlier Experience

- Python Developer (Contract), Universal Orlando Resort** (Orlando, 2022): strengthened the security and performance of cloud data pipelines and optimized ML workflows with Azure Databricks and MLflow.

- **Data Analyst, Simsoft Information Technologies** (Ankara, 2020): built LSTM models for anomaly detection and predictive maintenance on industrial sensor data; modeled COVID-19 spread.
- **Research Intern, UCF Synthetic Reality Lab** (Orlando, 2019): applied GANs to facial expression recognition and human-to-avatar translation.
- **Data Analyst Intern, Carbon Health** (San Francisco, 2018): built predictive models that cut clinic wait times by 30%.

EDUCATION

Ph.D., Computer Science , University of Central Florida, Orlando, FL	Aug 2025
Dissertation: <i>Advanced Deep Learning Algorithms for Medical Imaging Applications: Tumor and Organ at Risk Segmentation</i>	
UCF College of Graduate Studies Presentation Fellowship (2021)	
MS, Computer Science , University of Central Florida, Orlando, FL	Dec 2022
BS, Computer Science , Hacettepe University, Ankara, Turkey	June 2020

PUBLICATIONS & ACADEMIC SERVICE

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- Zhang, Z., ..., **Isler, I.**, et al. Large-scale multi-center CT and MRI segmentation of pancreas with deep learning. *Medical Image Analysis*, 2025.
 - **Isler, I.**, Mohaisen, D., Lisle, C., Turgut, D., Bagci, U. Uncertainty-Guided Coarse-to-Fine Tumor Segmentation with Anatomy-Aware Post-Processing. *IEEE ACDSA*, 2025.
 - Jha, D., ..., **Isler, I.**, et al. Practical and Ethical Considerations for Generative AI in Medical Imaging. *MICCAI Workshop*, 2024.
 - **Isler, I.**, Jha, D., Lisle, C., et al. Self-Supervised Learning for Organs At Risk and Tumor Segmentation with Uncertainty Quantification. *IEEE ICECCME*, 2023.
 - **Isler, I.**, Lisle, C., Rineer, J., et al. Enhancing Organ at Risk Segmentation with Improved Deep Neural Networks. *SPIE Medical Imaging*, 2022.
- Peer Reviewer:** Medical Physics; IEEE Journal of Biomedical and Health Informatics; IEEE Transactions on Medical Imaging

ADDITIONAL

Project: ilkinisler.com, a personal site with a grounded AI assistant: hybrid BM25 + embedding retrieval, LLM answers scored for groundedness with Vectara's HHEM model (declining below a confidence threshold), and a FastAPI backend deployed on Google Cloud Run.

Media: Featured in UCF News, *The Mind to Move Mountains* (2026).

Athletics: Competitive powerlifter: four-time USA Powerlifting Florida state record holder, two-time Overall Champion of Türkiye, 1st Place Overall at the IPSU European Championship