Natasa Manousopoulou

5-year project portfolio

Healthcare

Medical imaging feature identification

Automate the extraction of exam features from DICOM based images using LLMs and multimodal GenAI models on metadata and pixel data.

Technologies

Large Language Models (incl. Open AI)

Multimodal GenAI

DICOM protocol

Augmented reality in a wet lab

Enable wet lab technicians to follow experiment scripts, capture multi modal notes, and get help in a hands-free manner, using augmented reality on a HoloLens device.

Technologies

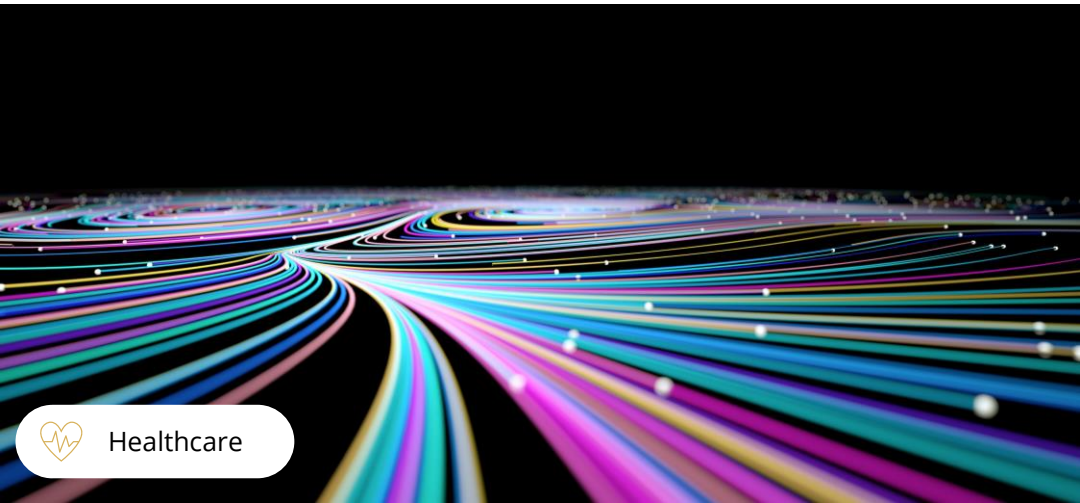
HoloLens
Speech recognition
Computer vision AI models

FHIR integration services

Within the context of a Health Platform that integrates healthcare service providers and manages patient pathways, orchestrate data integration with services that provide data based on the FHIR standard.

Technologies

Azure FHIR Data Services
Kubernetes
Azure DevOps
Azure API Management



Humanly readable FHIR data through LLMs

Use Large Language Models to generate humanly readable summaries of patient information for their own personal use, applying Responsible AI mitigations to protect the patients.

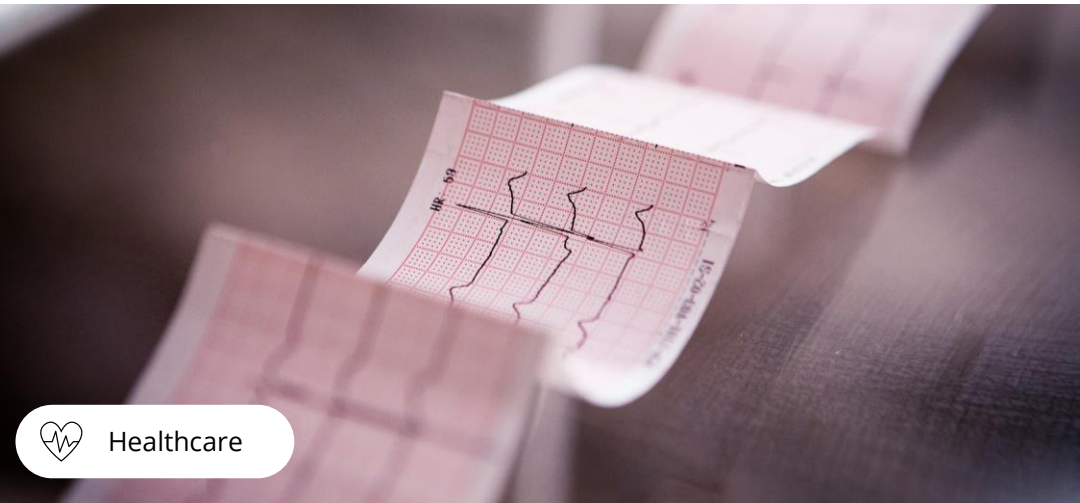
Technologies

Open AI

Azure AI Studio

Python

Jupyter notebooks



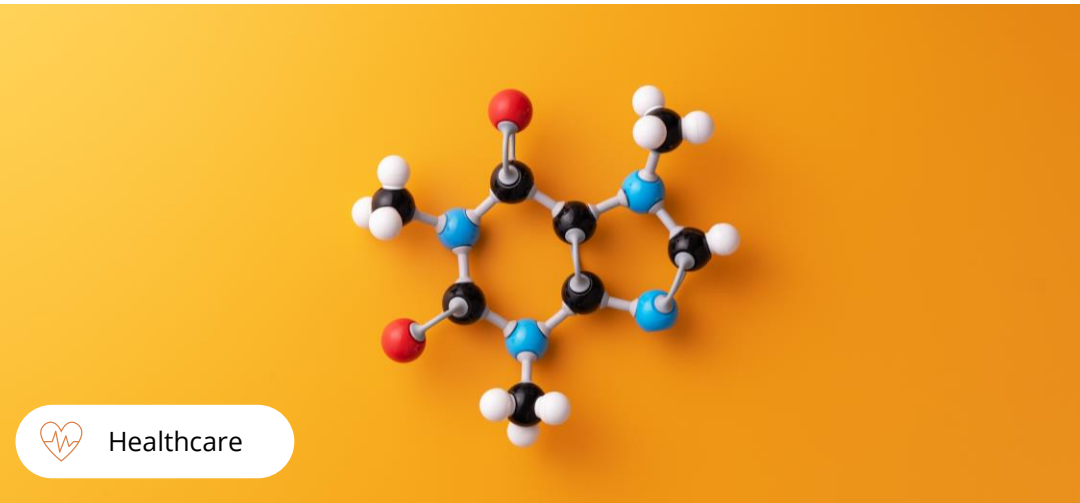
Healthcare

Generative chemistry

Operationalize proprietary deep learning models for Generative Chemistry to integrate them into the drug discovery process in the pharmaceutical industry.

Technologies

Azure Machine Learning
Kubernetes
Python
Jupyter notebooks



Healthcare

Data extraction from pre-clinical reports

Use document intelligence and Generative AI techniques to extract precise data values from preclinical reports in the pharmaceutical industry to accelerate drug design.

Technologies

Azure Document Intelligence
Open AI
Azure AI Studio
Python

Healthcare

Review marketing content with AI

Use Generative AI to identify common issues in pharmaceutical marketing content in order to accelerate the review cycles and time to market.

Technologies

Open AI
Azure AI Studio
Python
Jupyter notebooks
Veeva Vault

Healthcare

Remote patient monitoring

Integrate at-home medical monitors used by child patients with the hospital's systems to allow remote monitoring and reduce outpatient visits for pediatric clinics.

Technologies

Azure Health Data Services
IoMT connector

Healthcare

Clinical trials report generation

Use Artificial intelligence to accelerate the authoring of clinical trial reports especially with respect to Serious Adverse Event reporting.

Technologies

Azure Machine Learning
Python
Jupyter notebooks

Healthcare

Trusted research environments

Establish automated, secured environments for data analysis and medical research on patient and other protected data sets from data ingestion to results export and model serving.

Technologies

Azure compute
Azure networking
Terraform
Azure Machine Learning

Medical imaging data anonymization

Apply widely used PII anonymization services, such as Presidio, together with computer vision, to identify and remove PII from text and pixel data of DICOM images.

Technologies

Python
Azure Machine Learning
OCR
Presidio

Healthcare

Pre-authorization of medical prescriptions

Apply Generative AI to identify and summarize relevant sections in patient documentation to accelerate the decision-making process in pre-authorization of prescriptions.

Technologies

Azure Document Intelligence
Azure Search
Open AI models
Python

Healthcare

Financial Services

Payment provider DevOps

Automate multi-level testing, security verification, and release approval processes to allow a payments provider bring new functionality to customers in less than 24 hours

Technologies

Azure DevOps
Azure Resource Manager
SAST and DAST tool integration

Data anonymization for cloud processing

Identify, remove, and audit PII in data that will be processed by cloud and 3rd party services as part of a comprehensive risk management strategy for banking.

Technologies

Kubernetes
Azure networking
Presidio

Financial Services

Transportation

Modernization of flight scheduling system

Simplify and containerize a legacy flight scheduling solution to allow its scalable deployment and gradual transition to a SaaS solution, with emphasis on tenant isolation and data security.

Technologies

Docker
Kubernetes
Azure compute
Azure SQL
Azure networking

Transportation

Public transport load prediction

Combine data from load sensors, historical information, weather, and other local data to predict public transport usage and provide just in time predictions to passengers.

Technologies

Azure Machine Learning
Python
Jupyter notebooks

Technology

Java SDK for an Azure service

Implement, test, and publish the Java SDK for one of the Azure services to expand programming language coverage for this service.

Technologies

Java Development Kit
Maven
GitHub
Azure DevOps

Technology

Recommendation engine for e-learning

Expand an e-learning platform with a recommendation engine that helps learners discover relevant learning paths and courses and increase platform adoption.

Technologies

Azure Machine Learning
Azure compute
Azure data

Technology