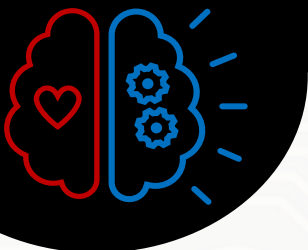
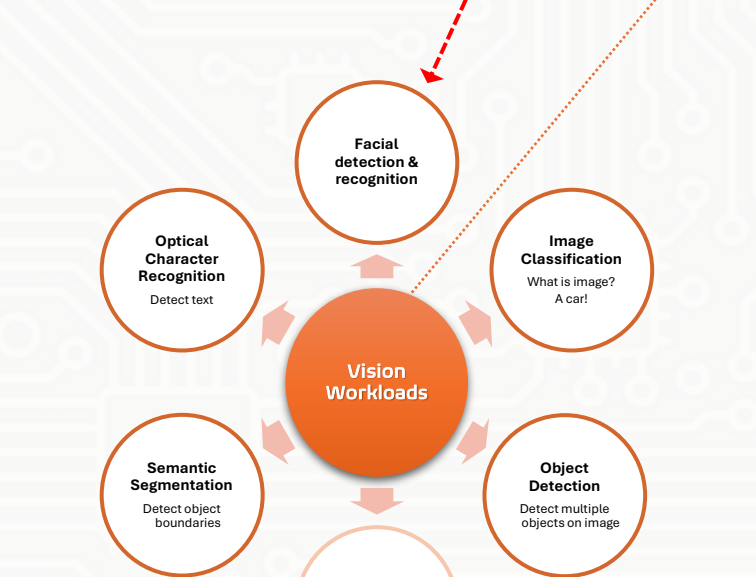


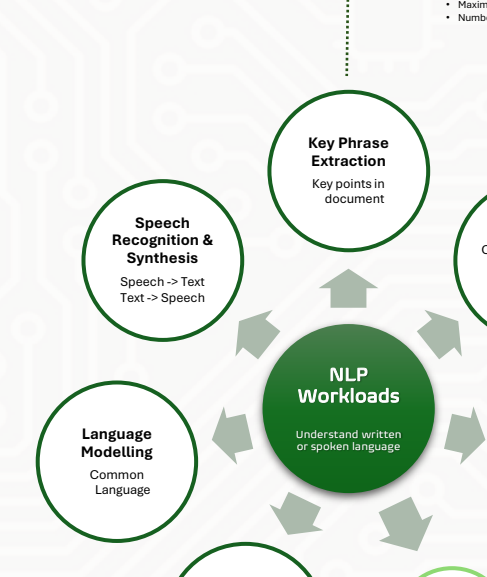
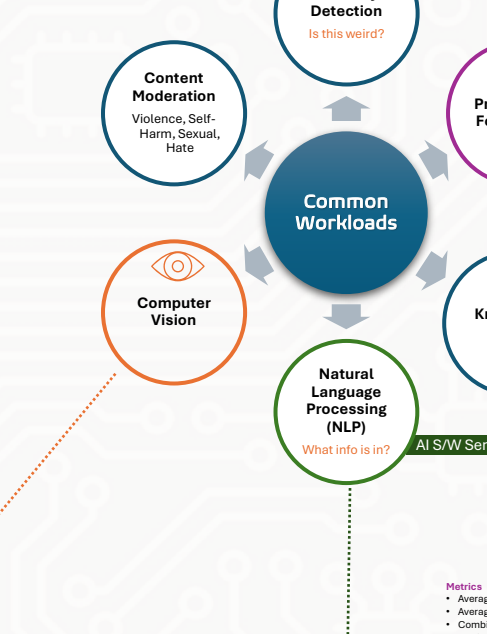
Azure AI-900 Artificial Intelligence (AI) Cheat sheet v2024.09.21



Azure Portal → AI Services → AI + Machine Learning



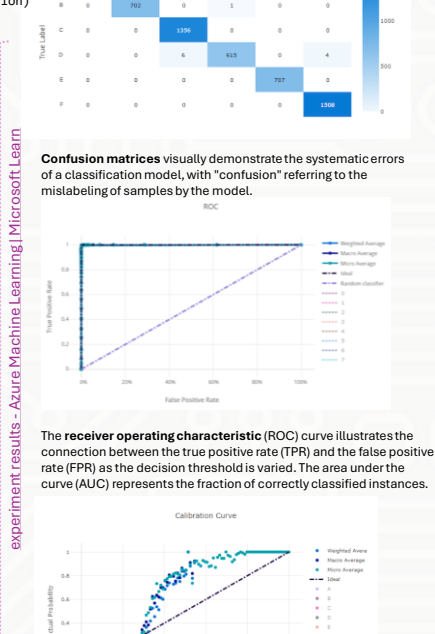
- Cognitive Services**
 - Umbrella service
 - Includes many other services
 - Computer Vision Services**
 - Pre-trained LM model
 - Can recognize and categorize 10,000 objects
 - Detect faces and text recognition
 - Custom Vision Services**
 - Model you can build and train
 - Classification or object detection (class name, probability score, bounding box)
 - Face Services**
 - Recognize a human face on an image
 - Returns coordinates of 1+ faces
 - Recognizes pre-trained celebrities
 - Face Detection**
 - Gender
 - Age
 - Face boundaries
 - Face Verification**
 - Compare faces
 - Identify if same individual
 - Similar Faces**
 - Identify similar faces
 - Face Grouping**
 - Divides a set of unknown faces into groups based on similarities
 - Identify API**
 - Identify (assign names) to faces
- Form Recognizer Service**
 - Ideal for invoices and receipts
 - Pre-built or custom model
 - Pre-built = English in USA
- AI Video Indexer**
 - Build on Az Media Services and Azure AI Services (Face, Translator, Vision, Speech)
 - Allows extraction of insights from videos
- Robot, 99.9%**
Removed from AI-900



- Text Analysis Service**
 - Key phrase extraction
 - Entity detection
 - Sentiment analysis (positive=1, neutral=0.5, negative=0)
 - Language detection
 - Returns NaN for undetermined
- Language Understanding Service (LUIS)**
 - Understand natural language
 - Utterances - when do you close?
 - Entities - today (date time)
 - Intents - goal: total hours of operation
 - No intent - what is the meaning of life?
- Speech Service**
 - Text to speech
 - Speech to text
 - Auto translation
 - Custom voice models
- Translator Text Service**
 - Translate between 70 languages
 - Custom models
 - Language detection
 - ISO 6391 Code
 - Language Name
 - Score
- Agents or Bots**
 - Conversational AI
 - Computer and humans talk
 - Operate over web, email, social media, and voice
- Conversational Services**
 - QnA Maker Service - codeless chatbot
 - Azure Bot Service - Enterprise grade



- Image Creation**
 - Art Impressionism
 - Face
- Text Generation**
 - ChatGPT
 - Copilot
- Code Generation**
- Responsible Generative AI**
- Music, Audio Generation**
 - Voice synthesis
 - Sound effects
- Video Generation**
 - Deep Fakes
 - Animation
- Others**
 - Discovery
 - Gaming
 - Security
 - Simulations
- Generative AI Workloads**
- Dangers**
 - Deep fakes
 - Impersonation
 - Harmful
 - Discriminating
- Process**
 - 1. Identify harm - what is worst case scenario?
 - 2. Measure harms - try to generate harmful content
 - 3. Mitigate harms - fine-tune model and filters, meta prompts, grounding data
 - 4. Operate responsibly - monitor, feedback, track telemetry



Confusion Matrix

	Actuals <X>	Actuals <Y>
Predictions <X>	TP (True Positive)	FN (False Negative)
Predictions <Y>	FP (False Positive)	TN (True Negative)

Metrics

- Accuracy = $\frac{TP+TN}{TP+TN+FP+FN}$
- Recall = $\frac{TP}{TP+FN}$
- Precision = $\frac{TP}{TP+FP}$
- Specificity = $\frac{TN}{TN+FP}$
- F1 Score = $\frac{2 * Recall * Precision}{Recall + Precision}$

Willy's Notes