Thank you for clarifying your request. You are correct; AI can be categorized based on both capabilities and functionalities. Here's an expanded list of AI categories based on these two dimensions:

**Based on Capabilities:**

1. **Narrow AI (Artificial Narrow Intelligence or Weak AI):**
   * **Machine Learning (ML):**
     + Supervised Learning
     + Unsupervised Learning
     + Reinforcement Learning
     + Semi-Supervised Learning
     + Self-Supervised Learning
     + Transfer Learning
     + Online Learning
   * **Natural Language Processing (NLP):**
     + Text Classification
     + Named Entity Recognition (NER)
     + Sentiment Analysis
     + Machine Translation
     + Speech Recognition
     + Question-Answering Systems
     + Text Generation
   * **Computer Vision:**
     + Image Classification
     + Object Detection
     + Image Segmentation
     + Facial Recognition
     + Optical Character Recognition (OCR)
     + Pose Estimation
     + Image Generation
   * **Generative AI:**
     + Generative Adversarial Networks (GANs)
     + Variational Autoencoders (VAEs)
     + Recurrent Neural Networks (RNNs)
     + Transformers
     + DeepDream and Neural Style Transfer
   * **Robotics:**
     + Autonomous Robots
     + Robot Manipulation
     + Robot Perception
     + Human-Robot Interaction
     + Swarm Robotics
     + Robot Learning
2. **General AI (Artificial General Intelligence or Strong AI):**
   * **Expert Systems:**
     + Knowledge Representation
     + Inference Engines
     + Rule-Based Systems
     + Fuzzy Logic Systems
     + Bayesian Networks
   * **Speech and Audio Processing:**
     + Speech Synthesis
     + Speech Recognition
     + Speaker Identification
     + Music Generation
     + Audio Classification
     + Audio Enhancement
   * **Recommender Systems:**
     + Collaborative Filtering
     + Content-Based Filtering
     + Hybrid Recommender Systems
     + Personalization Algorithms
     + Implicit Feedback Models
   * **Autonomous Vehicles:**
     + Self-Driving Cars
     + Drone Navigation
     + Path Planning
     + Object Detection and Tracking
   * **AI in Healthcare:**
     + Medical Image Analysis
     + Disease Diagnosis
     + Drug Discovery
     + Personalized Medicine
     + Health Monitoring

**Based on Functionalities:**

1. **Reactive Machines:**
   * Systems that respond to specific inputs with predetermined actions.
   * Lack the ability to learn or adapt from experience.
2. **Theory of Mind:**
   * AI systems capable of understanding human emotions, intentions, beliefs, and mental states.
   * Enables more advanced human-computer interactions.
3. **Limited Memory:**
   * AI systems with the ability to store and retrieve past experiences to inform decision-making.
   * Often used in robotics and navigation.
4. **Self-Aware AI:**
   * AI systems that possess a level of consciousness, self-awareness, or subjective experiences.
   * A theoretical concept often discussed in AI ethics and philosophy.

These categories and subcategories provide a comprehensive view of AI classification based on both capabilities and functionalities, as per your request.

Certainly, here are examples of each category and subcategory of AI:

**Narrow AI (Weak AI):**

1. **Machine Learning (ML):**
   * *Supervised Learning*: Image classification using a dataset of labeled images.
   * *Unsupervised Learning*: Clustering customer data to identify market segments.
   * *Reinforcement Learning*: Training an AI agent to play video games.
   * *Semi-Supervised Learning*: Text classification with a partially labeled dataset.
   * *Self-Supervised Learning*: Predicting missing words in a sentence.
   * *Transfer Learning*: Using pre-trained models for various NLP tasks.
   * *Online Learning*: Continuous updating of a recommendation system.
2. **Natural Language Processing (NLP):**
   * *Text Classification*: Categorizing news articles into topics.
   * *Named Entity Recognition (NER)*: Identifying names of people, places, etc., in text.
   * *Sentiment Analysis*: Determining sentiment in social media posts.
   * *Machine Translation*: Google Translate.
   * *Speech Recognition*: Apple's Siri or Amazon's Alexa.
   * *Question-Answering Systems*: IBM Watson's question-answering capabilities.
   * *Text Generation*: Generating human-like text using GPT-3.
3. **Computer Vision:**
   * *Image Classification*: Identifying objects in images.
   * *Object Detection*: Detecting and locating objects in images.
   * *Image Segmentation*: Identifying and separating objects within an image.
   * *Facial Recognition*: Unlocking a smartphone with face ID.
   * *Optical Character Recognition (OCR)*: Scanning printed or handwritten text.
   * *Pose Estimation*: Tracking body positions in sports analysis.
   * *Image Generation*: Creating realistic images using GANs.
4. **Generative AI:**
   * *Generative Adversarial Networks (GANs)*: Creating deepfake images and videos.
   * *Variational Autoencoders (VAEs)*: Generating new faces or artworks.
   * *Recurrent Neural Networks (RNNs)*: Generating text, e.g., predictive text in smartphones.
   * *Transformers*: Chatbots like GPT-3.
   * *DeepDream and Neural Style Transfer*: Creating artistic images.
5. **Robotics:**
   * *Autonomous Robots*: Self-navigating vacuum cleaners.
   * *Robot Manipulation*: Robots assembling products in manufacturing.
   * *Robot Perception*: Robots identifying objects in their surroundings.
   * *Human-Robot Interaction*: Robots assisting in healthcare or entertainment.
   * *Swarm Robotics*: Multiple robots working together for tasks like search and rescue.
   * *Robot Learning*: Robots learning from human demonstration.

**General AI (Strong AI):**

1. **Expert Systems:**
   * *Knowledge Representation*: Storing medical knowledge for diagnosis.
   * *Inference Engines*: Drawing conclusions from available information.
   * *Rule-Based Systems*: Providing legal advice based on rules.
   * *Fuzzy Logic Systems*: Controlling household appliances based on imprecise data.
   * *Bayesian Networks*: Assessing probabilities in financial decisions.
2. **Speech and Audio Processing:**
   * *Speech Synthesis*: Creating realistic voice assistants.
   * *Speech Recognition*: Transcribing spoken words into text.
   * *Speaker Identification*: Identifying speakers in recorded conversations.
   * *Music Generation*: AI-composed music like Jukedeck.
   * *Audio Classification*: Detecting environmental sounds for safety systems.
   * *Audio Enhancement*: Reducing noise in audio recordings.
3. **Recommender Systems:**
   * *Collaborative Filtering*: Recommending movies on Netflix.
   * *Content-Based Filtering*: Recommending products based on user preferences.
   * *Hybrid Recommender Systems*: Combining collaborative and content-based filtering.
   * *Personalization Algorithms*: Tailoring content on social media platforms.
   * *Implicit Feedback Models*: Suggesting products based on user behavior.
4. **Autonomous Vehicles:**
   * *Self-Driving Cars*: Tesla's Autopilot system.
   * *Drone Navigation*: Drones used for surveillance.
   * *Path Planning*: GPS systems providing optimized routes.
   * *Object Detection and Tracking*: Detecting obstacles on the road.

**Based on Functionalities:**

1. **Reactive Machines:**
   * Systems that respond to specific inputs with predetermined actions.
2. **Theory of Mind:**
   * AI systems capable of understanding human emotions, intentions, and beliefs.
3. **Limited Memory:**
   * AI systems with the ability to store and retrieve past experiences for decision-making.
4. **Self-Aware AI:**
   * Theoretical AI systems with a level of consciousness or self-awareness.

These examples showcase the diverse applications of AI across various categories and functionalities.

**Reactive Machines:**

* **Chess-Playing AI:** Chess engines like IBM's Deep Blue, which analyze the current state of the chessboard and make predetermined moves based on extensive databases of chess positions and strategies.
* **Roomba Vacuum Cleaner:** It navigates a room based on sensors and responds to obstacles and changes in terrain, following predefined algorithms.

**Theory of Mind:**

* **Social Companion Robots:** Robots like Pepper by SoftBank are designed to interact with humans and recognize emotions, adapting their responses based on the perceived emotional states of people.
* **Customer Service Chatbots:** AI chatbots used in customer support can understand and respond to customer emotions, providing empathetic responses.

**Limited Memory:**

* **Self-Driving Cars:** Autonomous vehicles use onboard sensors and past data to make driving decisions. They remember past routes, traffic conditions, and obstacles to navigate effectively.
* **Personalized Content Recommendation:** Services like Netflix use user viewing history and preferences to recommend content, demonstrating memory of past interactions.

**Self-Aware AI (Theoretical):**

* **Sophia the Robot:** While not fully self-aware, robots like Sophia are programmed to simulate self-awareness through scripted responses and facial expressions, creating the illusion of consciousness.
* **Science Fiction AI Characters:** Characters like HAL 9000 from "2001: A Space Odyssey" or Data from "Star Trek" represent fictional AI with advanced self-awareness.

Please note that the concept of self-aware AI is largely theoretical in practice, and current AI systems do not possess true consciousness or self-awareness.