PERSONALITY AND EMOTION FOR AI DESIGN

Bachelor in Computer Science and Artificial Intelligence

Professor: **RAÚL ARRABALES MORENO**

E-mail: rarrabales@faculty.ie.edu

Roadmap

15 Sessions of Personality, Emotion and AI

- Session 1. AGI & Psychological Processes
- Session 2. Models of the Mind
- Session 3. Preparing the Individual Work
- Session 4. Models of Human Emotion
- Session 5. Bioinspired AI

Roadmap

15 Sessions of Personality, Emotion and AI

- Session 6. Bioinspired Cognitive Architectures
- Session 7. Self and Consciousness
- Session 8. Preparing the Group Work
- Session 9. Individual Differences
- Session 10. Guided Group Work

Roadmap

15 Sessions of Personality, Emotion and AI

- Session 11. Models of Personality
- Session 12. Personality Traits and AI
- Session 13. Group Work Presentations
- Session 14. Group Work Presentations
- Session 15. Final exam

Session 8

GROUP WORK

"Designing the Personality of a Human-Like AI System"

Session 8

GROUP WORK

"Designing the Personality of a Human-Like AI System"

→ To build a chatbot able to show a specific human-like personality.

Session 8

GROUP WORK

Context:

- You are part of a startup company that sells electric vehicles online (**YEO**: *Your EV Online*).
- YEO's CEO wants to automate the sales process using an AI chatbot. She is a believer in the power of AI.
- YEO's Sales VP is reluctant. He doesn't believe that an AI can substitute his amazing sales team.
- Your mission is **to build a PoC to convince everyone that an AI bot with an outstanding personality will be able to perform as good as human sales executives**.

Session 8

GROUP WORK

Context:

- MAIN OBJECTIVE: to build a sales bot that shows a unique personality and knows how to adapt to the different psychological states of a given customer.

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GROUP WORK

Context:

- You are given the commercial data required by the bot to answer questions online users might have:
  - EV models and their features.
  - Price list.
  - Current offers and discounts.

```json
{
  "electric_vehicles": [
    {
      "brand": "Voltic Motors",
      "model": "EcoCharge X",
      "main_features": {
        "battery_capacity_kWh": 90,
        "range_miles": 300,
        "acceleration_0_60_mph": 4.5,
        "charging_time_hours": {
          "fast_charge": 1.5,
          "normal_charge": 8
        },
        "seating_capacity": 5
      },
      "price": 55000,
      "applicable_offers": {
        "federal_tax_credit": 7500,
        "manufacturer_discount": 2000,
        "trade_in_bonus": 1000
      }
    },
    {
      "brand": "ElectraDrive",
      "model": "ThunderBolt S",
      "main_features": {
        "battery_capacity_kWh": 75,
```

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GROUP WORK

→ **Step 1.** To design an artificial personality that might constitute a good AI sales bot (at least 2 traits). Explain why.

→ You can use the OCEAN model to select the traits that you think will improve customer experience:
https://en.wikipedia.org/wiki/Big_Five_personality_traits

→ You can experiment with other traits from different personality models:
https://en.wikipedia.org/wiki/Myers%E2%80%93Briggs_Type_Indicator

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GROUP WORK

→ **Step 2.** To decide what emotions or personality traits you might want to detect from customer's language (at least 1 emotion and 1 trait).

→ What emotions can be easily detected in a conversation and might be useful to improve the sales process?

→ What personality traits can be easily detected in a conversation and might be useful to improve the sales process?

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GROUP WORK

→ **Step 3.** To decide how the bot should react to different emotional states of the customer (at least 3 rules).

- → How to deal with customer frustration?
- → How to deal with customers that require more detailed information (which is not accessible to the bot).
- → How to leverage customer interests?
- → …

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GROUP WORK

→ **Step 4.** To implement a Proof of Concept (PoC) bot that demonstrate Steps 1, 2 and 3:

- → A sales bot able to answer questions about the EVs available in the online car store.
- → A bot that shows the designed personality (step 1).
- → A bot that can decode the emotions and personality of the customer (step 2).
- → A bot able to adjust its behavior as a function of user's psychological state (step 3).

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GROUP WORK

→ **Step 5.** To build a set of test cases (at least 4) with human participants acting as the customers of the EV shop:

- → You can ask classmates, friends and family to be participants in these tests.
- → The participants are expected to behave like credible potential EV customers.
- → Record the results of the tests (conversations).
- → Analyze to what extent the bot is able to achieve the expected results.
- → **Metric:** Ask the participants about their experience with the bot. Are they satisfied? Did they notice a particular personality of the bot? Did they feel that the bot adapted to their needs?

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GROUP WORK

IMPLEMENTATION:

→ **Option 1.** *Prompt Engineering with ChatGPT* (It doesn't require any code, fully based on prompts, can be demonstrated using OpenAI's free chat service). MAKE A GPT FOR THIS ONE TO COMPARE IT TO THE OPTION 2 AND 3 WITH ALL THE GIVEN DETAILS IN THE PREVIOUS SLIDES AND MAKE A CUSTOMISED GPT STORE

→ **Option 2.** *Prompt Engineering + Custom Code* (more versatility, requires coding experience. For example, Langchain Agents).

USE LANGCHAIN + NLP LIBRARIES + OpenAI's API to build the chatbot for this one with the given Json.

→ **Option 3.** Build the bot from scratch (full versatility but not recommended, too complex for a single course assignment).

FINAL OPTION

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GROUP WORK

DELIVERABLES:

→ **Class Presentation & Demo (50%).** Free format presentation of 20 minutes to show the class your bot working.

→ **Project Report (50%).** Free format document explaining how you solved steps 1, 2, 3, 4 & 5. Max. 5 pages + Annex for Prompts (and code if any).

Class Materials (Group Assignment)

SCHOOL OF HUMAN SCIENCES & TECHNOLOGY

Reading:

A Prompt Pattern Catalog to Enhance Prompt Engineering with ChatGPT

White et al.

> […] This paper describes **a catalog of prompt engineering techniques presented in pattern form** that have been applied to solve common problems when conversing with LLMs.[…]

https://arxiv.org/pdf/2302.11382.pdf