

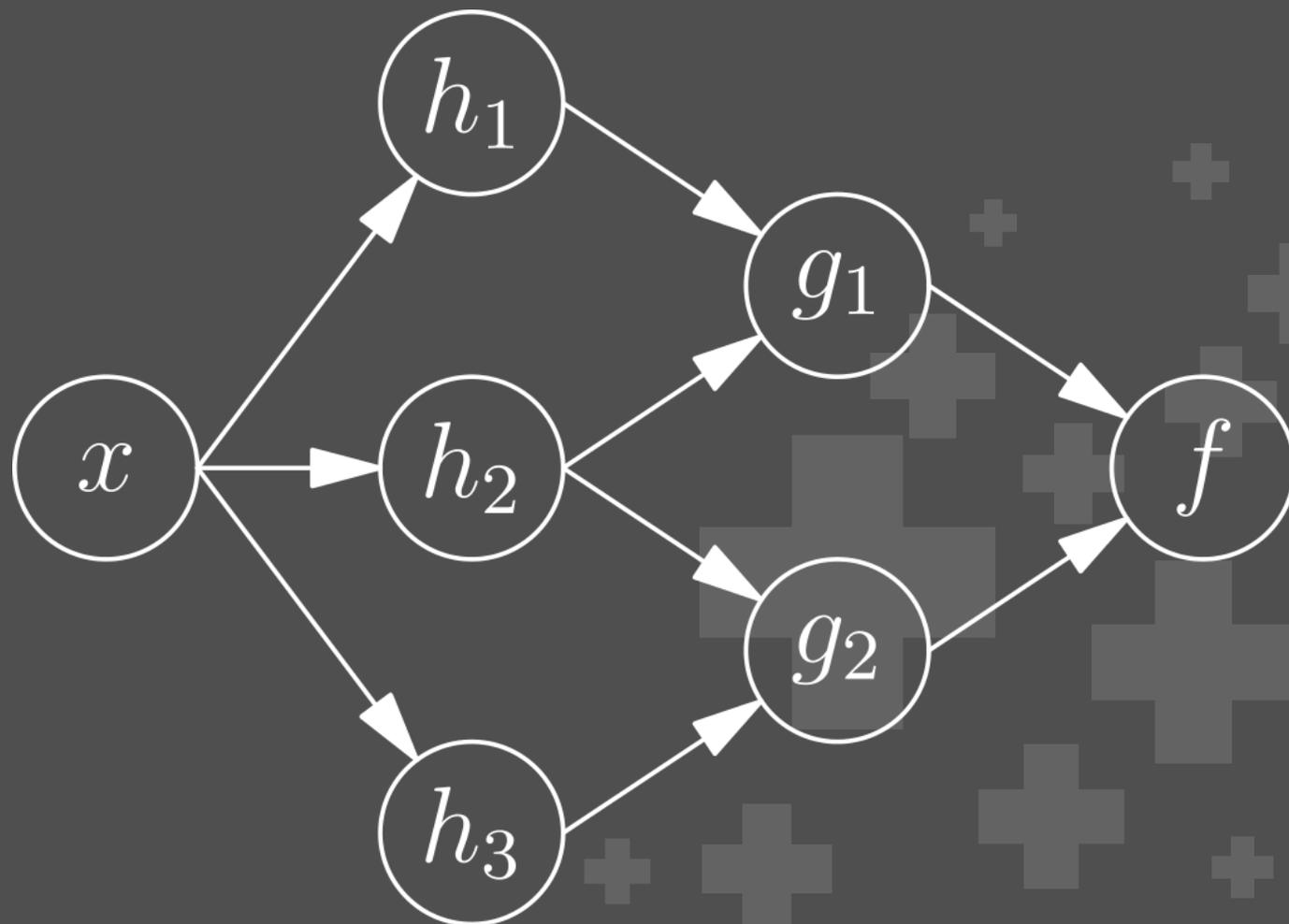
Thoughtful A.I.



# WHAT IS AI?

Based on the Artificial Neural Network, Artificial Intelligence is self-customizing process to complete tasks usually reserved for humans.

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“Before we work on artificial intelligence why don’t we do something about natural stupidity?”

—Steve Polyak

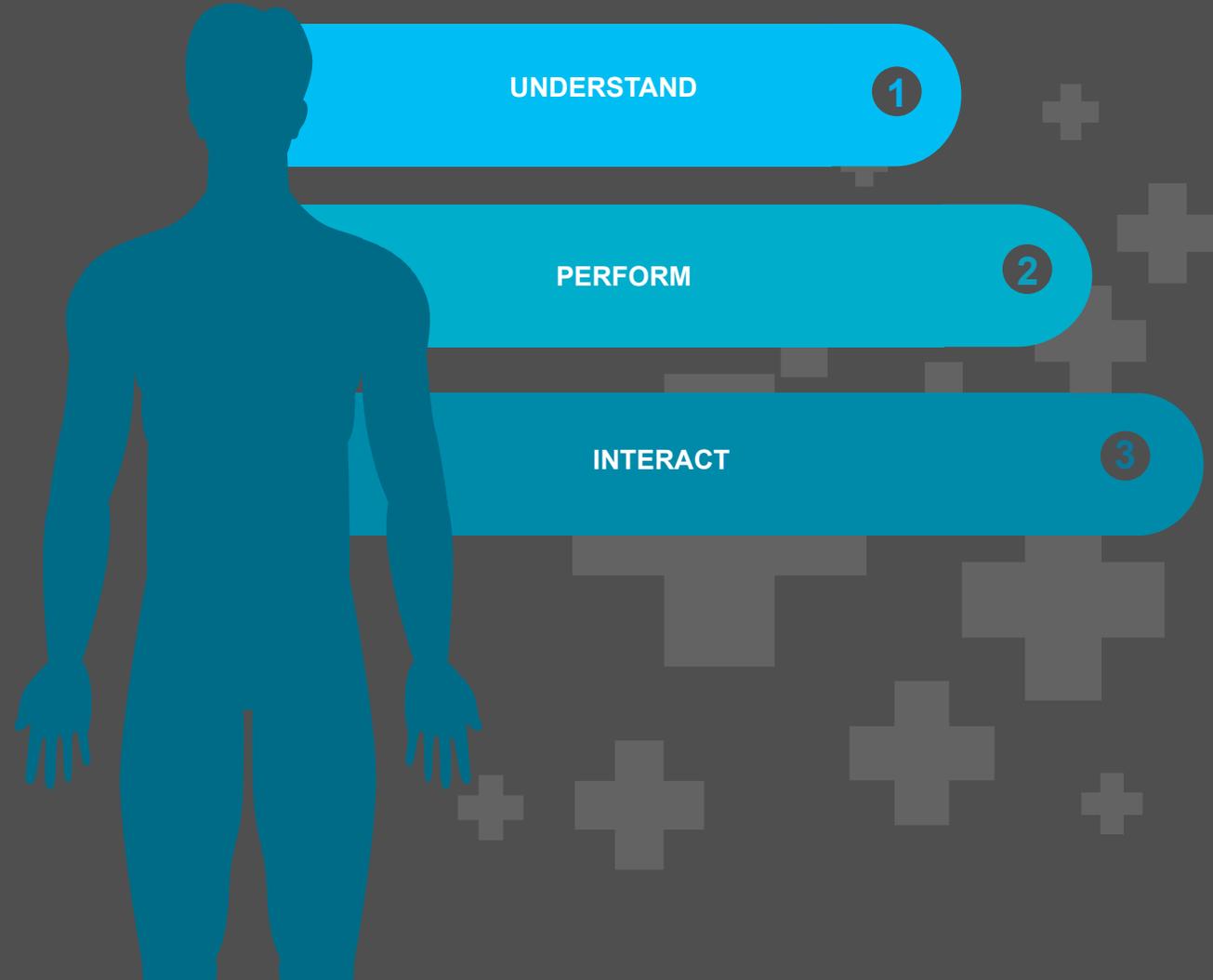
# WHAT DO WE NEED A.I. TO DO?

“Turing believes machines think.  
Turing lies with men.  
Therefore machines do not  
think.”

Yours in distress,

Alan”

-Alan Turing

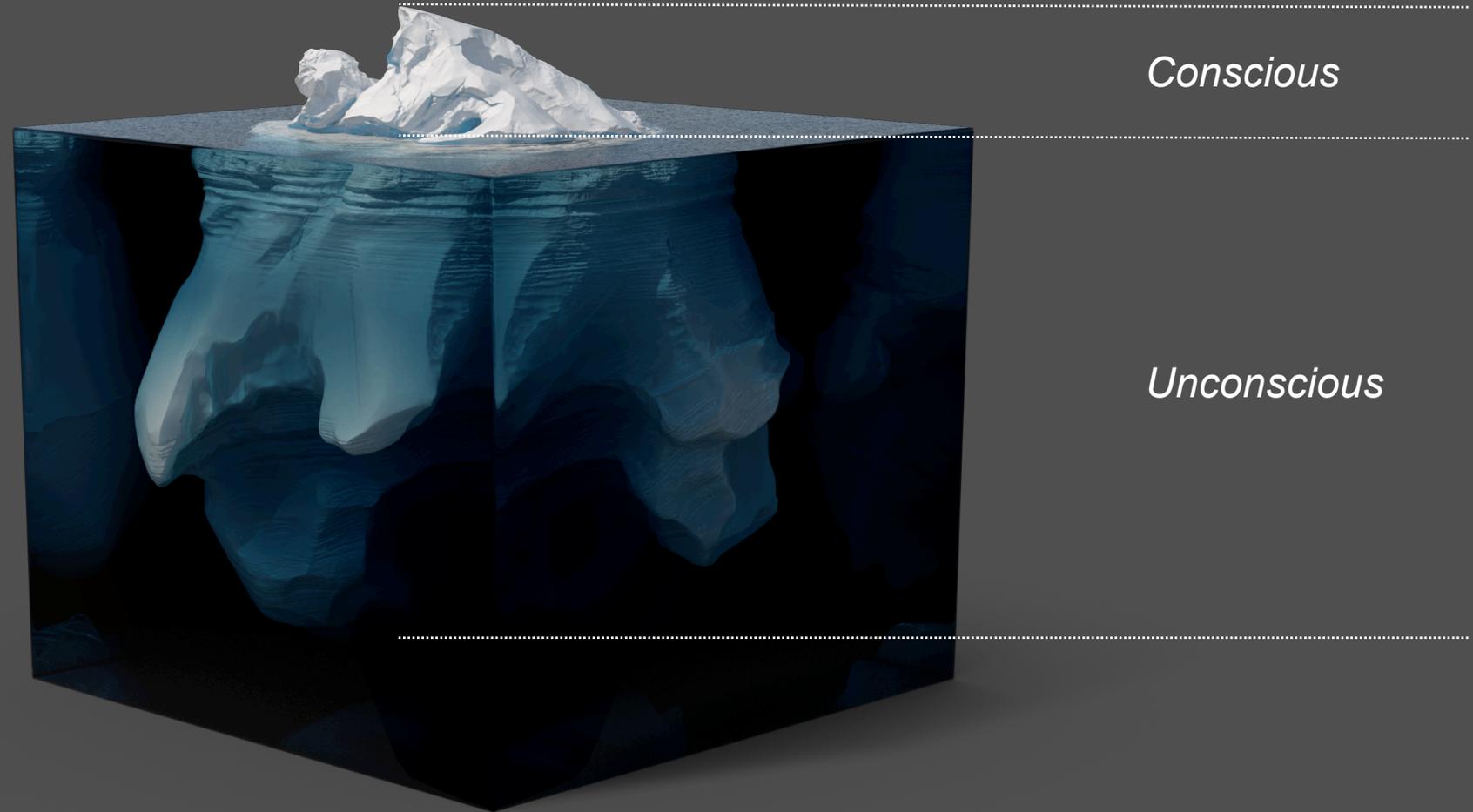




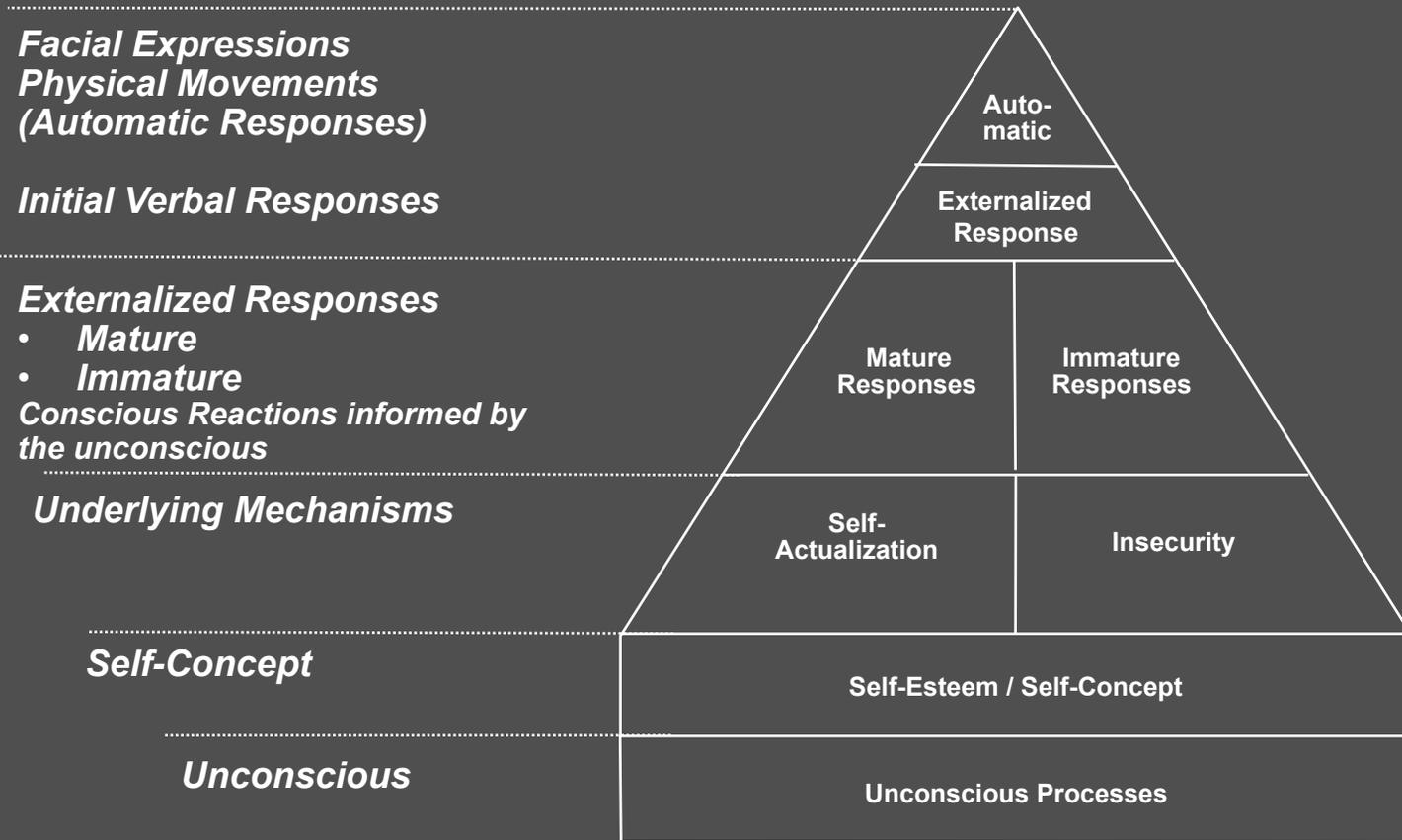
*Thoughtful A.I. Requires understanding human behaviors, emotions, and unconscious drives*



Reactions and Emotions are the Parts of the Iceberg seen from the Surface



# OVERVIEW OF HUMAN EMOTIONS AND RESPONSES



Many behaviors and reactions are based on unconscious mechanisms, like the “tell” in poker.

# *Facial Expressions*



## Facial Expressions result from

- Automatic responses (unconscious)
- Intention (conscious)
- Externalized responses (conscious + unconscious)



# LEARNING FROM HUMAN FACIAL REACTIONS

## POSITIVE

Euphoric  
Content  
Happy  
Furtive (+/-)  
Inquisitive  
Joyful  
Mischievous (+/-)  
Surprised (+/-)

## NEUTRAL

Absent (neutral/-)  
Deadpan  
Incredulous (neutral/-)  
Inscrutable  
Staring

## NEGATIVE

Angry  
Despondent  
Disappointed  
Disgusted  
Fearful  
Hostile  
Languishing  
Preoccupied  
Woeful



*Even when we have an exact term for a facial expression, it can be hard to classify as positive, neutral, or negative*

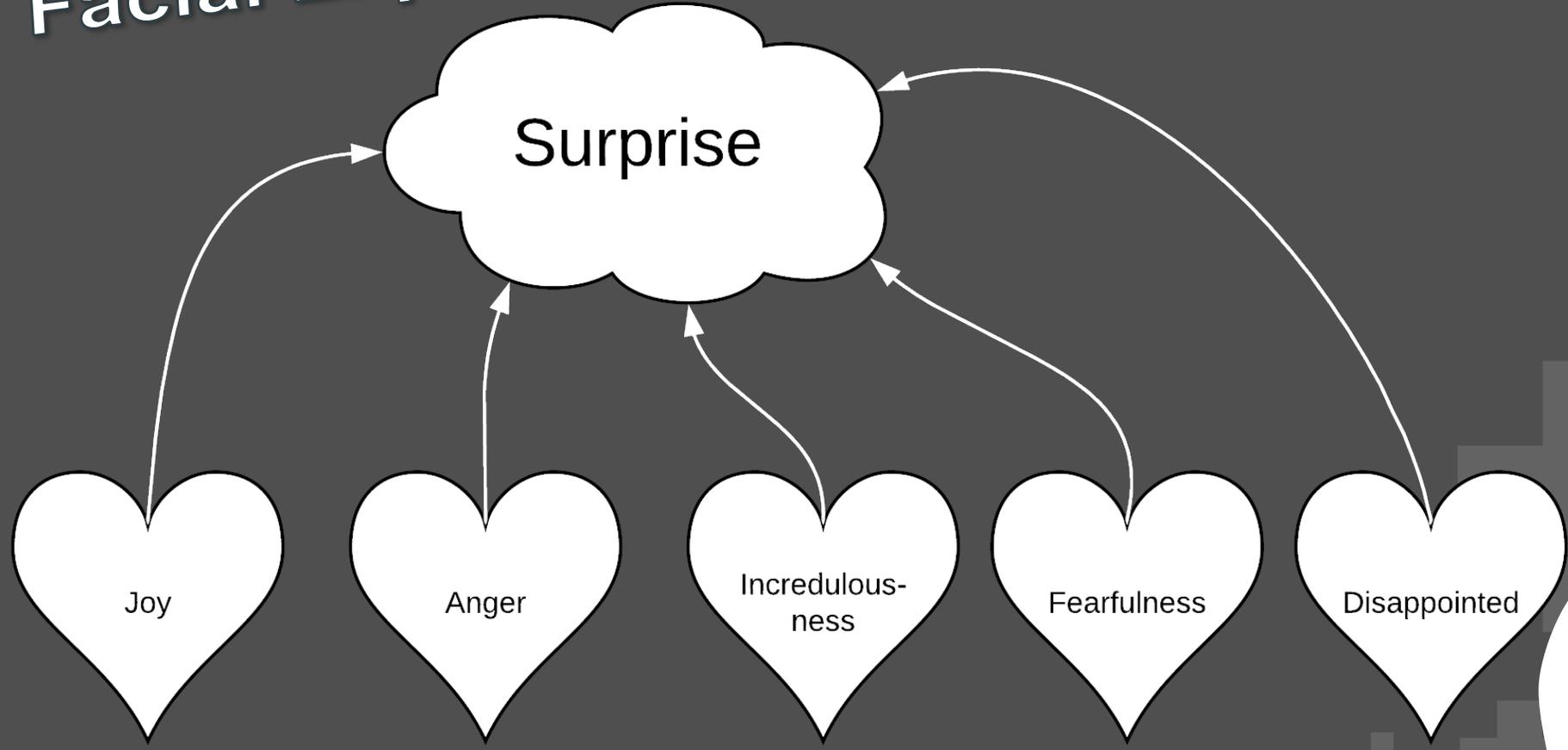


# *Underlying Emotions and Behaviors*

# UNDERLYING EMOTIONS

Our expressions do not always reflect our feelings

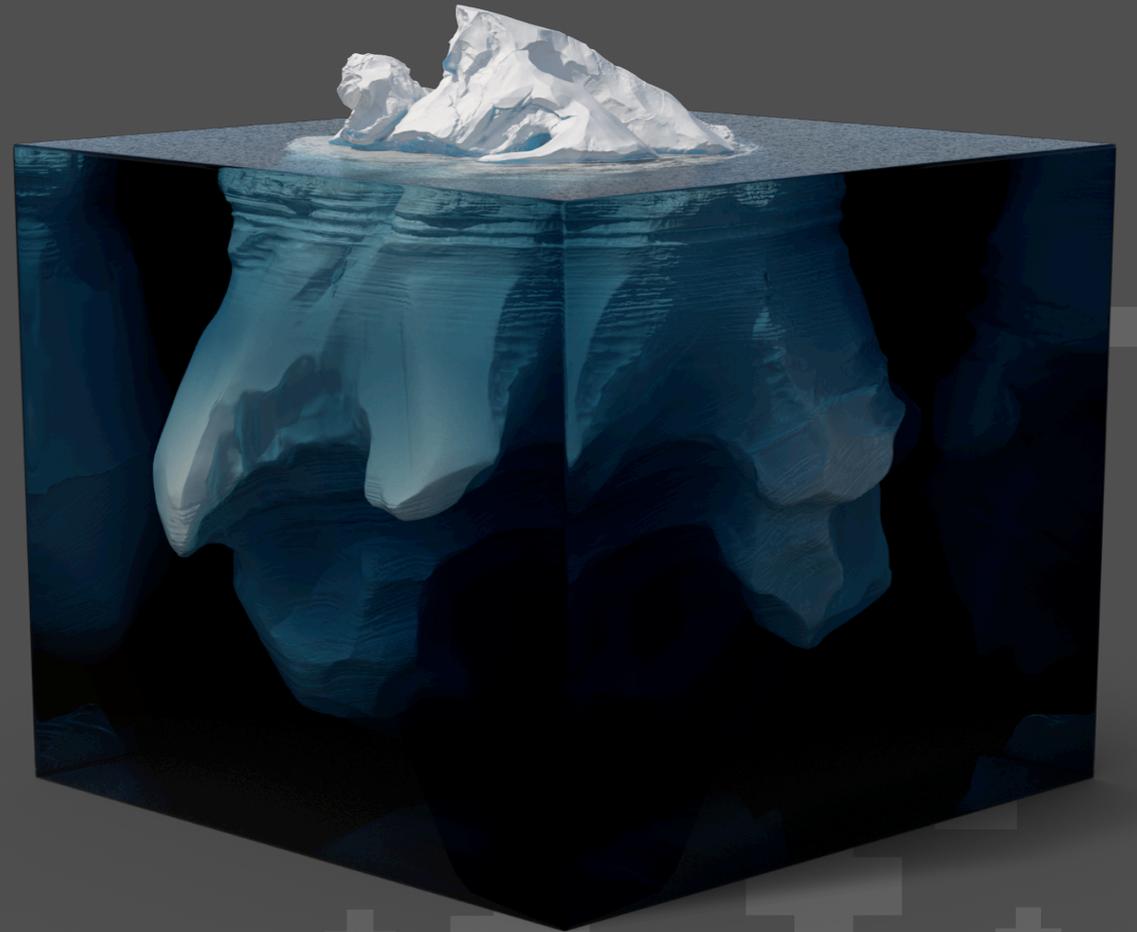
Facial Expression



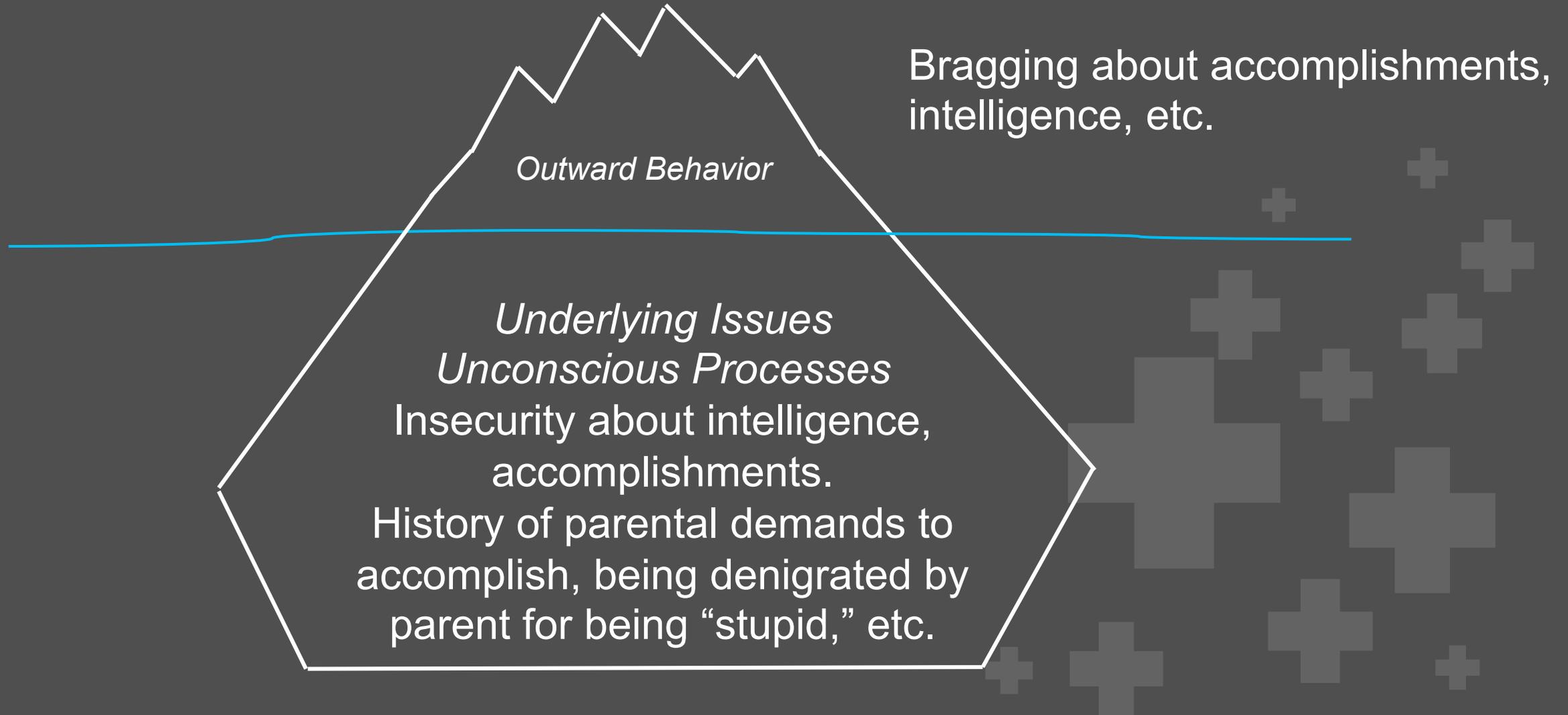
Feelings



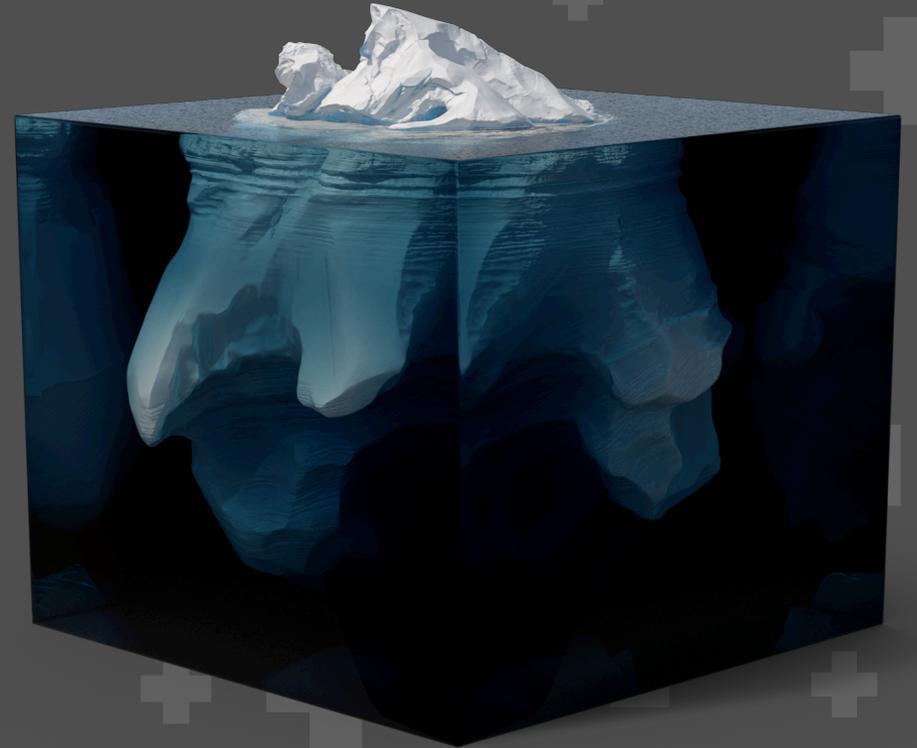
Behavioral Responses are  
often the result of  
unconscious processes



# An Example: Narcissism



# Habitual Behaviors from Unconscious Processes become Defense Mechanisms



# DEFENSE MECHANISMS

## Immature Defenses

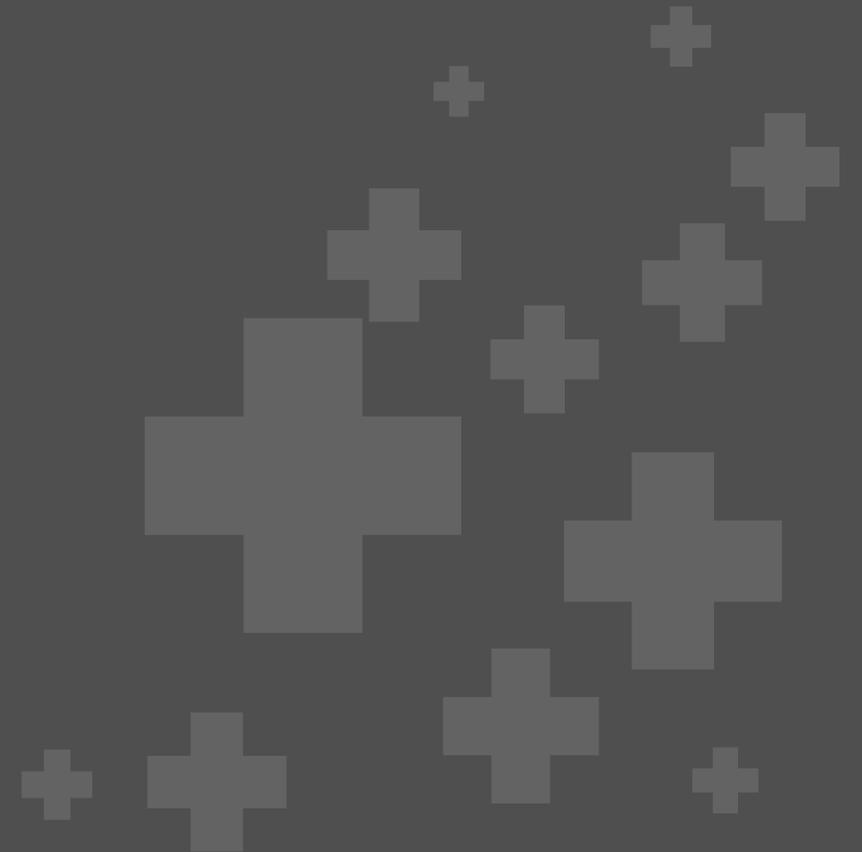
fantasy  
projection  
passive aggression  
acting out

## Neurotic Defenses

intellectualization  
reaction formation  
dissociation  
displacement  
repression

## Mature Defenses

humor  
sublimation  
altruism  
anticipation



**Human Interaction can form the basis for training  
A.I.**

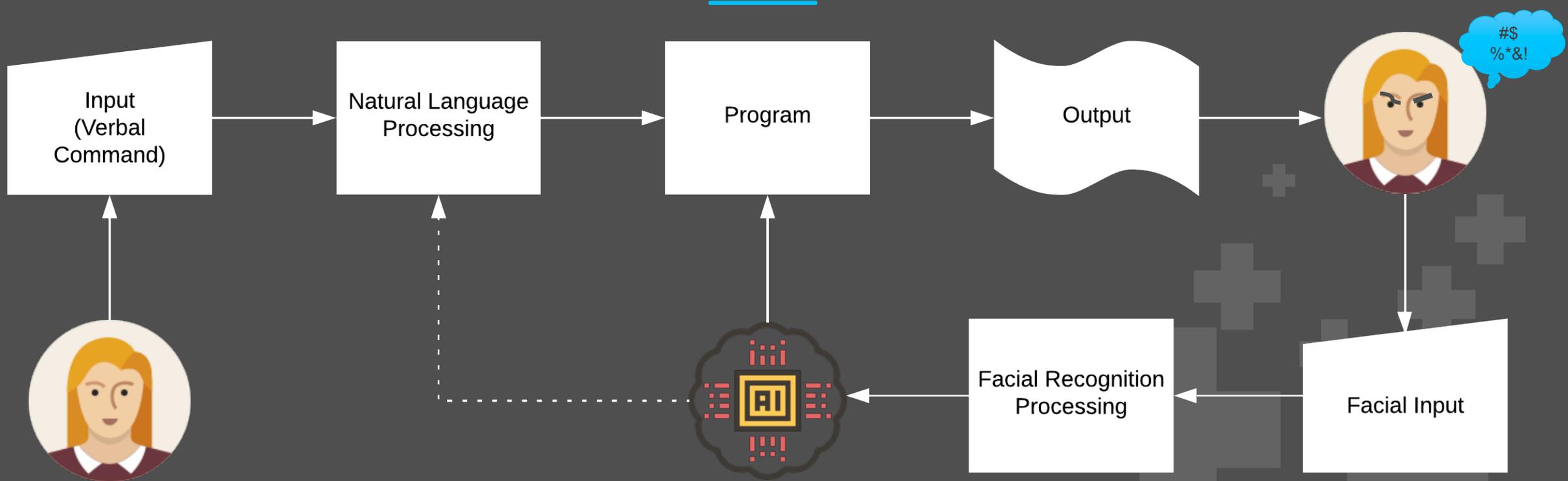
***But we must consider the counterintuitive nature of  
some human responses.***



***Repeated interaction will help teach A.I. about the black box of human emotion/behavior***



# THE MACHINE LEARNS



Learning occurs through a *feedback loop*. Here is an example of learning by feedback from facial expressions

*Through Repeated Interaction and  
Feedback from Human,  
The Machine Learns*



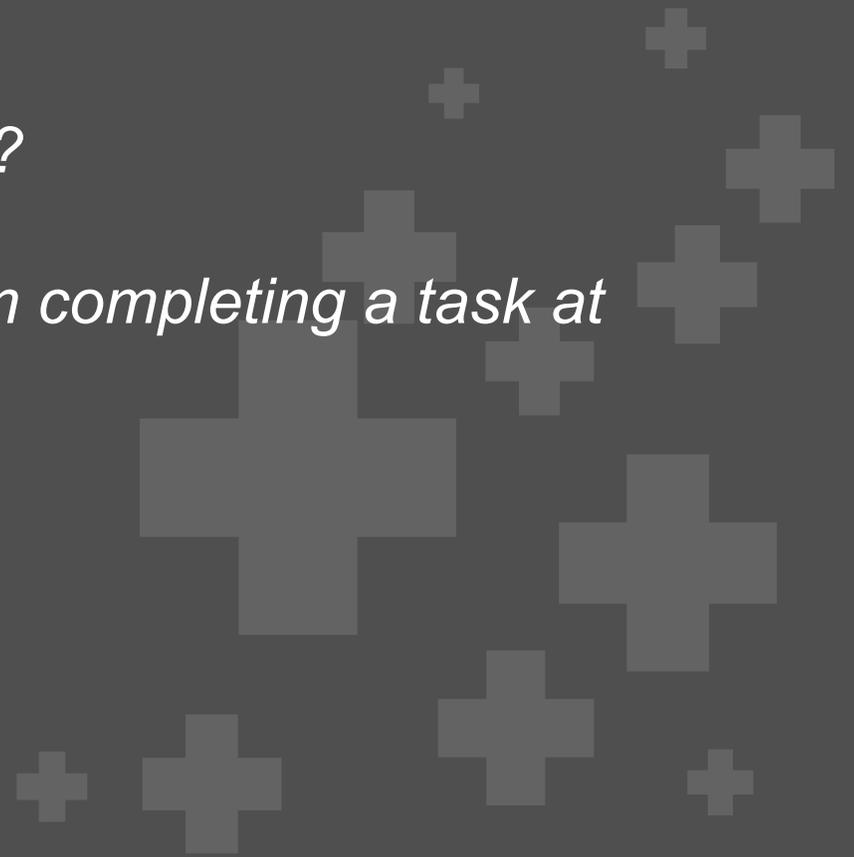
# THE CRUX OF THOUGHTFUL A.I.

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## THE DECISION BALANCE

*How to do stop A.I. from destroying mankind?*

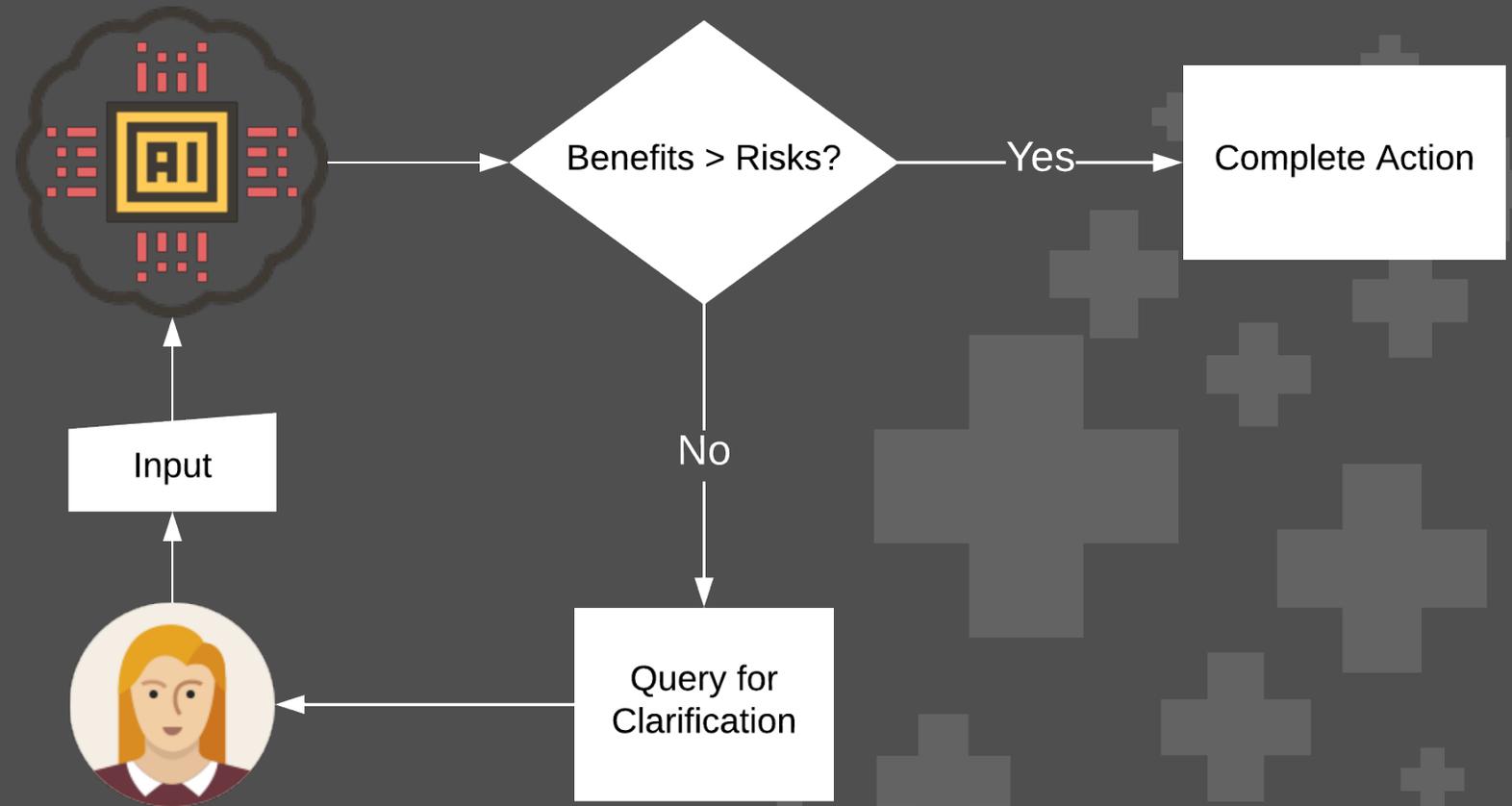
*Or more applicable: How do we stop A.I. from completing a task at the expense of something else?*



# THE CRUX OF THOUGHTFUL A.I.

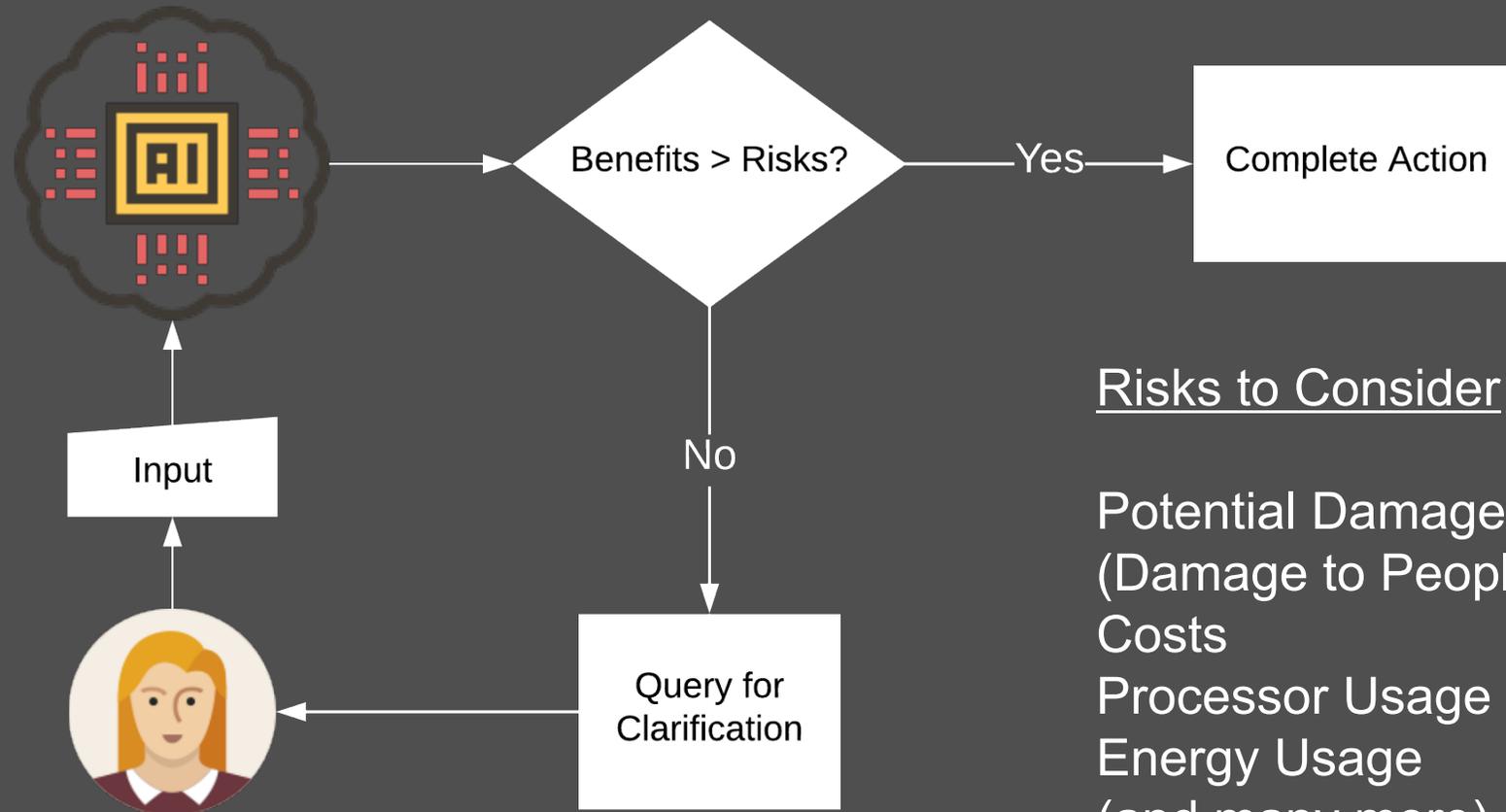
## THE DECISION BALANCE

The **Decision Balance** weighs the risks and benefits of completing an action



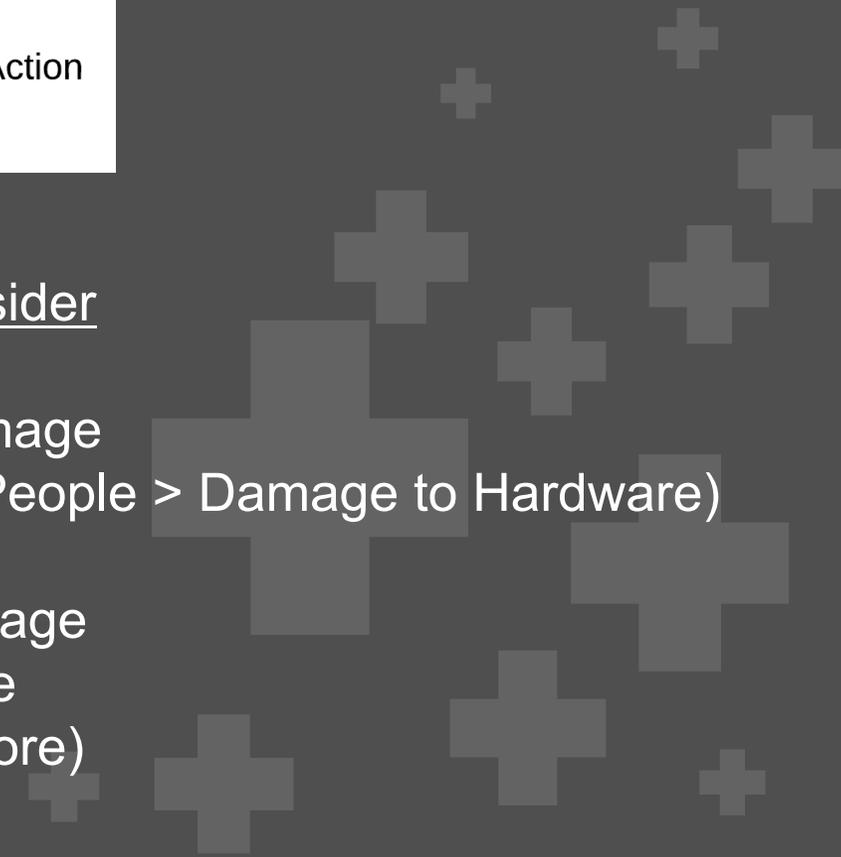
# THE CRUX OF THOUGHTFUL A.I.

## THE DECISION BALANCE



### Risks to Consider

- Potential Damage (Damage to People > Damage to Hardware)
- Costs
- Processor Usage
- Energy Usage (and many more)



“Traditional artificial intelligence focuses on minimizing loss or error function.  
“ Compassionate artificial intelligence focuses on minimizing pain or suffering of the society.”

-Amit Ray

# NEXT STEPS

Bringing the data to life

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## Jeremy D. Martinez, M.D.

Board Certified in Psychiatry, Addiction Psychiatry, and Addiction Medicine.

The treatment of addiction required understanding the cause and effect of conscious and unconscious behaviors. Dr. Martinez is please to share his expertise in behavioral health as it relates to the development of artificial intelligence applications.

# Jeremy D. Martinez, M.D.



Addiction Psychiatrist  
Clinical Instructor, UCLA School of Medicine

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[www.jeremymartinezmd.com](http://www.jeremymartinezmd.com)

[jdmartinez@mednet.ucla.edu](mailto:jdmartinez@mednet.ucla.edu)



10921 Wilshire Blvd. Suite 412

Los Angeles, CA 90024

626-227-6020