

## **Nucleing Into Flow:** Optimizing Productivity with a Choice Architecture

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## Overview

- Human Agents
- Operational Context
- Flow Choice Architecture
- Nudges & Interactions
- Conclusion



#### Modeling Human Agents



- Personality type
- Task execution ability
- Trust of automation
- Likelihood to experience flow

#### • States (dynamic)

- Cognitive state
- Emotional state
- Behavioral state
- Motivation state (derived)



## **Operational Context**



FLORIDA TECH Moderate levels of arousal lead to optimal response and learning.

Hebb, 1955

#### Hebb-Yerkes-Dodson Hybrid

#### **Response to Learning Cue vs Arousal**



Moderate levels of arousal lead to optimal flow-experience.

Csikszentmihalyi, 1975

#### **Csikszentmihalyi Flow**

#### **Flow-experience vs Arousal**



## Flow State & Dynamics



Flow emerges as the zone where skill matches task challenge. Skill relates to task execution ability.

#### "IN THE ZONE"



#### **Flow Experience**

- There are clear goals every step of the way
- There is a balance between challenges and skills
- There is no worry of failure
- There is immediate feedback to one's actions
- Distractions are excluded from consciousness
- Action and awareness are merged
- Self-consciousness disappears
- The sense of time becomes distorted
- The activity becomes autotelic

Csikszentmihalyi, 1990



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Csikszentmihalyi, 1990

TRANSIENT hypofrontality

Dietrich, 2004 & 2006





#### What is **Flow Choice Architecture**?

Human-aware Artificial Intelligence that discerns engagement from a human's dynamic state, and provides timely and relevant nudges to induce and sustain desired flow performance.



## Flow Choice Architecture



## **Nudge Types and Characteristics**



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#### **Nudge Interaction Graph**



#### Flow Choice Architecture

#### **Before**

Knowledge workers are prone to distractions that may lead to high stress and suboptimal productivity.

#### During

Biosignal-driven nudges guide humans around challenges and distractions to stay focused on tasks.

# Nudges

#### After

By learning to flow at work more readily, humans are motivated to concentrate and succeed joyfully.



## Conclusion

- We modeled humans traits and states to augment flow-experience
- Flow-experience yields task achievement and work productivity
- Flow Choice Architecture can induce and sustain flow-experience
- Our nudges are timely triggered by dynamic human states
- Our nudges constitute choices that influence behavioral change



#### Question and Answer Session

## Thank you

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