



# CELTIC-NEXT DAY

02<sup>nd</sup> December 2020, 09:30 – 16:00 CET

**Pitch of the Project Proposal**

## ACTIVATION



**Dr. Barış AYKENT, PROFEN İLETİŞİM TEK.  
VE HİZ. SAN. TİC. A.Ş.  
baris.aykent@profen.com**

# Teaser



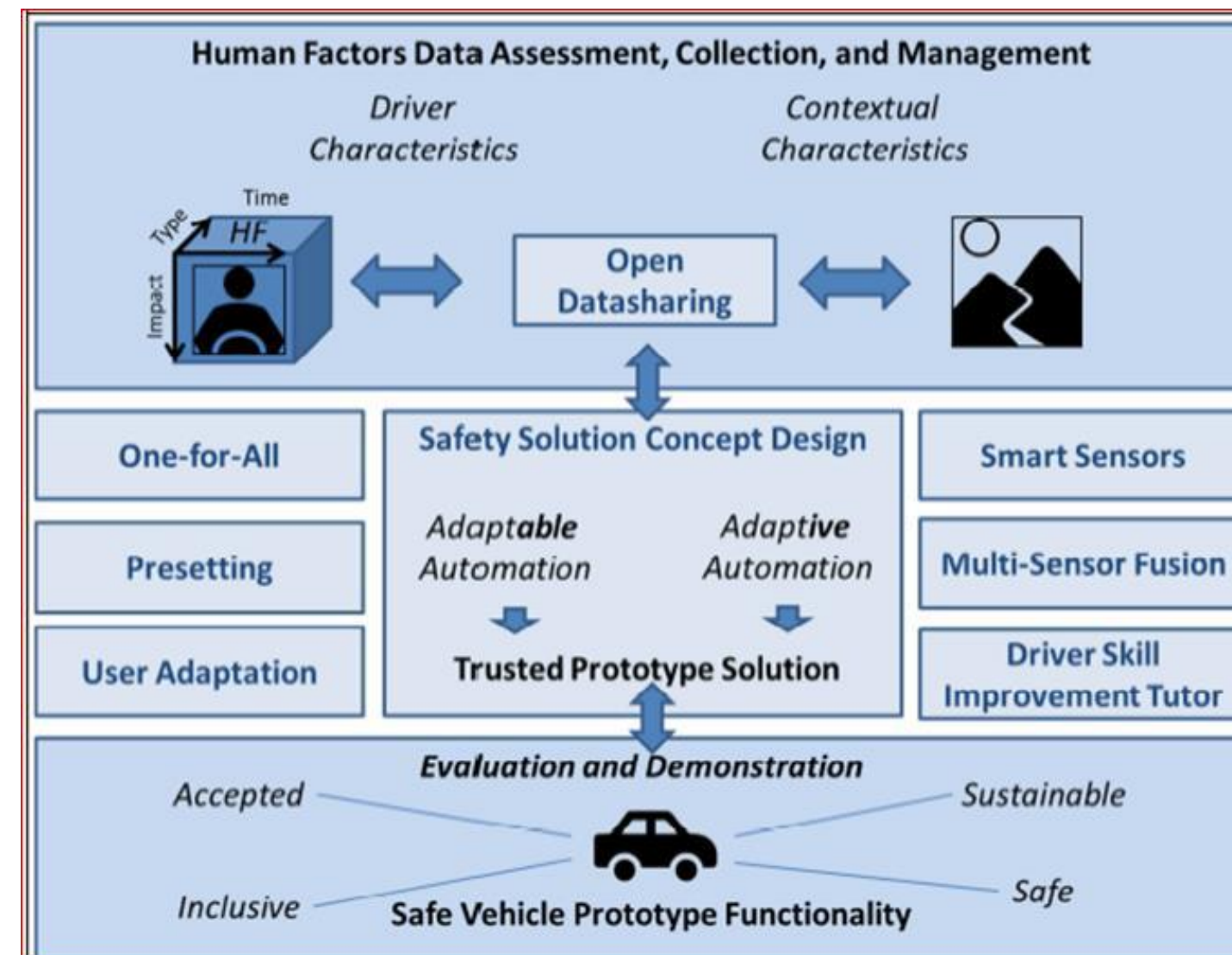
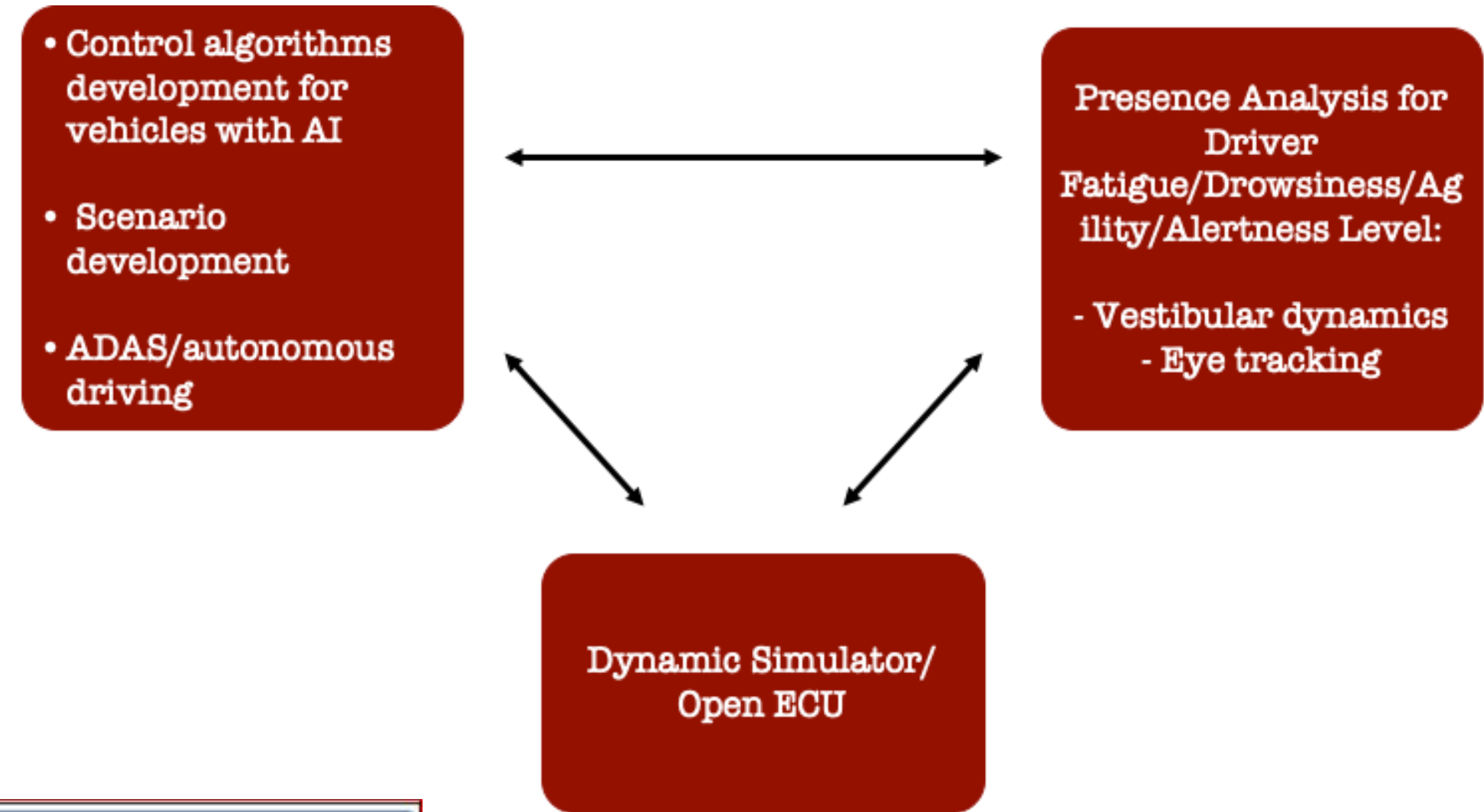
- Road vehicles are getting automated however, this is based on basic following/tracking algorithms and not on the human behaviour.
- Human (driver) behaviours are not usually considered real-time during the control units' development.
- The development to be made here will arise to a medium of transforming knowledge and experience into a product. The product will be a human-centred real-time library.
- Increased level of Smart Green Systems
- Increased level of vehicle safety
- Increased level of vehicle comfort



# Teaser

## Methodology:

- **Theory of sensory cue conflict**
- Restructuring theory
- **Postural instability theory**
- Reflex theory
- **Automatic control theory**
- **Nonlinear & time delay systems**





# Organisation

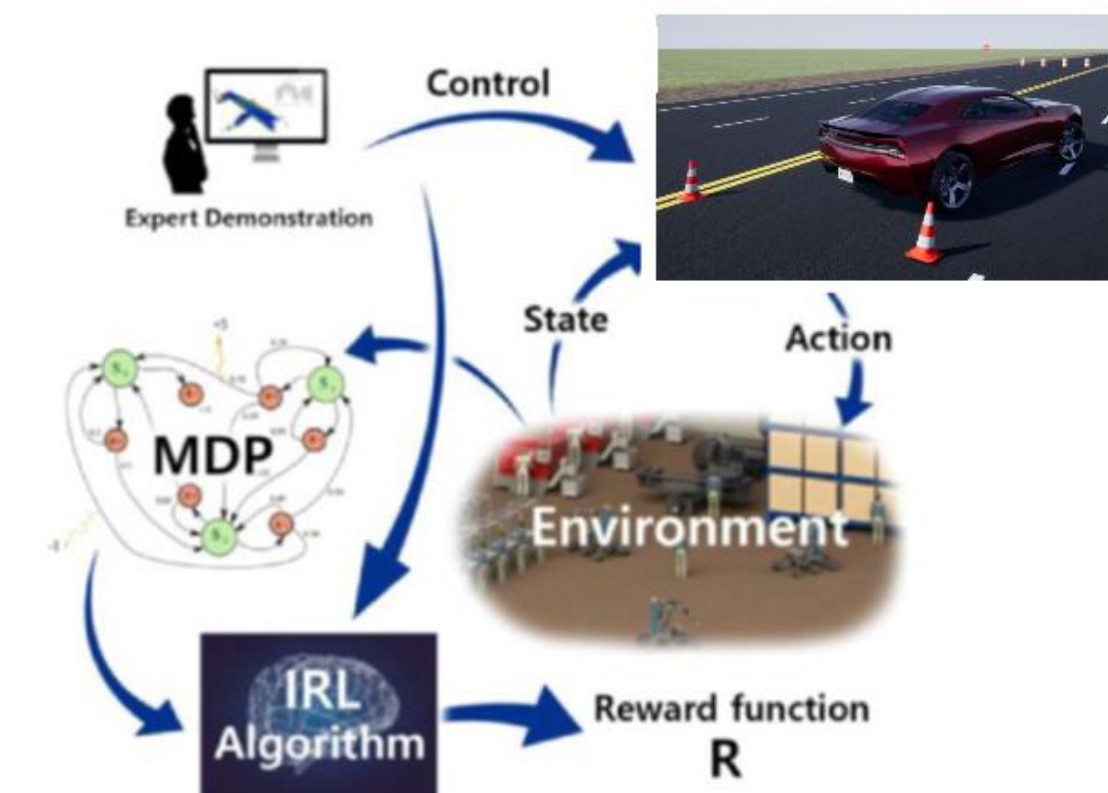
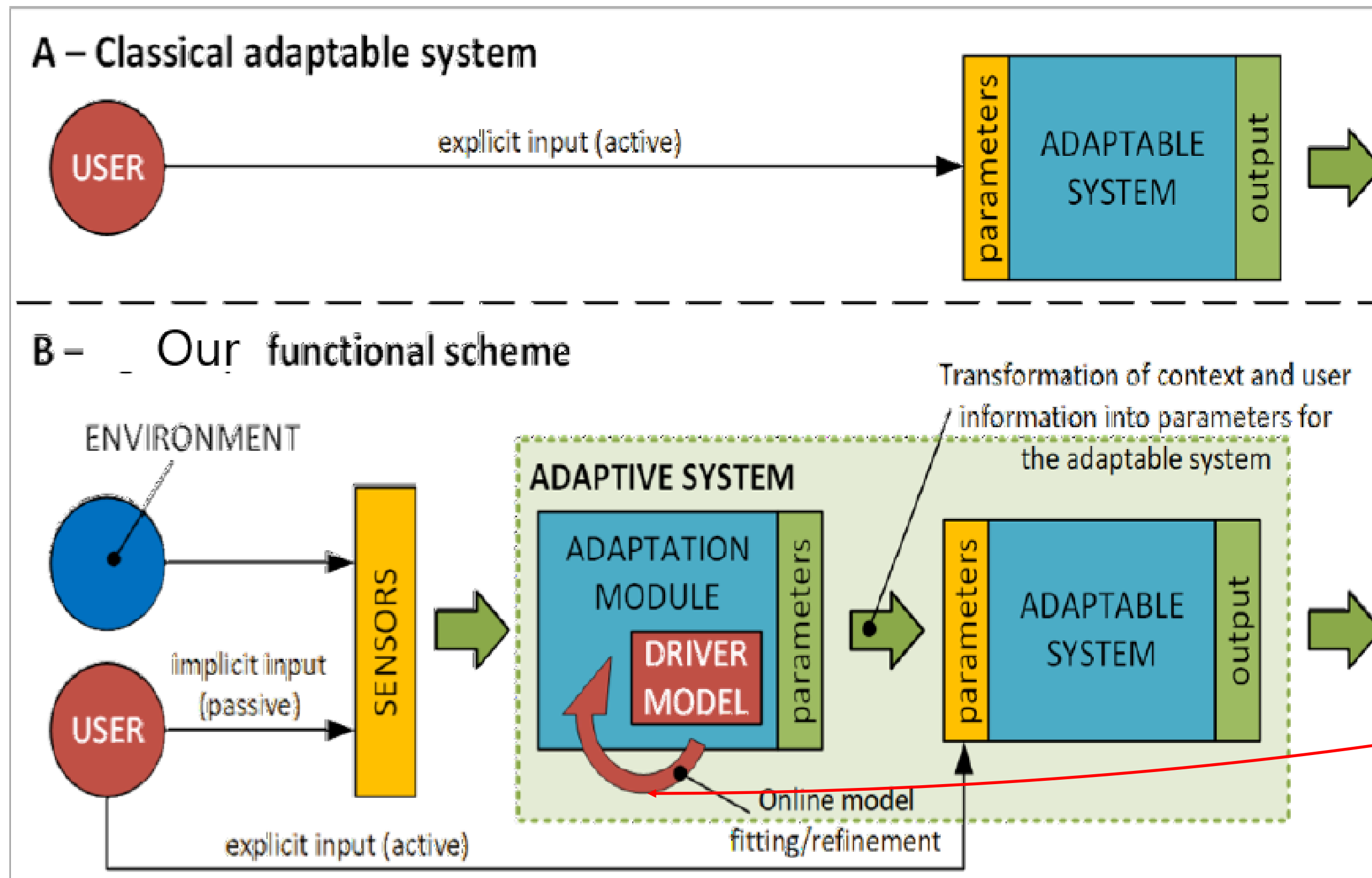
## Profile

- ❑ Profen Group, and its 200 employees within two countries Turkey and UK, provides products, solutions and services for Communications, Defense, Government, Broadcast and Internet industries, with its In-House Research& Development Centers.
- ❑ It offers a portfolio which comprises communication and information technologies, Satellite Communication, RF receive and processing, control systems, data processing, system integration and satellite teleport operation and data center.
- ❑ Profen Group shares a set of core values based on integrity, understanding, excellence, creativity, unity and responsibility.
- ❑ Its beliefs and convictions are core to these values and continue to guide and drive business decisions.
- ❑ Together with highly qualified engineering staff, being the main driving factor of the company's success, Profen allocates its big portion of income to research and development activities.

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# Proposal Introduction

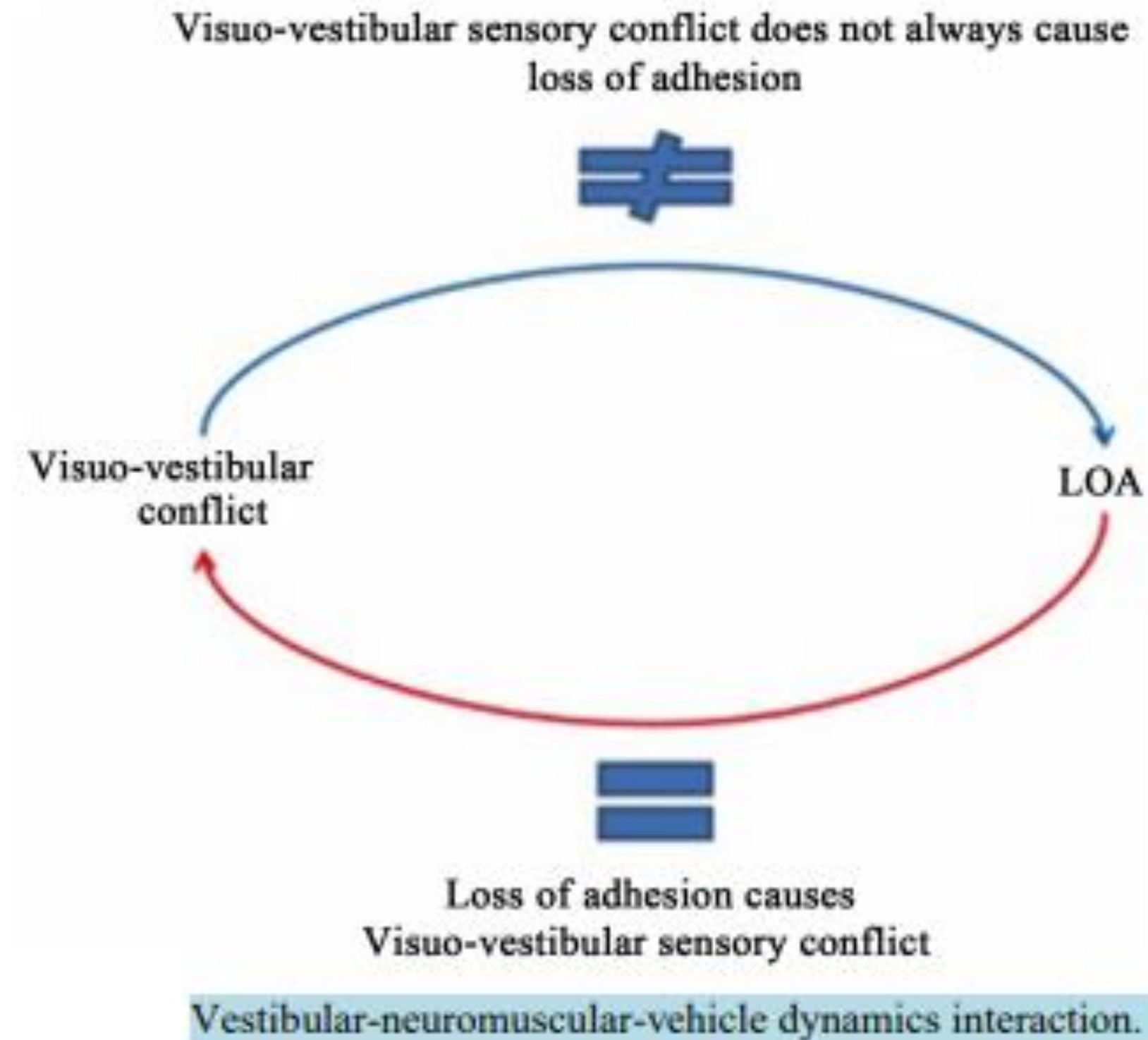
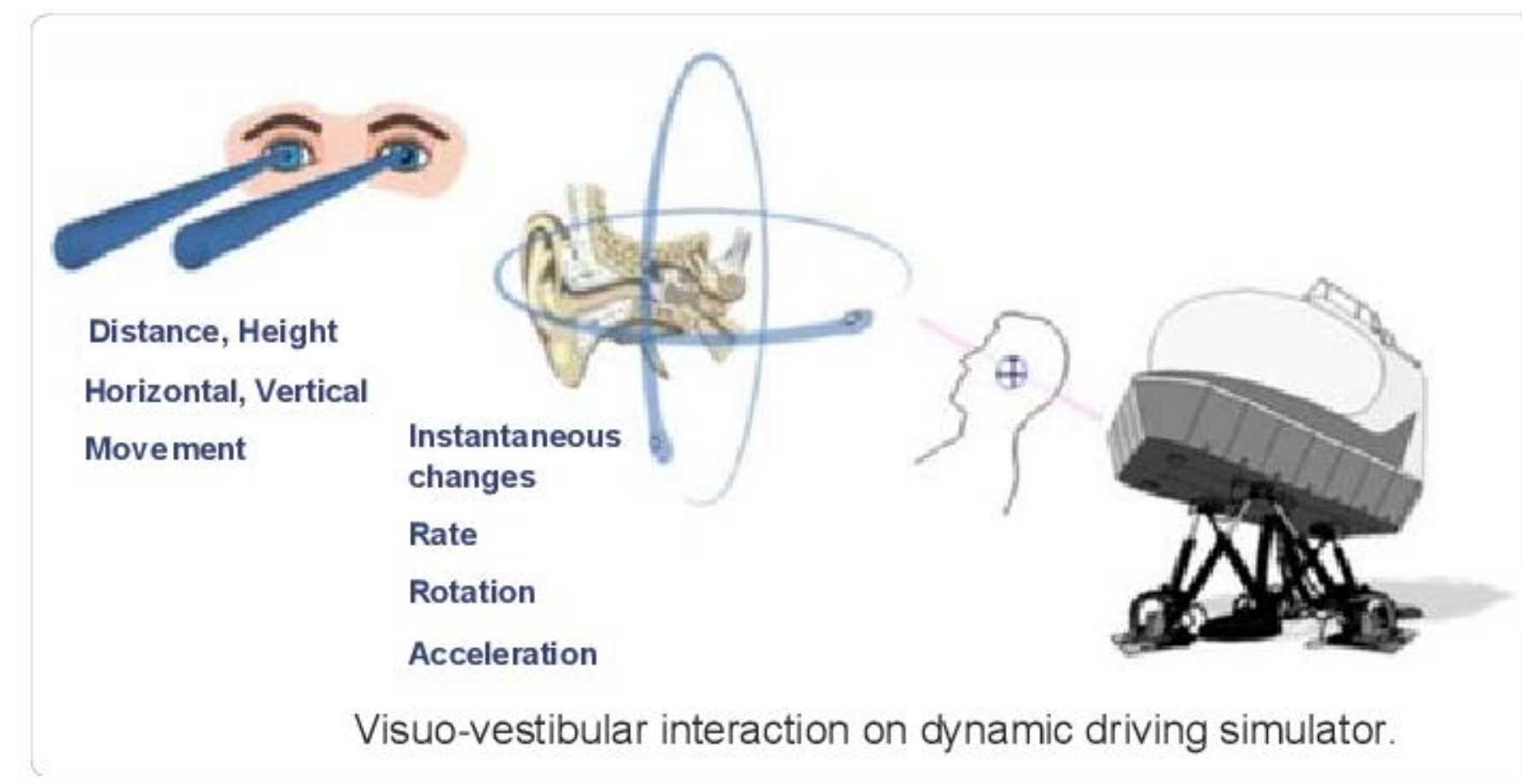


e.g. Model based reinforcement learning will be used to decrease sensory cue conflict reduction based (human centric AI) control algorithm development for open ECU (focus on Green World)



# Proposal Introduction

- **Methodology:**
  - *Theory of sensory cue conflict*
  - Restructuring theory
  - *Postural instability theory*
  - Reflex theory
  - *Automatic control theory*
  - *Nonlinear & time delay system*



**Lateral dynamics**

**Longitudinal dynamics**

# Proposal

## Introduction



### **Innovation**

- Human centred AI based ECU control

### **Market relevance**

- Open ECU (electronic control unit)
- Evaluation toolbox (interface)
- Dynamic simulator/ CAVE (VR/AR/MR)
- Closed loop controller design and comparison with uncontrolled state

**duration: 24 months**

### **Business impact**

- Human centred open ECU
- Human centred vehicle dynamics control
- Increased level of vehicle safety
- Increased level of vehicle comfort
- Increased level of Smart Green Systems



# Partners



## Involved countries:

### Expertise, profiles and types of partners you are looking for:

- Coordinator
- Use case provider
- AI, big data related institution (university, research lab), SME, large enterprise (Tier1, OEM, automotive)





# Contact Info



**For more information and for interest to participate please contact:**

Dr. Barış Aykent,  
PROFEN İLETİŞİM TEK. VE HİZ. SAN. TİC. A.Ş  
[baris.aykent@profen.com](mailto:baris.aykent@profen.com)  
+905379790109  
Famas Plaza A Blok  
34384 Okmeydanı/Şişli, Istanbul Turkey  
[www.profen.com](http://www.profen.com)

