

## **PhD Curriculum for SAIDE**

3 Core Courses + 1 Elective Course

### **Core Courses:**

1. Machine Learning
2. Artificial Intelligence
3. Deep Learning

### **Elective Courses:**

#### **Core AI/ML**

1. Foundations of Computer Vision and Natural Language Processing (Vision and Language Elective)
2. Deep Learning for Computer Vision (AR/VR and Vision and Language Elective)
3. Advanced Computer Vision (AR/VR Elective)
4. Multimodal Learning with Vision and Language (Vision and Language Elective)
5. Deep Learning for Natural Language Processing (Vision and Language Elective)
6. AI and Cybersecurity (Vision and Language Elective)
7. Conversational AI (Vision and Language Elective)

#### **Brain Science and Applications**

1. Sensation and Perception (AR/VR Core)
2. EEG Signal Analysis (AR/VR Elective)
3. Introduction to Brain Computer Interface (AR/VR Elective)
4. Psychophysics (AR/VR Elective)
5. Connectomics (Vision and Language Elective)
6. Computational Cognitive Neuroscience (Vision and Language Elective)

#### **Robotics**

1. Robotics (AR/VR Elective)
2. Assistive and Rehabilitation Robotics (Vision and Language Elective)
3. Planning and Decision Making for Robots (Vision and Language Elective)

#### **Mathematical and Computational Economics**

1. Mathematics for Economics (MSc. CSS, Institute Humanities)
2. Modern Macroeconomics (MSc. CSS, Institute Humanities)
3. Operations Research for Economics (MSc. CSS, Institute Humanities)
4. Theoretical Foundation of Econometrics (MSc. CSS, Institute Humanities)
5. Machine Learning for Economics (MSc. CSS, Institute Humanities)
6. Modern Growth Economics (MSc. CSS, Institute Humanities)
7. Introduction to Mechanism Design (MSc. CSS, Institute Humanities)