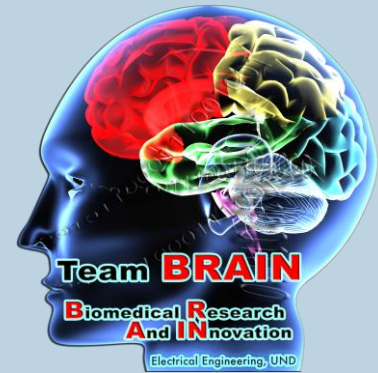


An Intelligent Medical Health Monitoring for the NDX-2 Lunar Space Suit



Reza Fazel-Rezai, Ph.D., P.Eng.

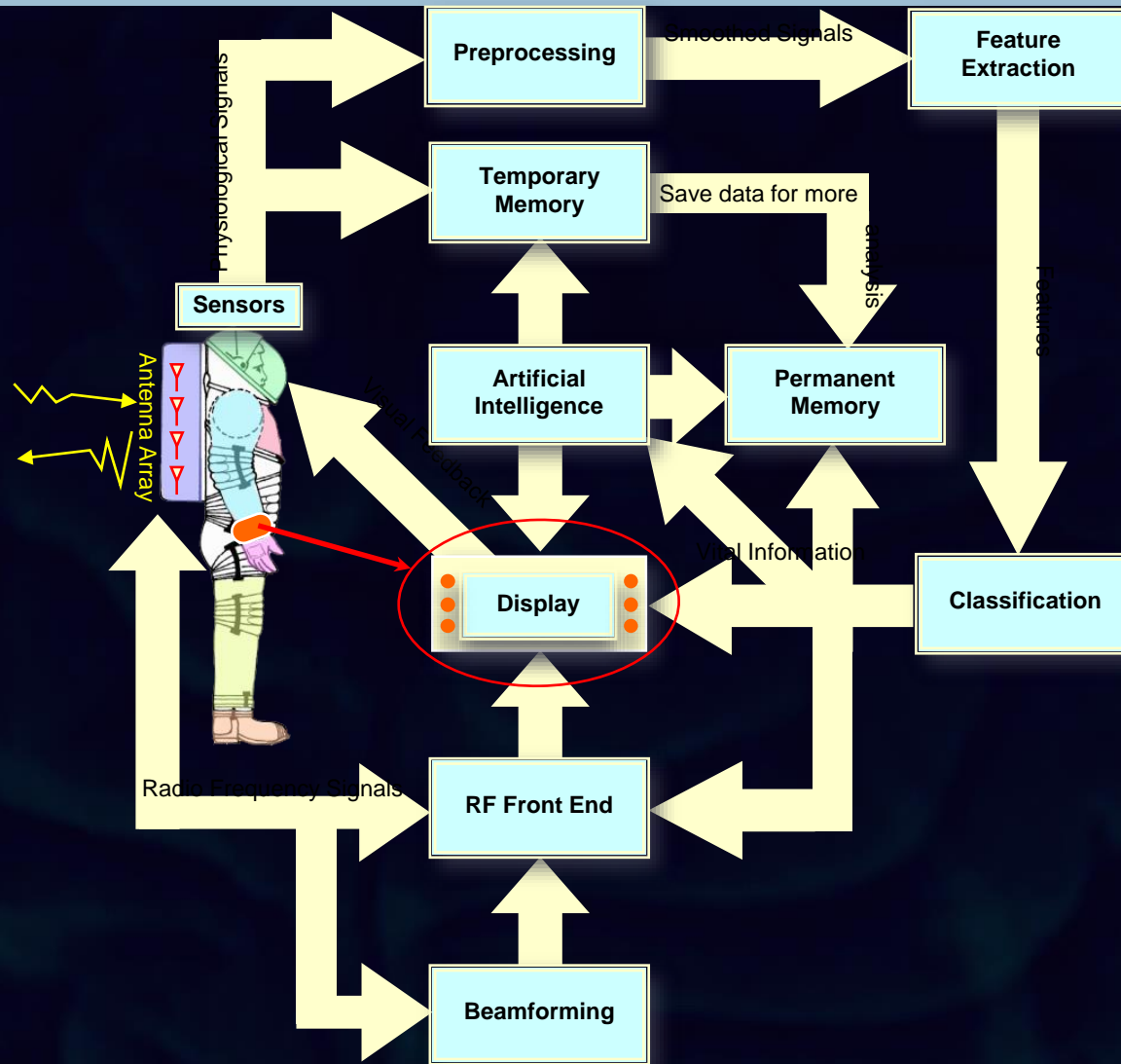
**Biomedical Signal Processing Laboratory
Department of Electrical Engineering
School of Engineering and Mines
University of North Dakota**

Introduction: Research Projects at the BSP Laboratory

- ❖ Brain Signal Characterization
- ❖ Human Performance Evaluation
- ❖ Brain Computer Interface
- ❖ An Intelligent Medical Health Monitoring



System: An Intelligent Medical Health Monitoring



Progress: Intelligent Heart Signal Monitoring

December
2010

June
2011



❖ Hardware

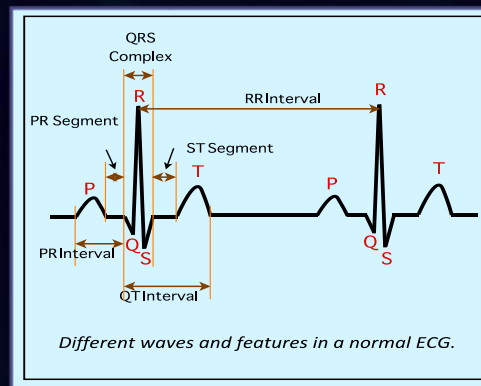
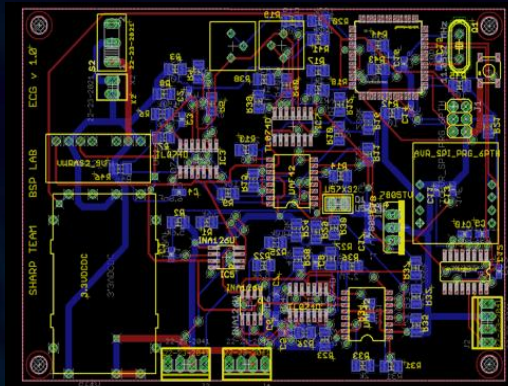
- ✓ Amplifiers
- ✓ Filters
- ✓ Power Sources
- ✓ Microcontroller
- ✓ Wireless Module

❖ Software

- ✓ Transmitter
- ✓ Receiver
- ✓ PQRST Detection
- ◆ Classification

❖ Integration

- ◆ Programing
- ◆ Display
- ◆ Test



Introduction

System

Progress

Team

Future Plan

Research Team

Co-Investigators

❖ Dr. Warren Jensen

Director of Aeromedical Research,
John D. Odegard School of Aerospace Sciences

❖ Dr. Joshua Wyne

Associate Vice President for Health Affairs and
Dean School of Medicine and Health Sciences

❖ Mr. Pablo de León

Director of Space Suit Laboratory
John D. Odegard School of Aerospace Sciences

Students

❖ DuckHee Lee (M.Sc.)

❖ Ahmed Rabbi (Ph.D. Student)

❖ Waqas Ahmed (Ph.D. Student)

❖ Noah Root (B.S. Student)

❖ Eric Schneider (B.S. Student)

Future Plan

- ❖ NASA and The National Space Biomedical Research Institute (NSBRI)
 - Research and Technology Development to Support Crew Health and Performance in Space Exploration Missions
 - ✦ Smart Medical Systems and Technology
 - ✦ Cardiovascular Alterations
 - Step 1: September
 - Step 2: December