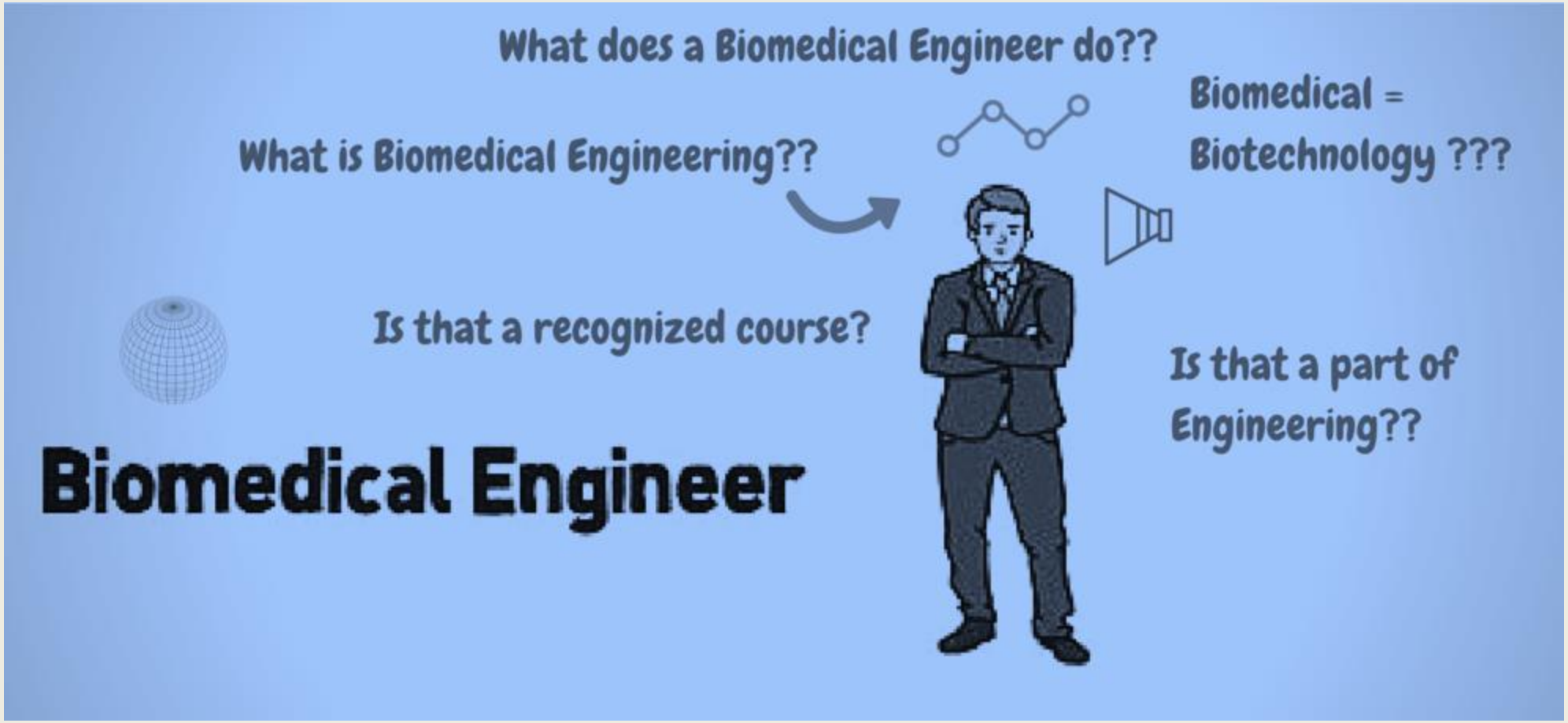
HEALTHCARE ENGINEERING AND MANAGEMENT (HEM)

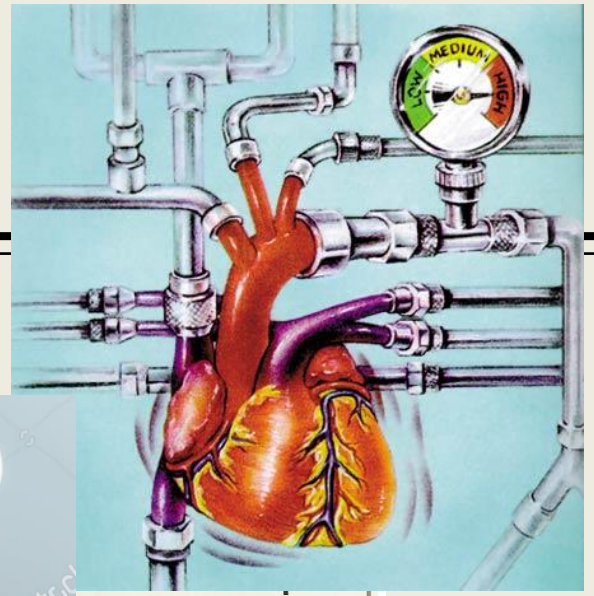
Based on Credit Hours System (CHS)

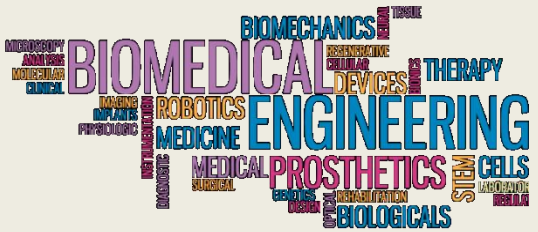
Biomedical Engineering?!!!

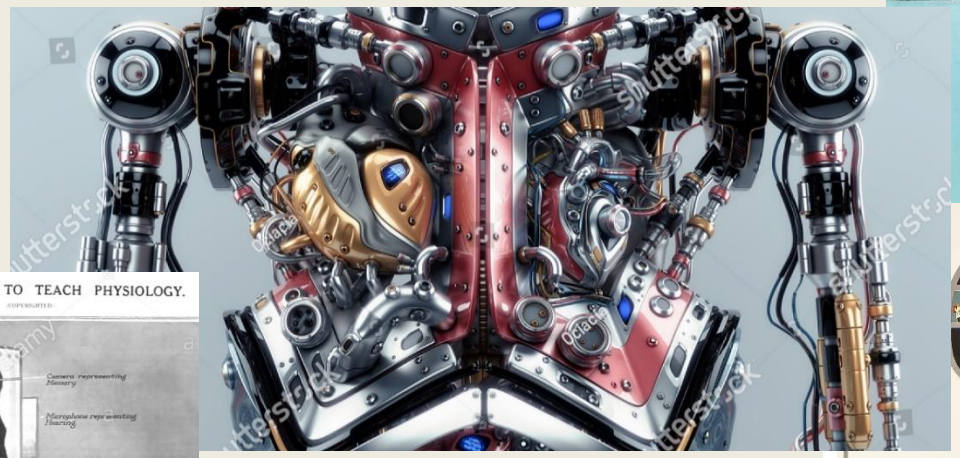


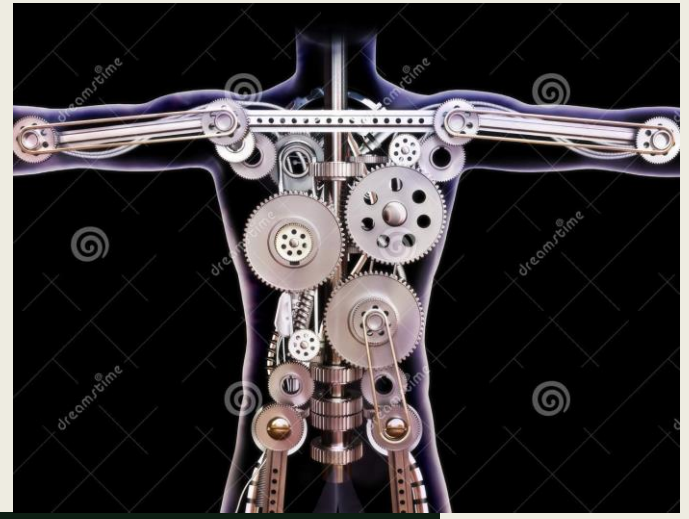
Biomedical Engineering

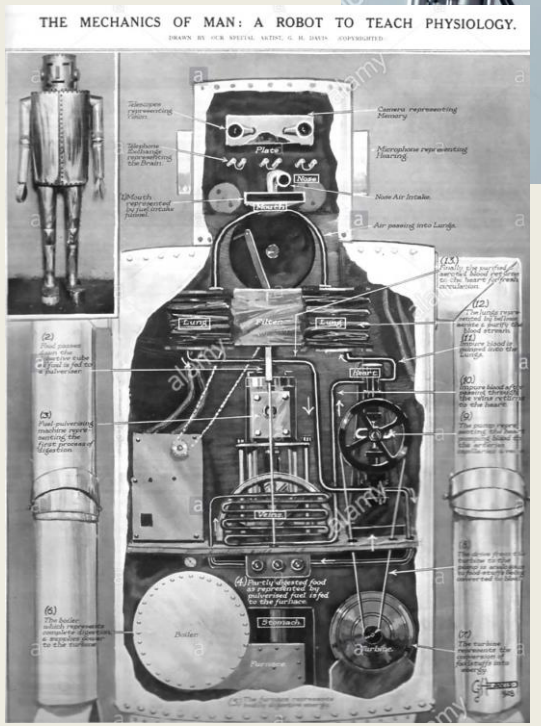
- Human body as an Engine

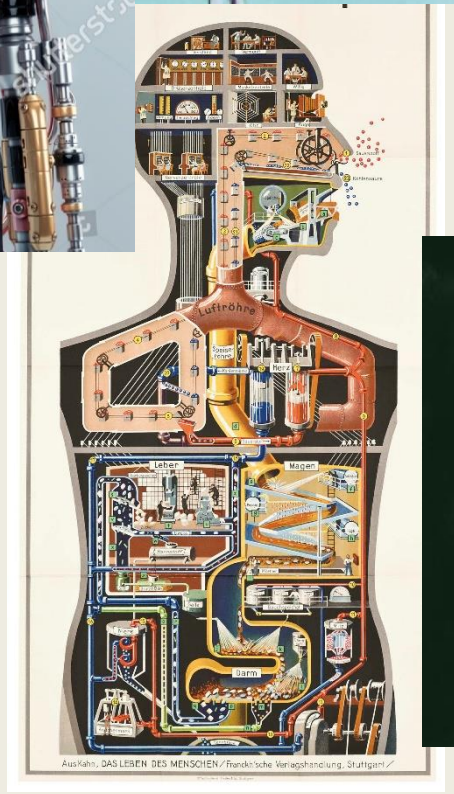




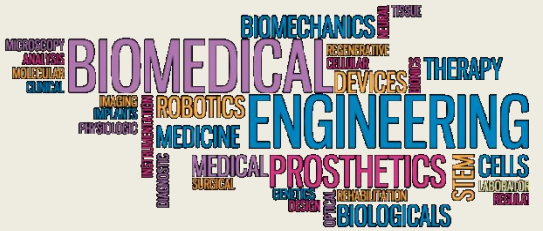






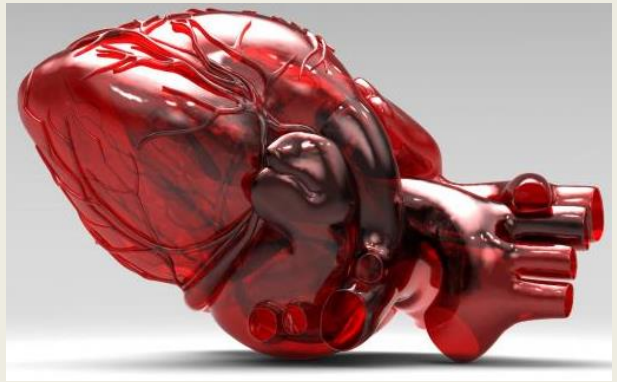


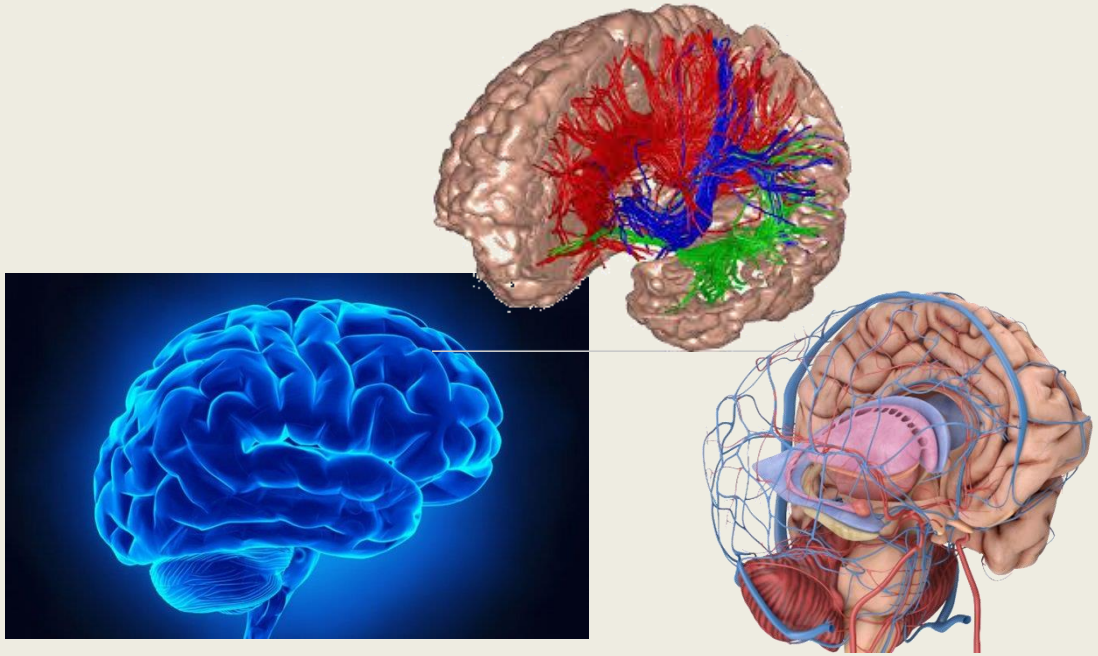
Biomedical Engineering Aims

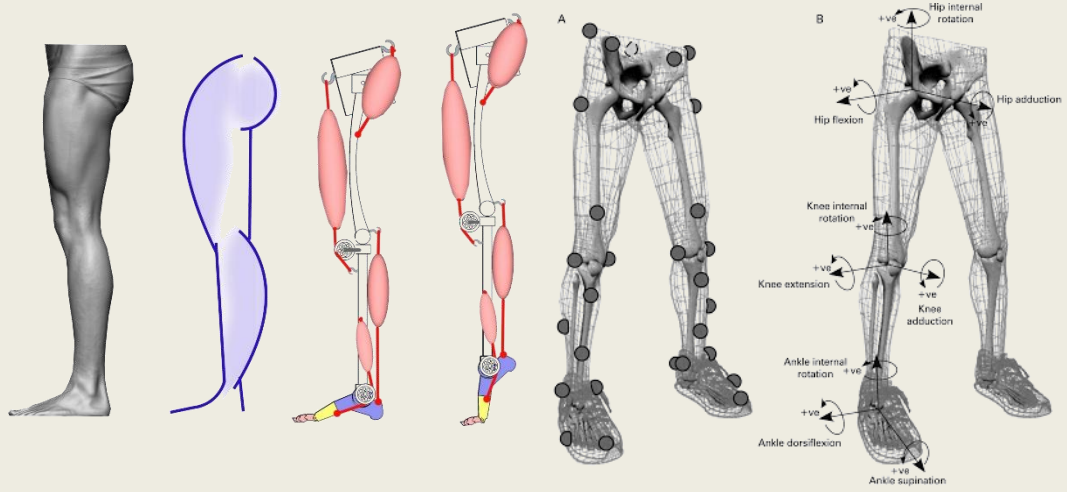


- It's all about **human body** as an **engine** for the aim of:

Understanding



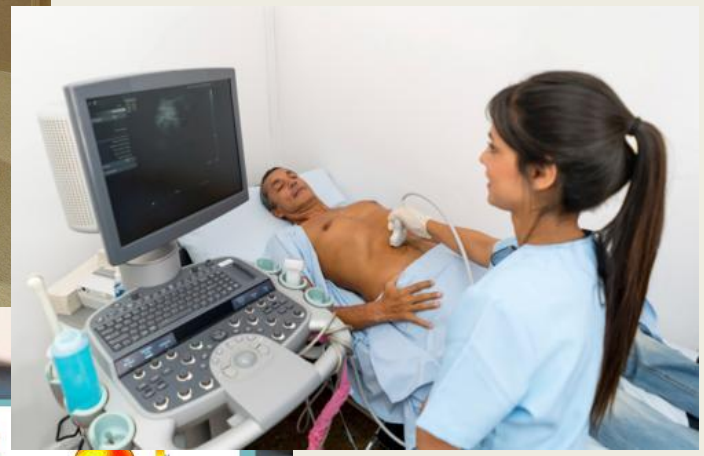


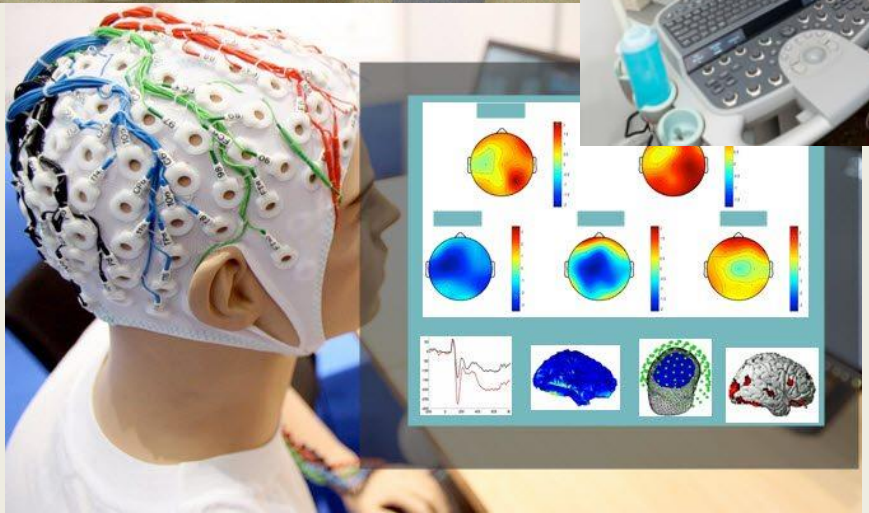


Biomedical Engineering Aims

- It's all about **human body** as an **engine** for the aim of:

Diagnosis





Biomedical Engineering Aims

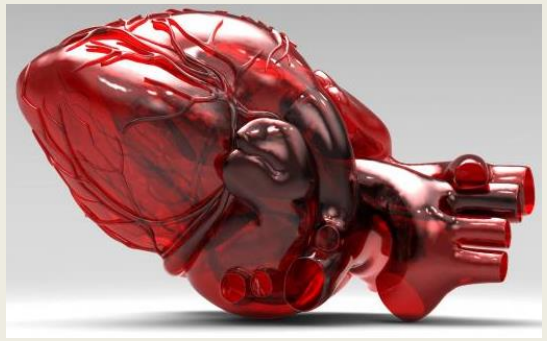
- It's all about **human body** as an **engine** for the aim of:

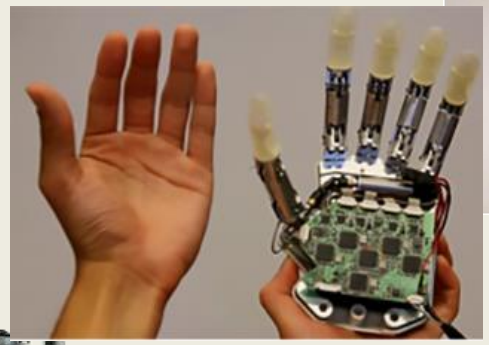
Helping with solutions

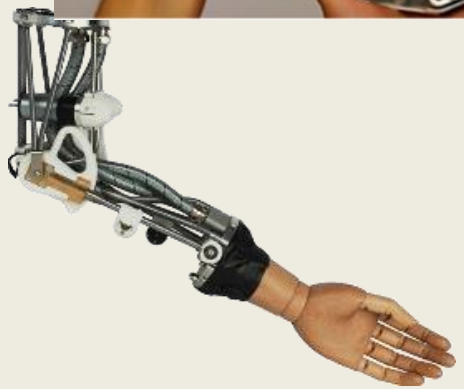
Biomedical Engineering Aims

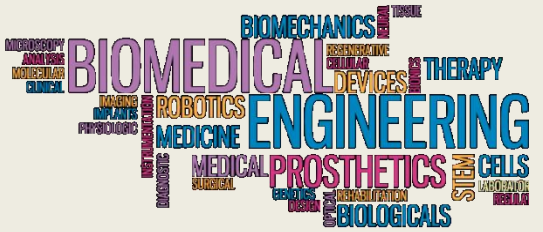
- It's all about **human body** as an **engine** for the aim of:

Providing replacements (imitate…imitate)







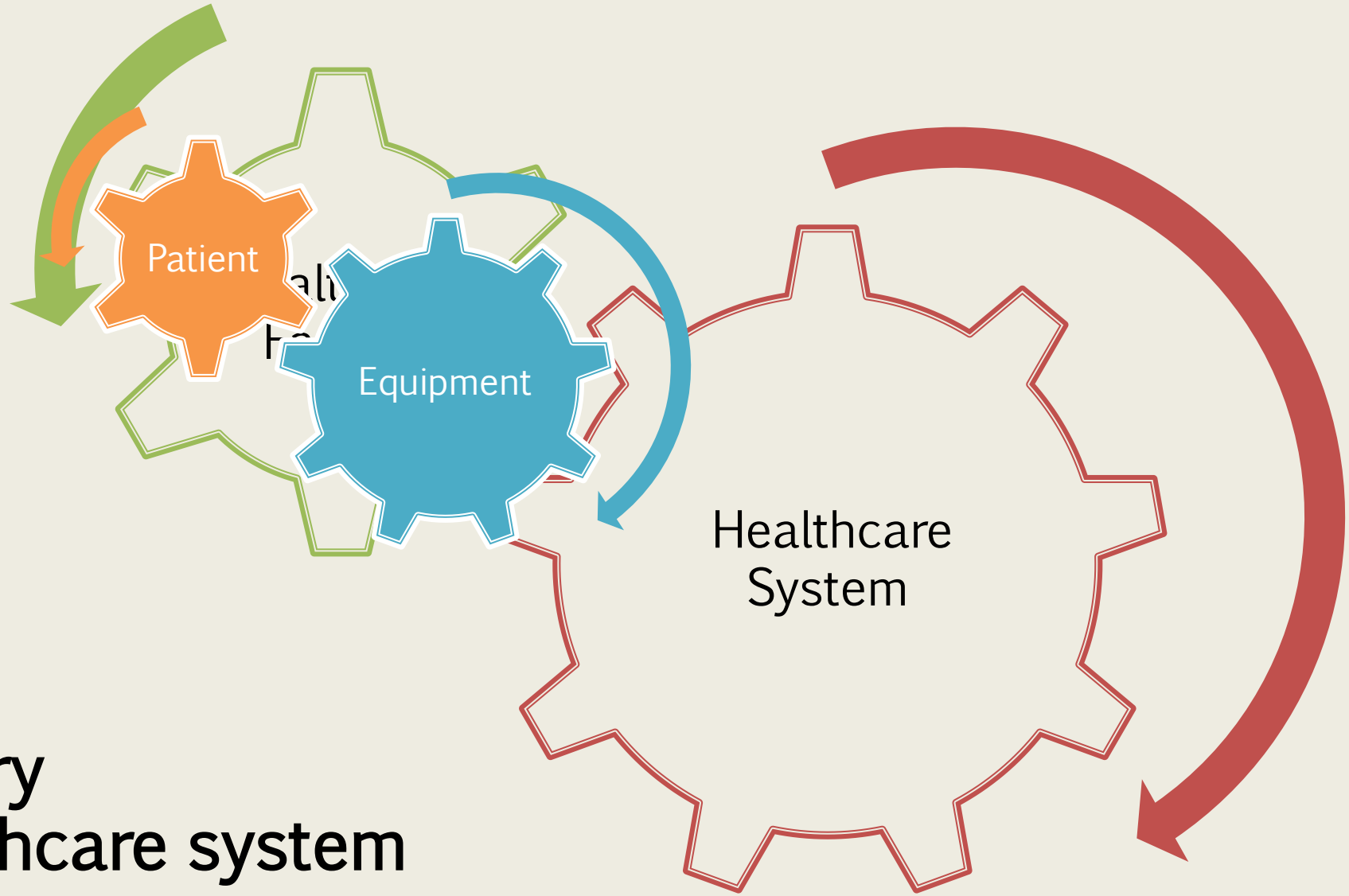


Biomedical Engineering

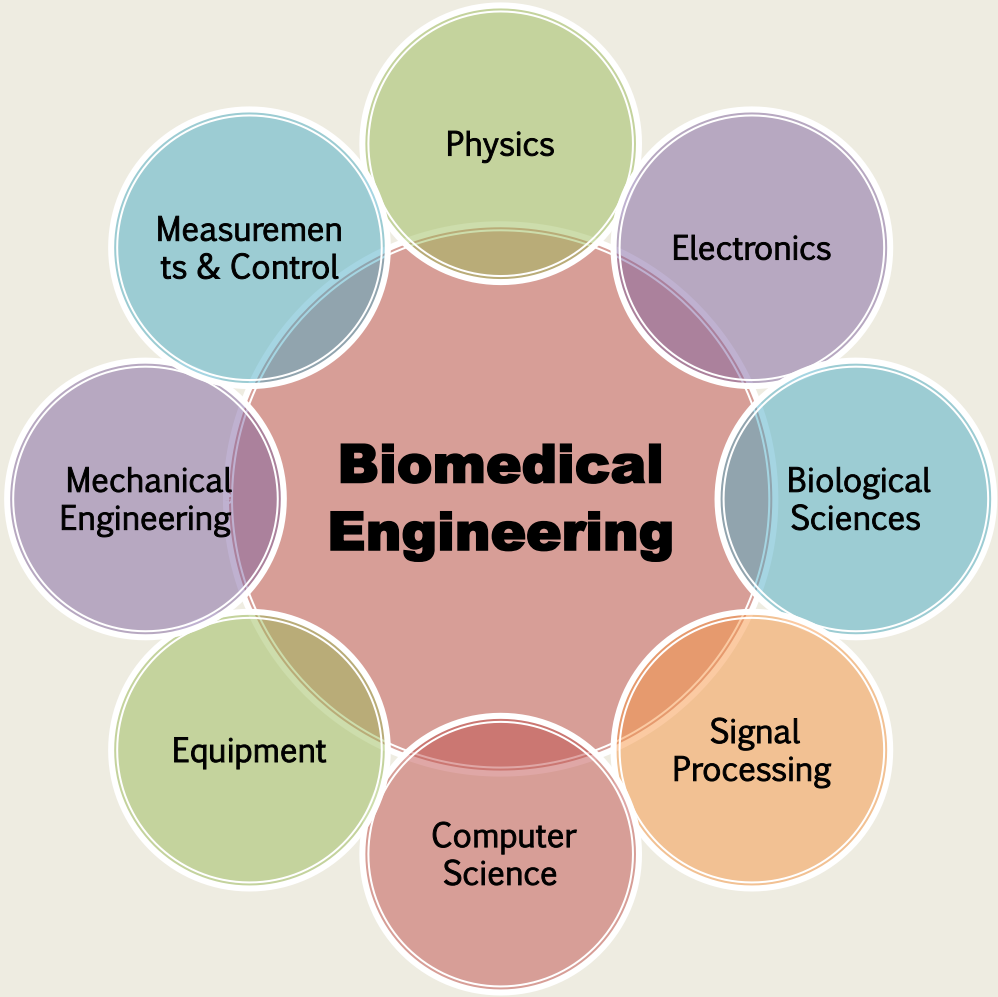
- It's all about **human body** as an **engine** for the aim of:

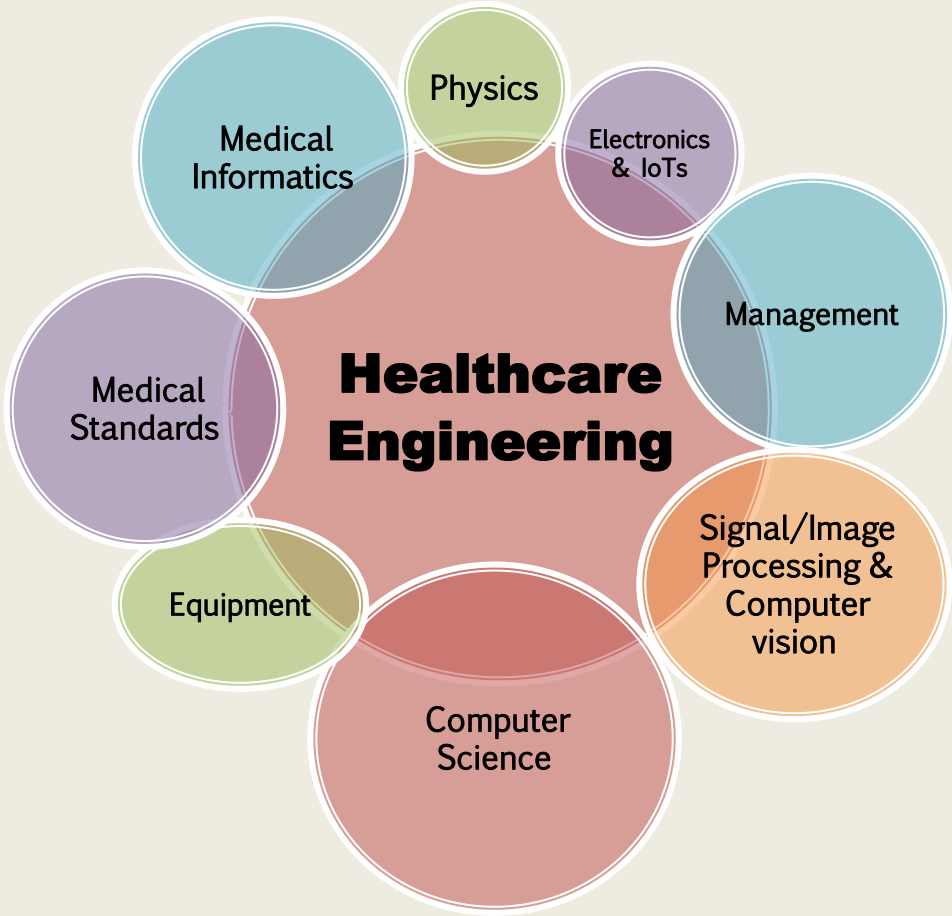
Proper workshop

Biomedical Eng. & Healthcare Eng.



Focus on machinery
Focus on the healthcare system



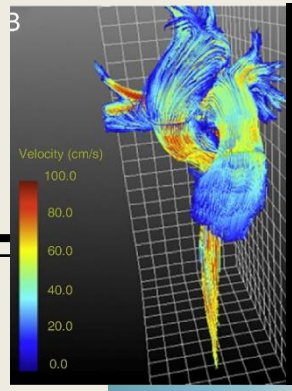


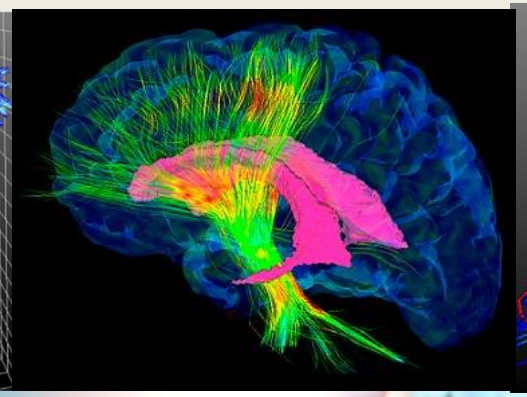
Medical Equipment

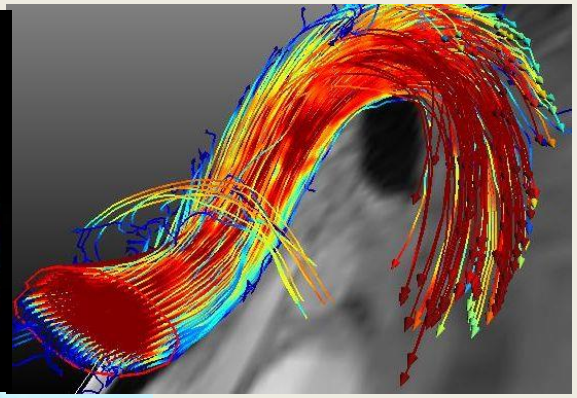
Healthcare Facilities & Healthcare System

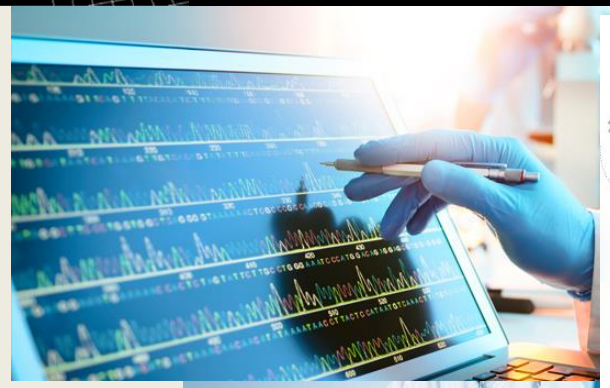
HEM graduates

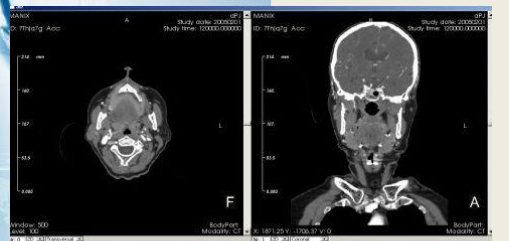
Jobs

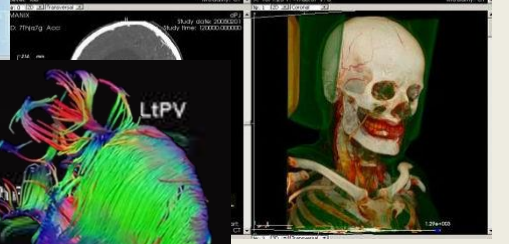


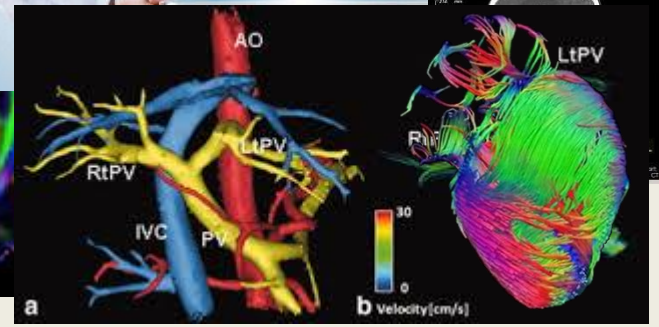












National Market

- National development
  - Startups & Outsourcing

MYOCARDIAL SOLUTIONS
Quantifying Wall Motion

Nebras Technology

Medstreaming
The Practice of Innovation

diagnosoft

Dileny Tech
Smart Solutions

National Market

التأمين الصحي الشامل
UNIVERSAL HEALTH INSURANCE

- Healthcare system reform plan

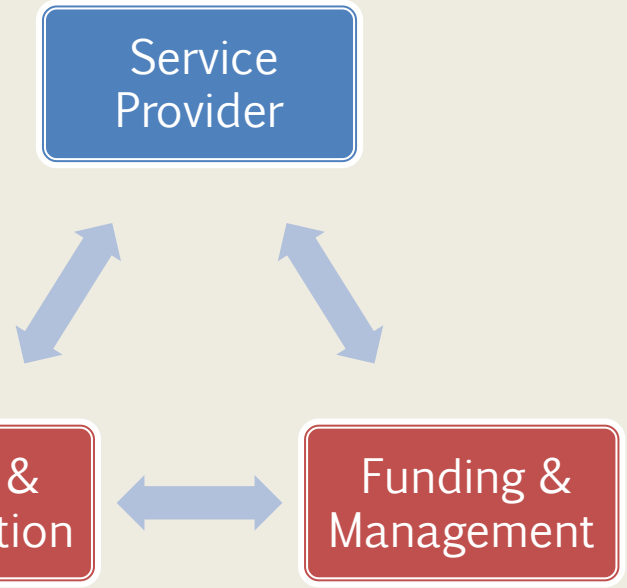
المرحلة الأولى		المرحلة الثانية		المرحلة الثالثة	
2020 - 2018		2023 - 2021		2026 - 2024	
بورسعيد	الإسماعيلية	الأقصر	مطروح	الإسكندرية	البحيرة
جنوب سيناء	السويس	البحر الأحمر	قنا	دمياط	سوهاج
شمال سيناء		أسوان		كفر الشيخ	

المرحلة الرابعة		المرحلة الخامسة		المرحلة السادسة	
2028 - 2027		2030 - 2029		2032 - 2031	
بني سويف	أسيوط	الدقهلية	الشرقية	القاهرة	الجيزة
المنيا	الوادي الجديد	الغربية	المنوفية	القليوبية	
الفيوم					

National Market

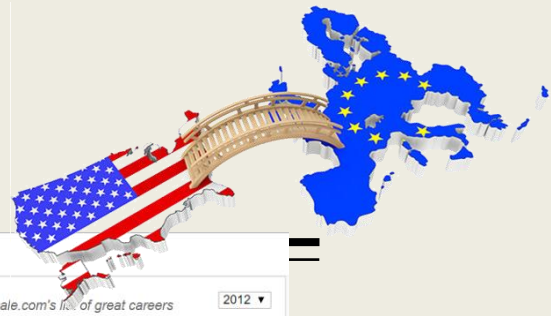
التأمين الصحي الشامل
UNIVERSAL HEALTH INSURANCE

- Healthcare system reform plan
  - Clinical engineering,
  - Healthcare facilities designing & planning,
  - Medical standards,
  - Medical software,
  - Healthcare management,
  - Healthcare information systems.



6- ثلاث هيئات معنية بتطبيق القانون، وهى هيئة الرعاية الصحية، وتكون معنية بمنافذ تقديم الخدمة، وهيئة الجودة والاعتماد، وتمنح المستشفيات الاعتماد وفق معايير الجودة المعمول بها، وهيئة التأمين الصحى، وتتولى إدارة وتمويل التأمين الصحى.

Regional & International Market



14 مليار دولار حجم مشاريع الرعاية الصحية بالسعودية

السبت 21 جمادى الأولى 1435هـ - 22 مارس 2014م

Gulf countries offering international investment opportunities in health care

N.P. Krishna Kumar

Dubai

A shortage of hospitals, clinics and related infrastructure, along with an increasing population and official push to promote medical tourism, makes the health care sector in the Gulf region a promising area for investment.

The increasing emphasis on health care as part of economic plans is exemplified in the UAE Vision 2021 and Saudi Vision 2030. Both countries are promoting public-private partnerships to finance health-care projects.

"Dubai needs 1,000 hospital beds in the next five years just to keep pace with the growing population growth, which translates to seven hospitals, at around 150 beds per hospital," said Craig Plumb, head of research at Jones Lang LaSalle MENA.

Promising sector. Official opening of King College Hospital London's new Medical Centre in Jumeirah. (Dubai King's College Hospital UAE)

REUTERS

TVM Capital plans $200 mln investment in UAE healthcare portfolio

CNN Money

BEST JOBS IN AMERICA *CNNMoney/PayScale.com's list of great careers* 2012

1. Biomedical Engineer 1 of 100 BACK NEXT

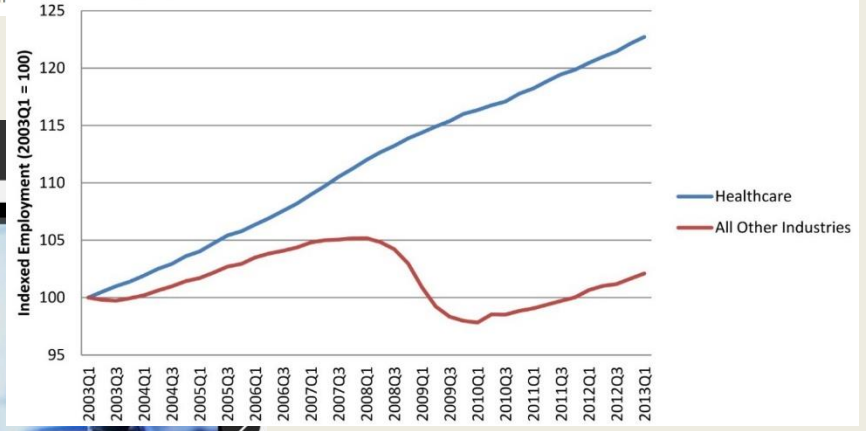
Like 6.8K Tweet Share G+ Email Print

Median pay: $79,500
Top pay: $124,000
10-year job growth: 61.7%
Total jobs*: 15,700

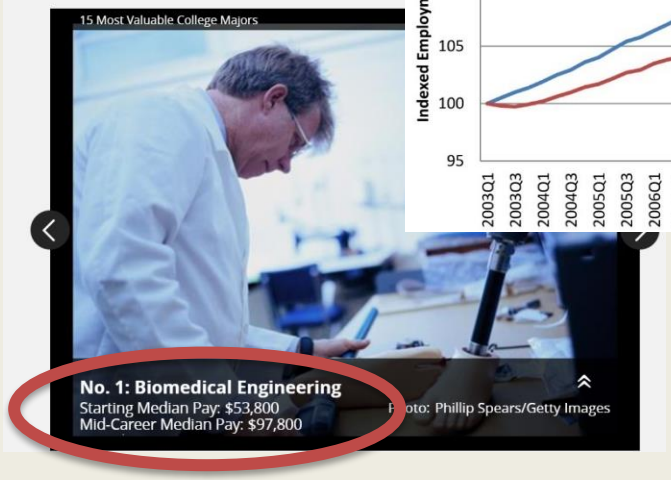
What they do all day? Science fiction is a little less fictional in the day-to-day work of biomedical engineers, who design prosthetic limbs and artificial organs or regenerate tissue. They also create drug formulations, develop pharmaceuticals or collect and analyze biological data, among other work. In this field lies the intersection of biology and engineering skills, which helps health

COURTESY GENEVIEVE ROSE

U.S. Employment Growth in Healthcare and All Other Industries, 2003Q1-2013Q1



Forbes



BME

HEM

Circuits & Electronics

Signals, Measurements & Control

Biological Science

Mechanical Engineering

Medical Software

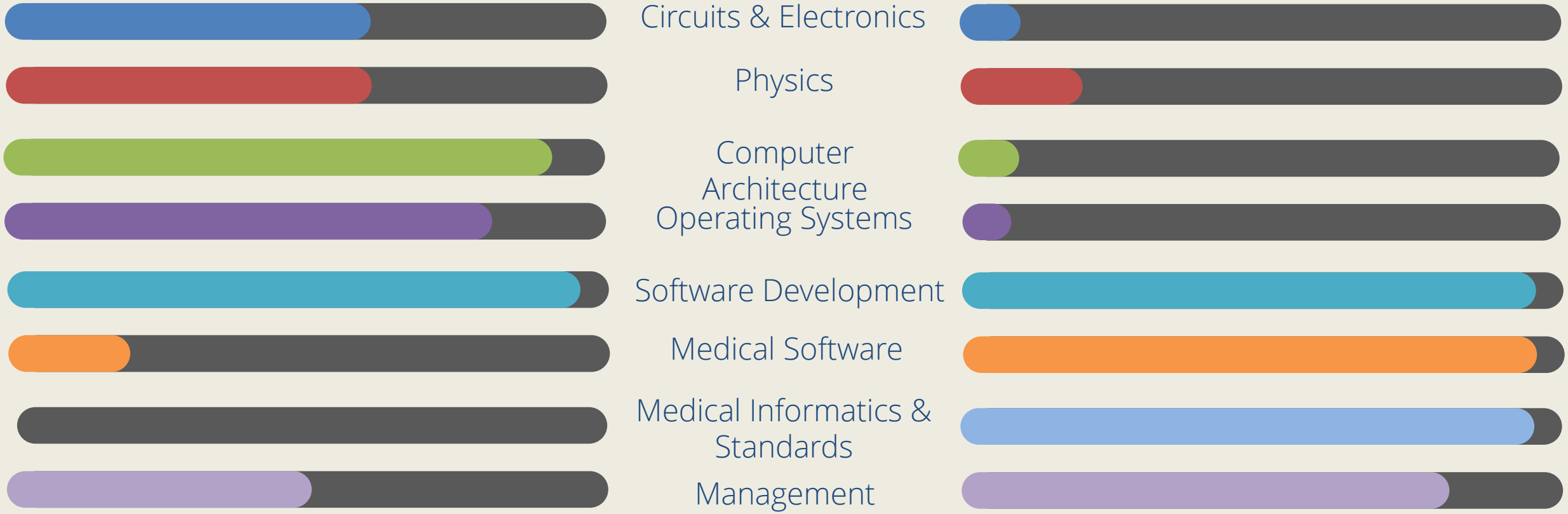
Medical Informatics

Medical Standards

Management

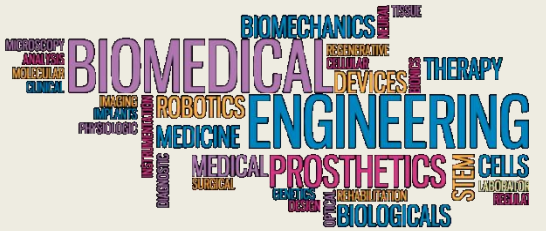
CCE-C

HEM


Circuits & Electronics
Physics
Computer Architecture
Operating Systems
Software Development
Medical Software
Medical Informatics & Standards
Management

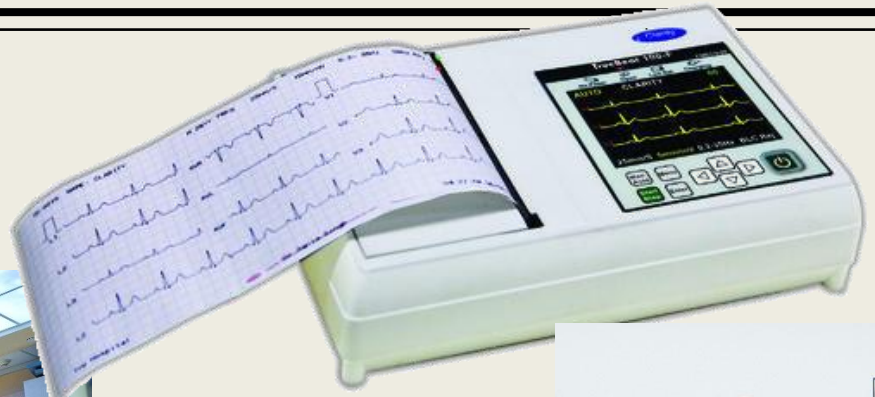
GIGABYTE

BIOMEDICAL ENGINEERING AREAS



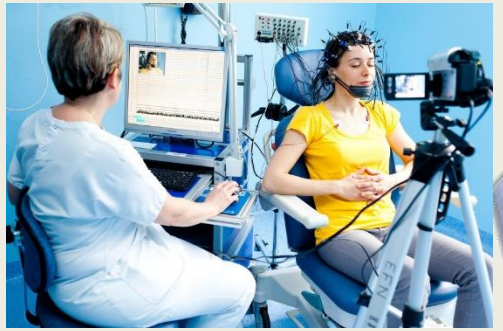
Machineries

- Bioinstrumentation
- Medical imaging
- Surgical instruments
- Medical devices
- Medical robotics



Measurement Devices

- Monitoring



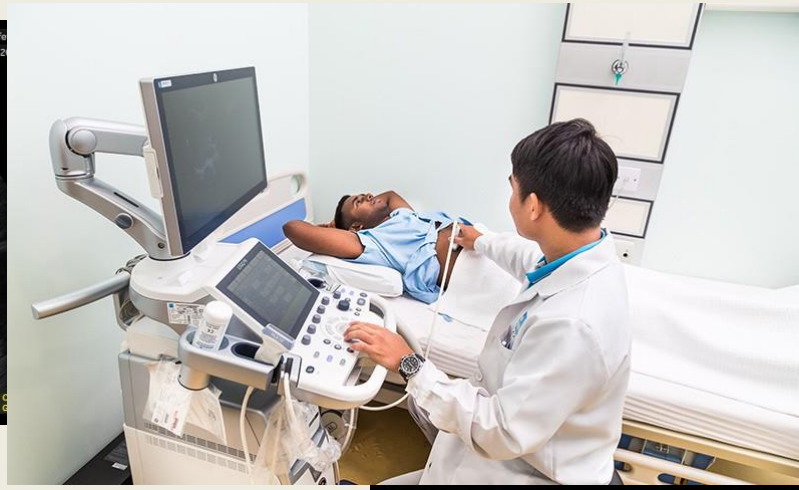
- Basic tools

- Labs

Radiological Devices

- X-Ray

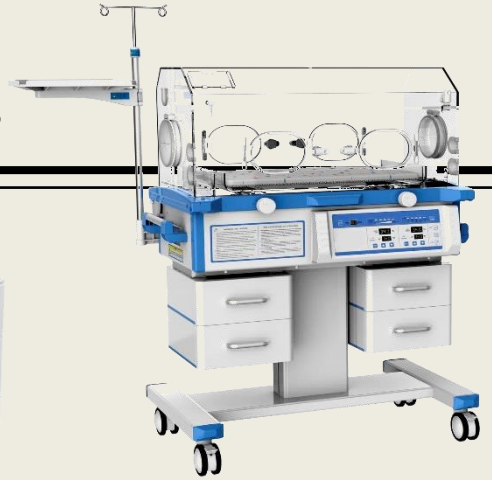
- Ultrasound



- Magnetic Resonance Imaging

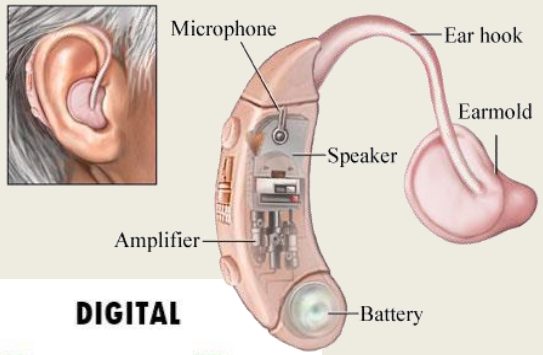
Assisting Devices

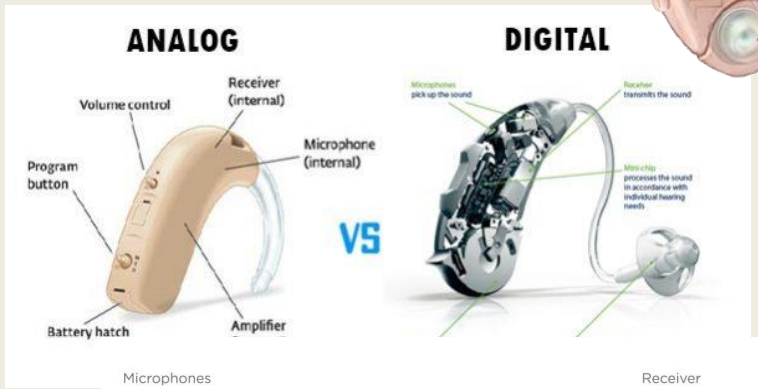
- Incubators

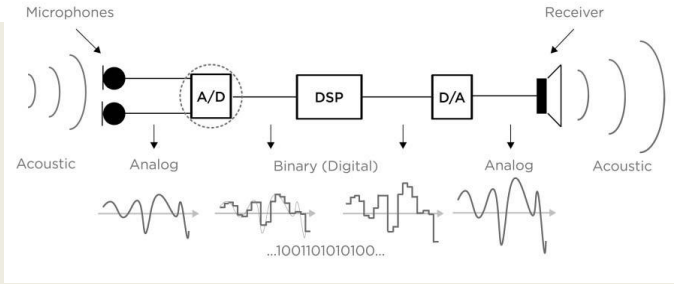


- Ventilators

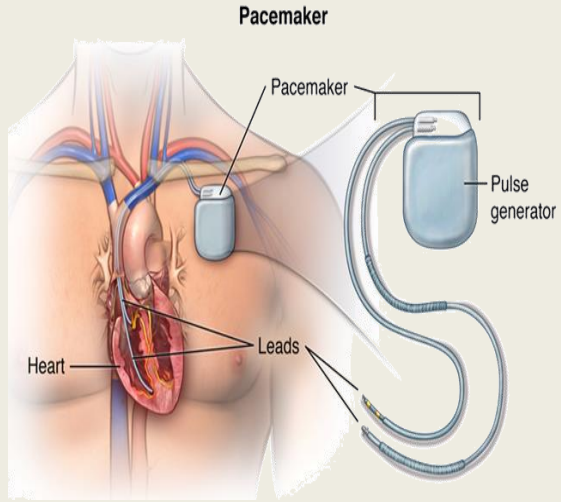
Hearing-aid





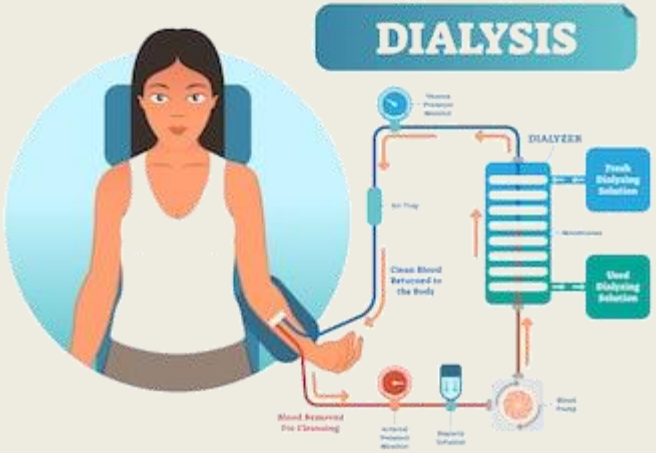


Pacemaker & ICD

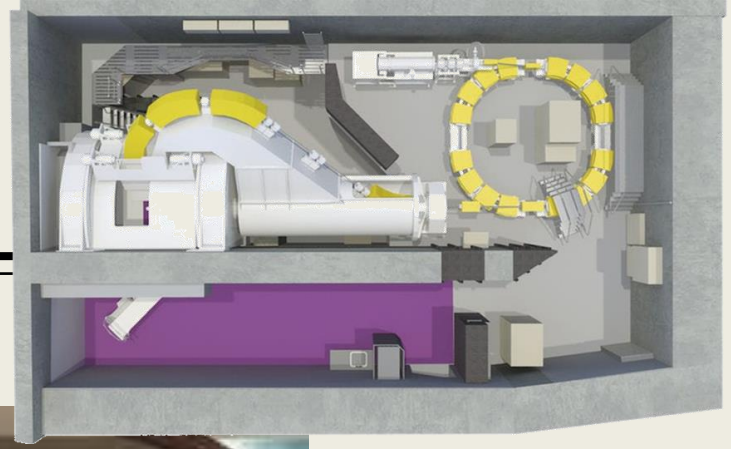


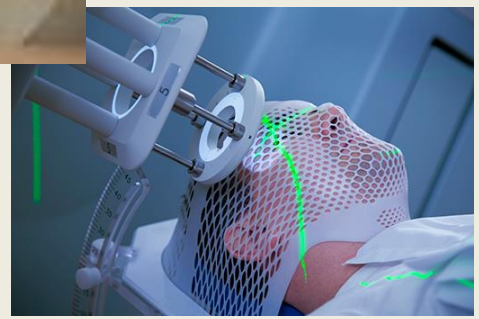
Treatment Devices

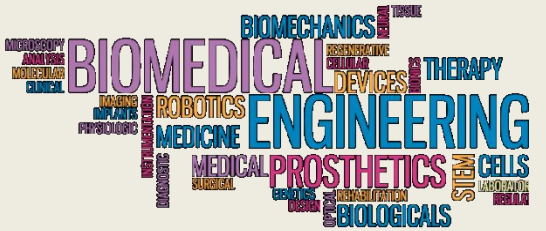
- Dialysis



- Radio-Therapy

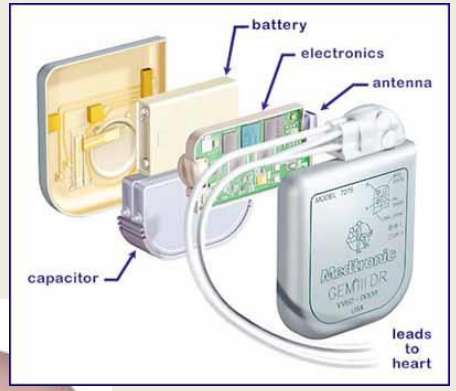


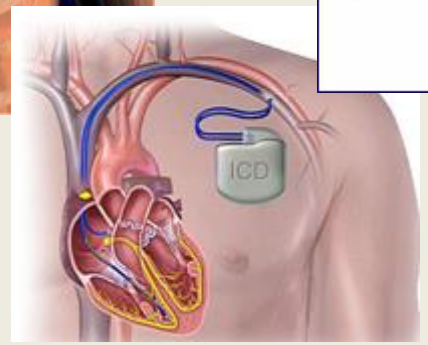


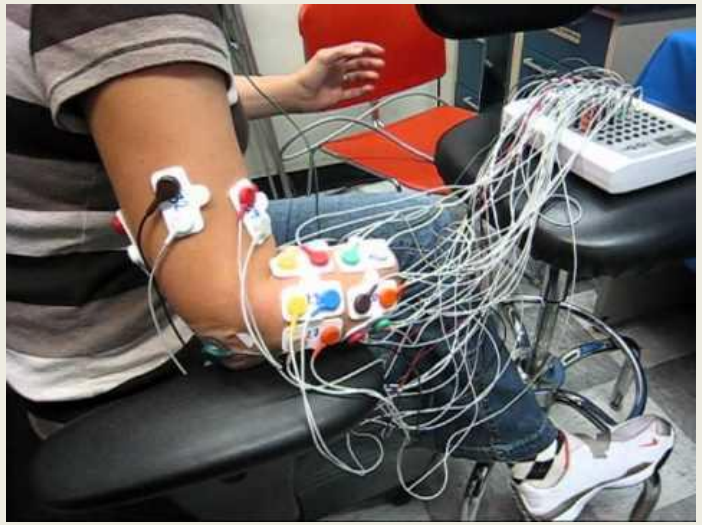


Signal Processing

- ECG (heart waves)
- EEG (brain waves)
- EMG (muscles waves)







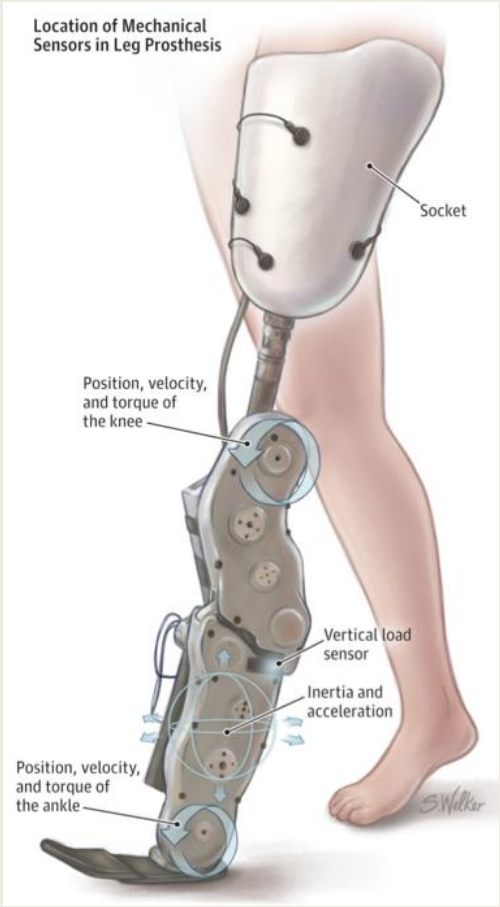
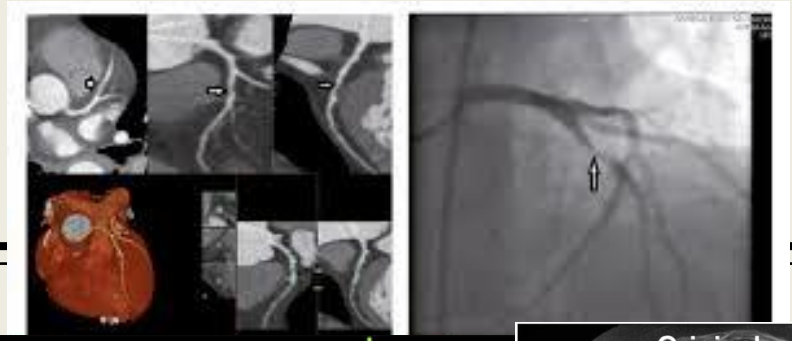
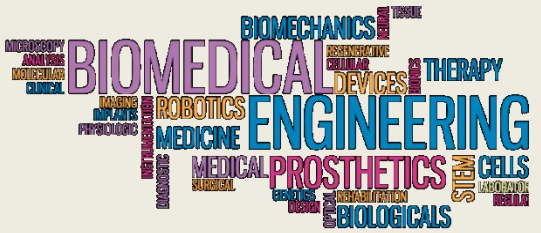
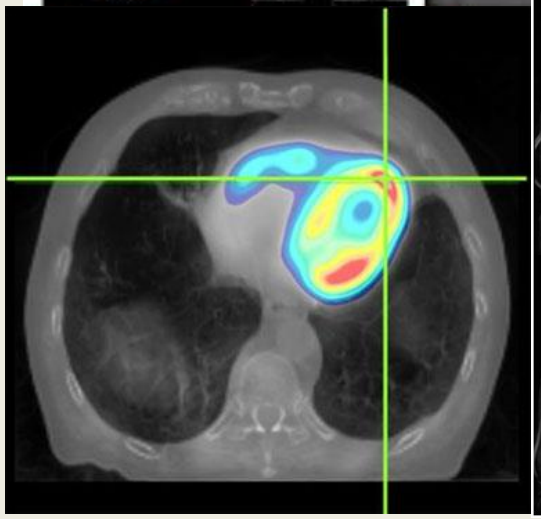


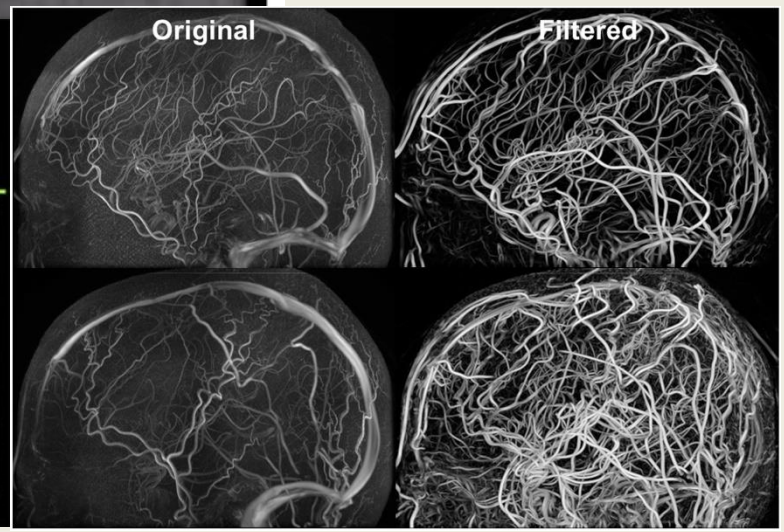
Image Processing & Computer Vision

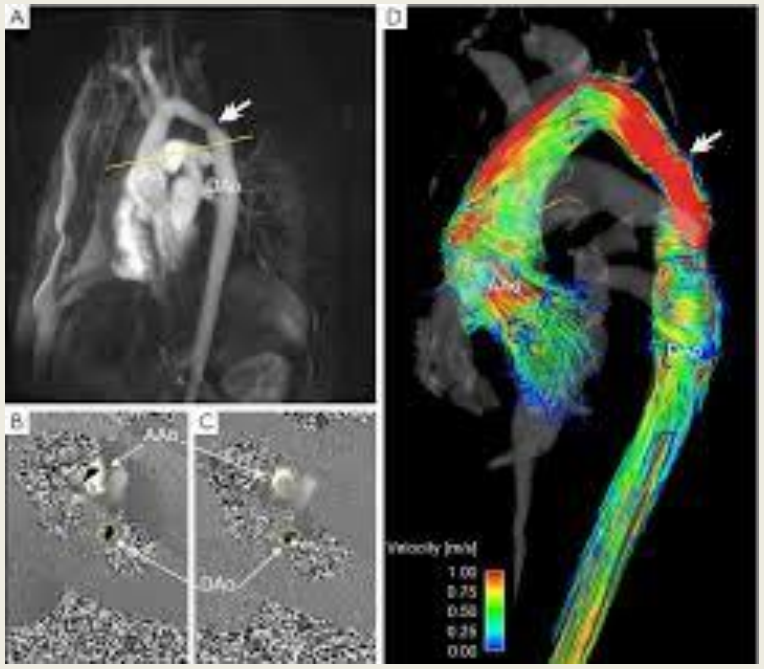
- Pattern recognition,
- Big Data,
- Deep Learning.

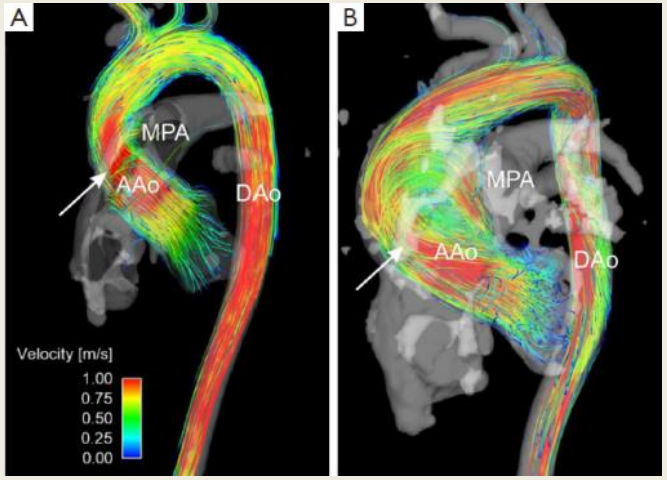


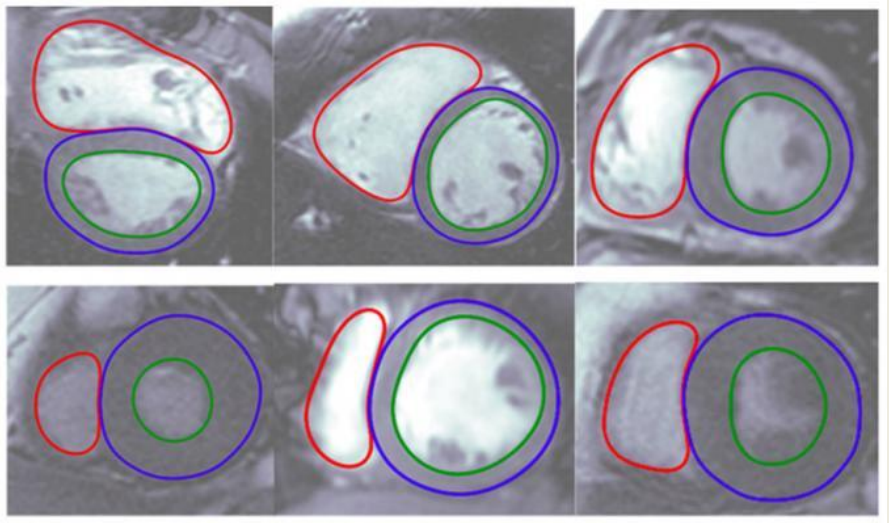




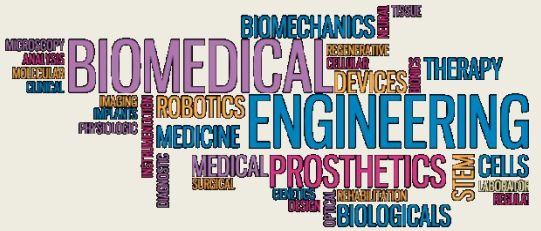


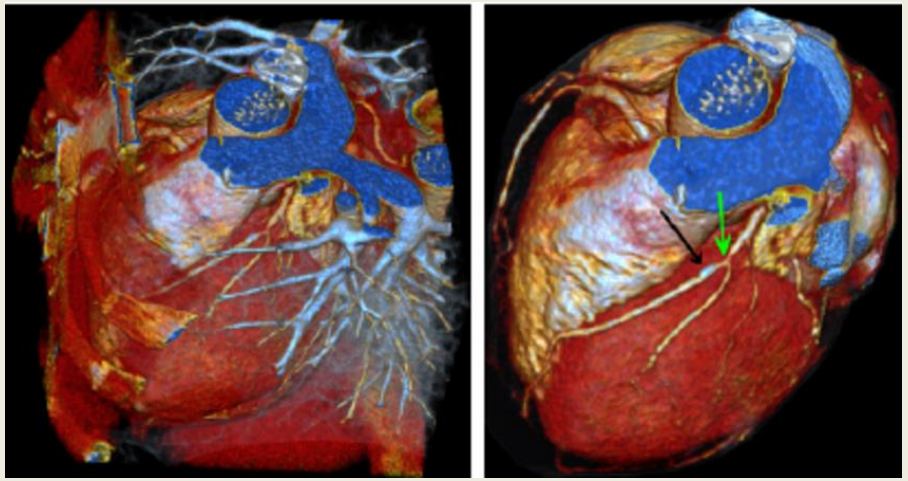


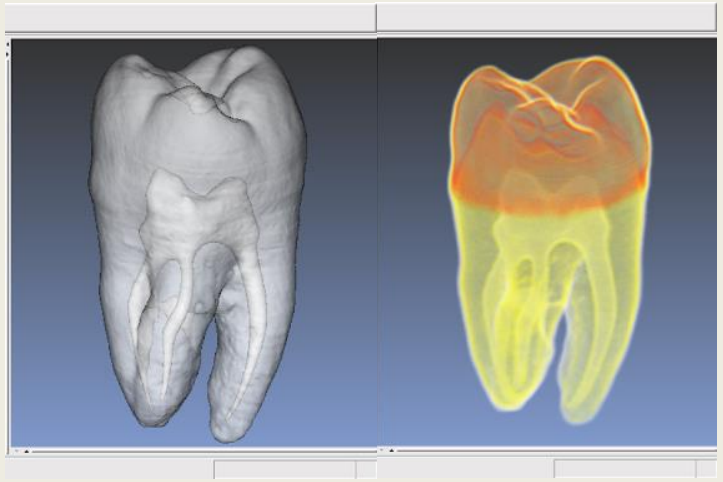


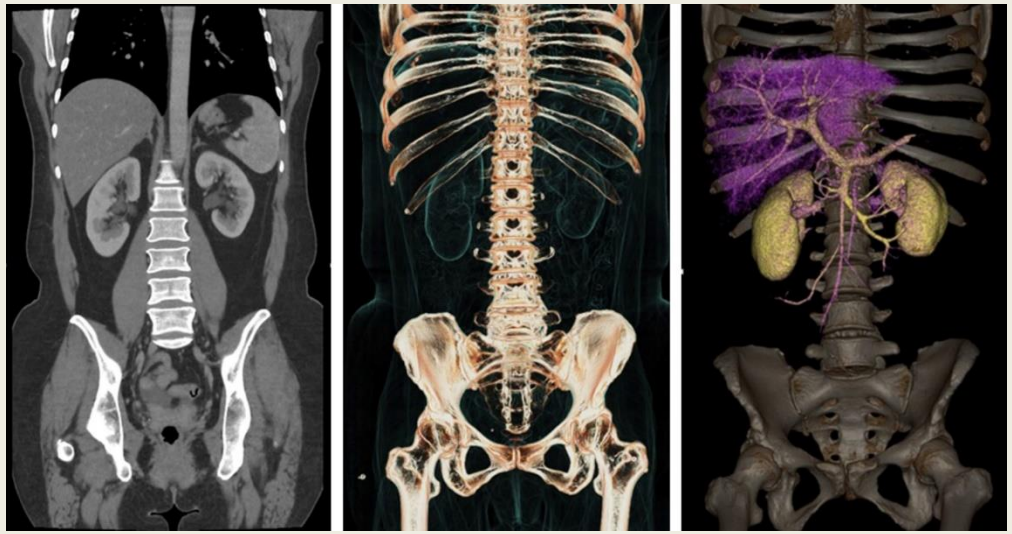


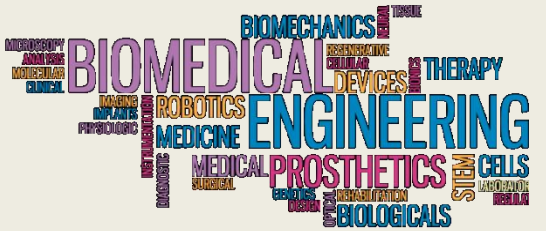
Visualization & Virtual & Augmented Reality





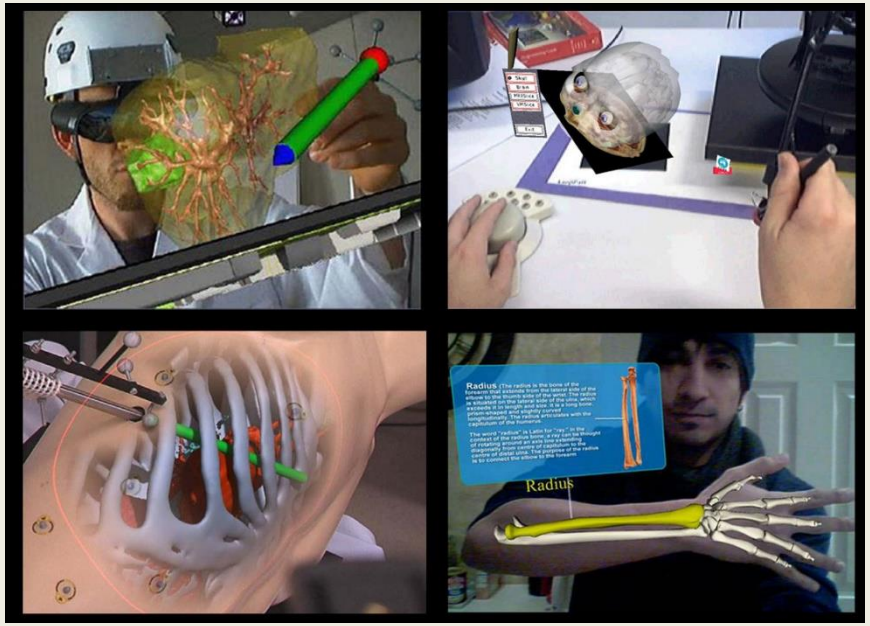




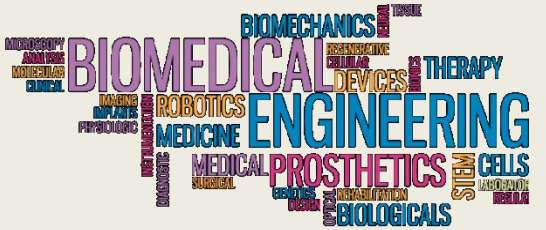


Visualization & Virtual & Augmented Reality

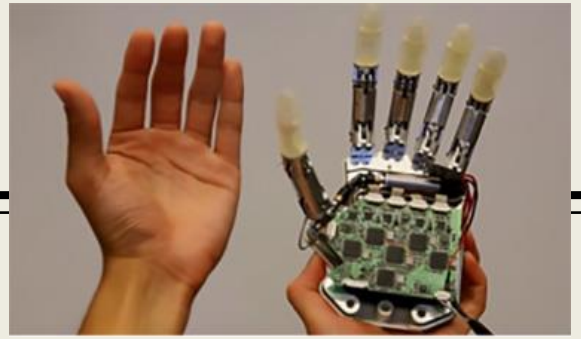
- Intervention surgeries

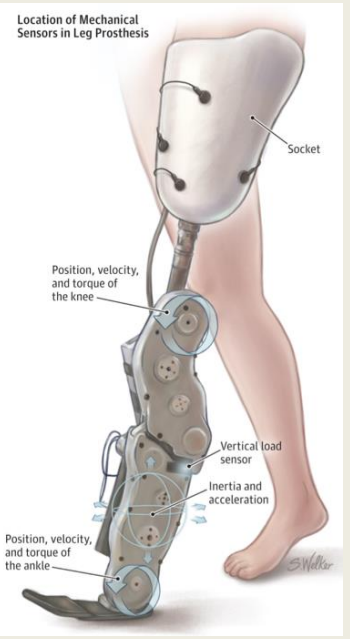


Mechatronics

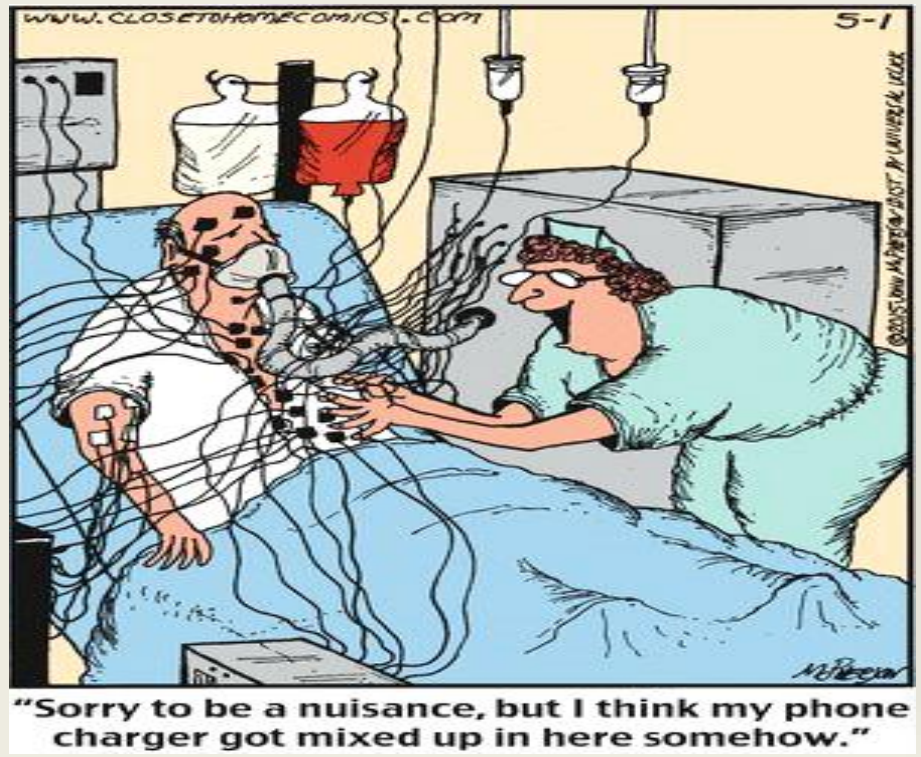


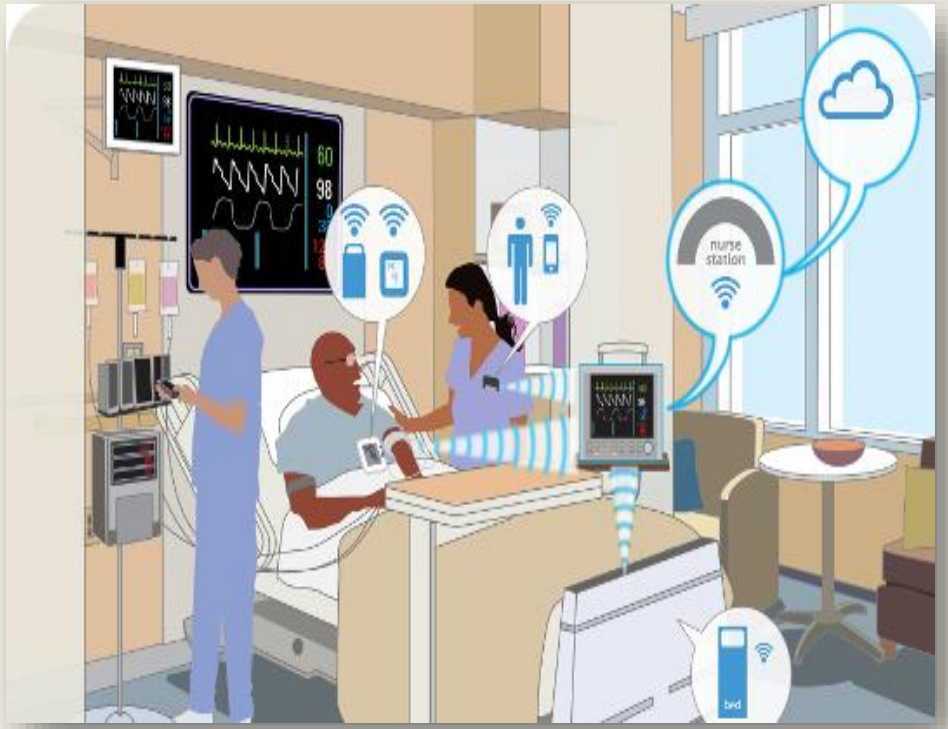
- Biomechanics, Rehabilitation, Orthopedic.
- Biomaterials, Tissue engineering.
- 3D printing and bio-fabrication, Prosthetics.

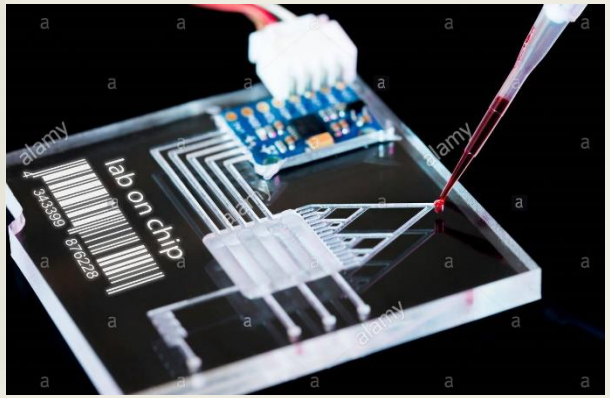


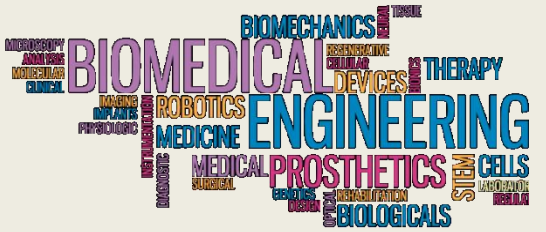


Tele-health, IoTs, Lab-On-A-Chip

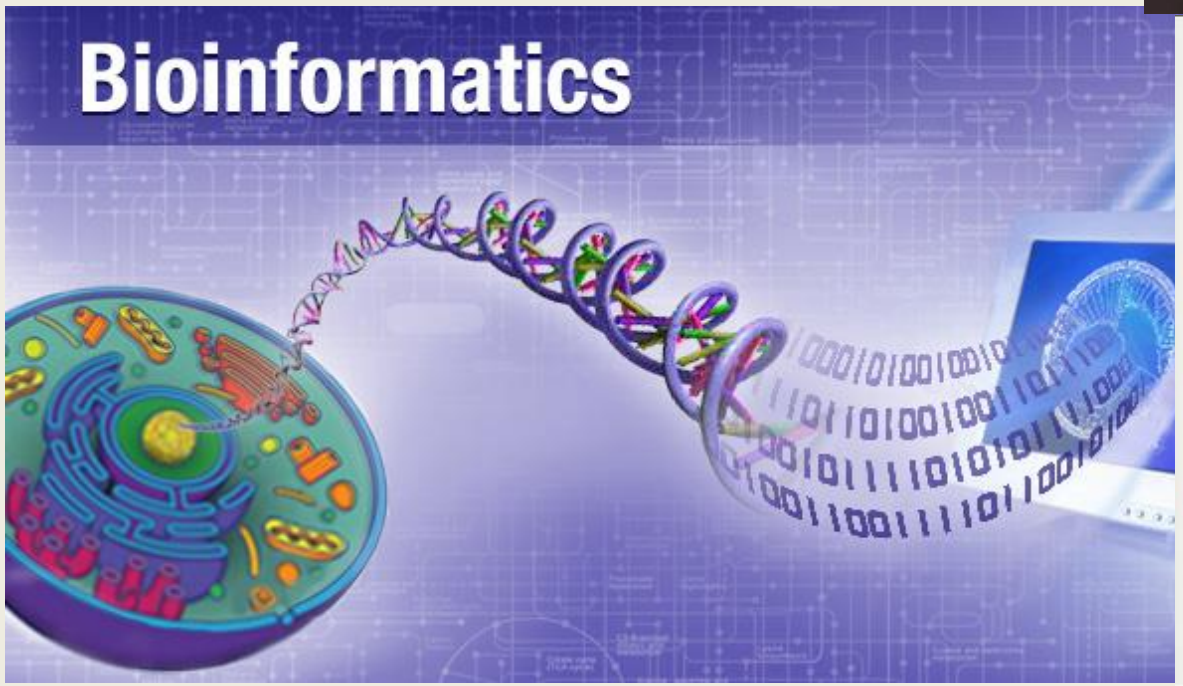


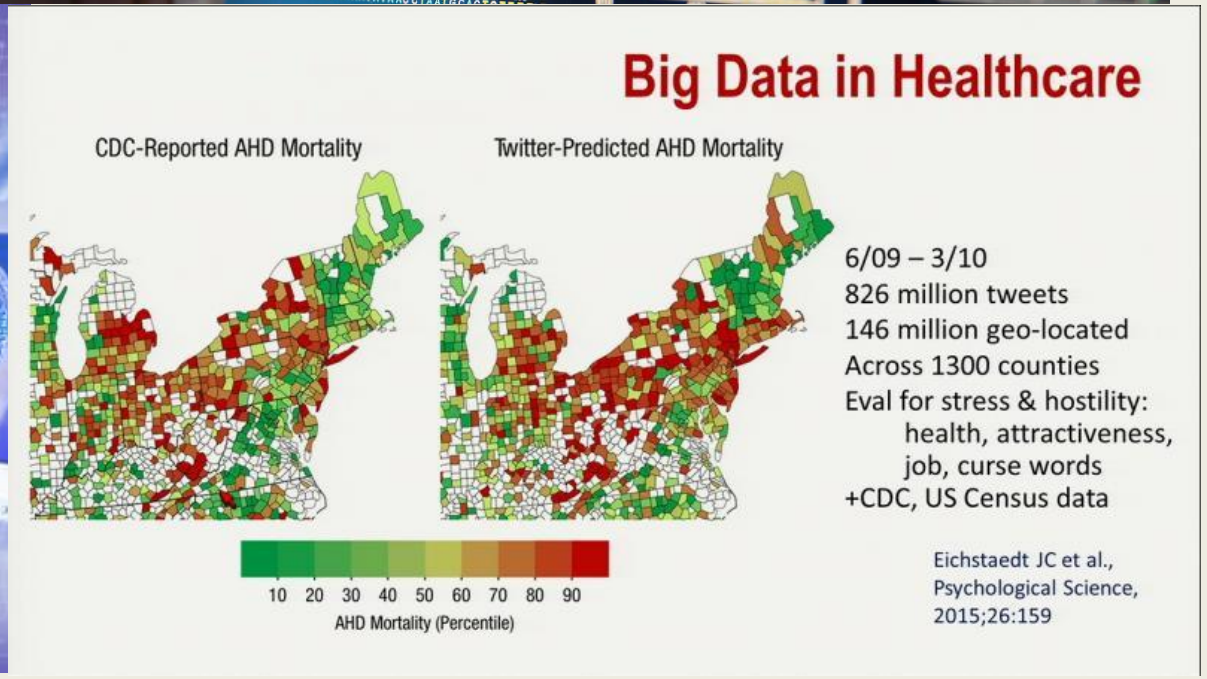




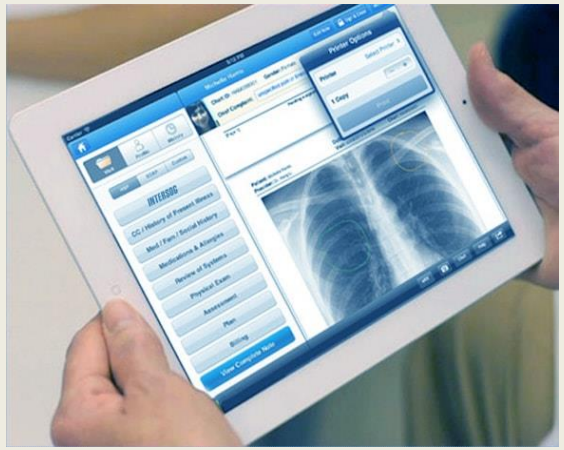


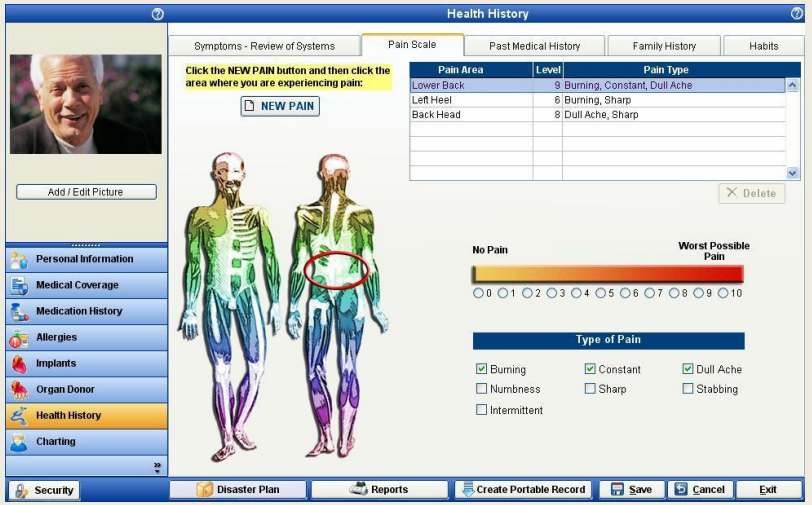
Bioinformatics, Genetic Engineering

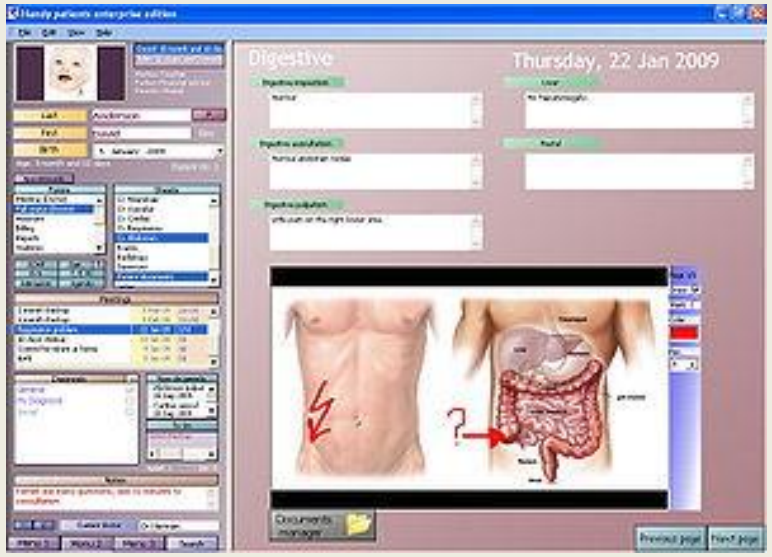


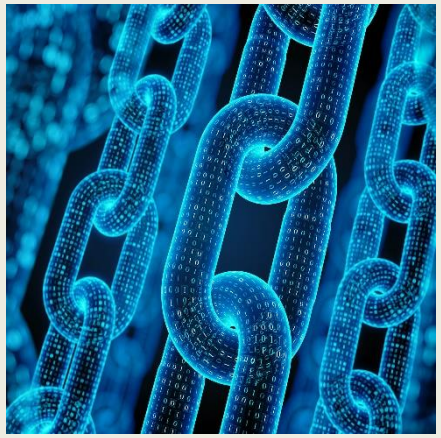


Health Informatics, Medical SW, Security/Privacy

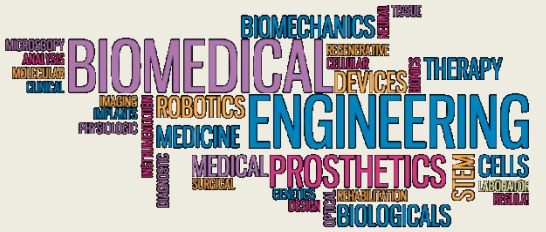






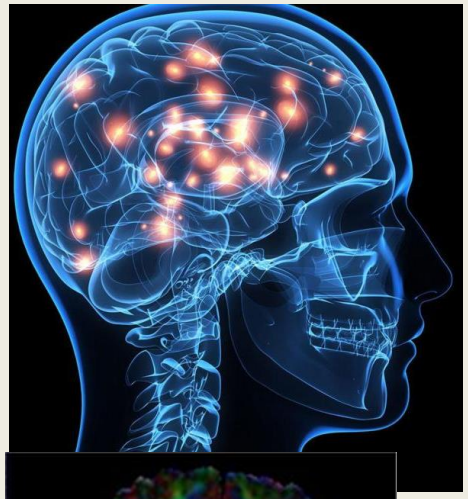


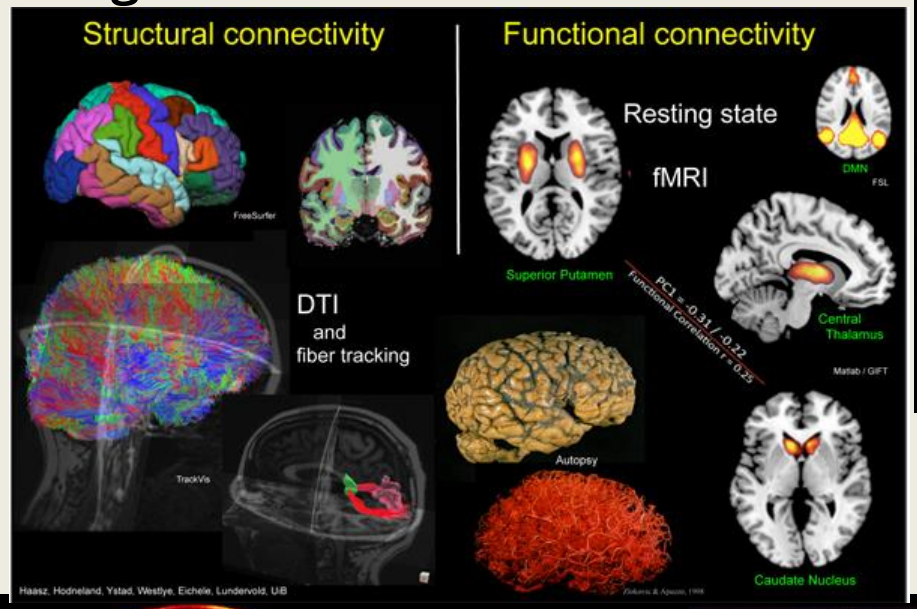
Clinical Engineering

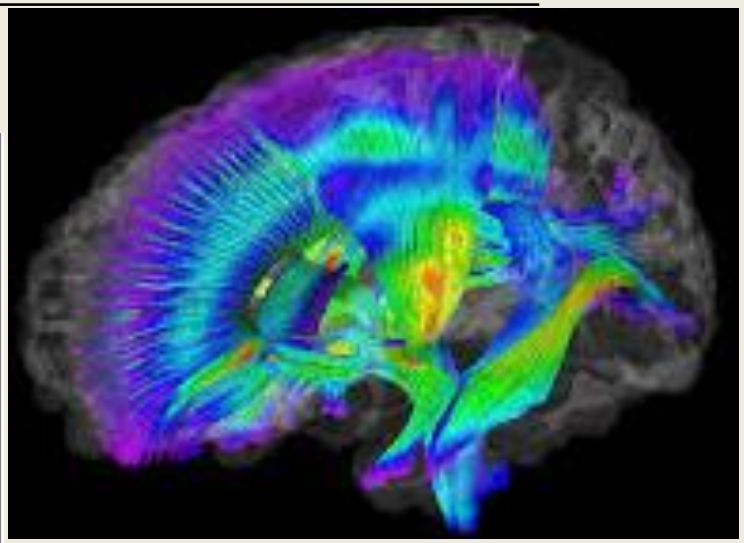


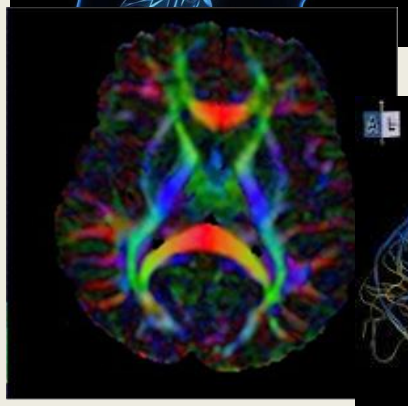
Bio-Inspired Systems

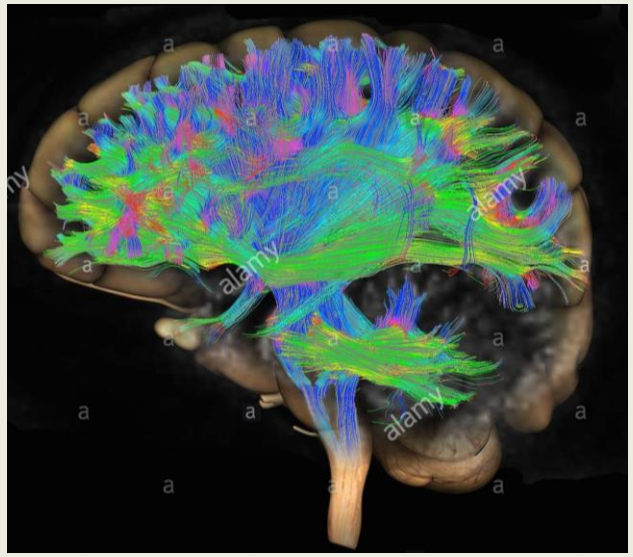
- Systems Physiology (Neural Eng, Neuroscience, Computational modelling)











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قسم هندسة طبية - الدور الثاني مبني عمارة

THANK YOU

Questions:

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More on biomedical field:
https://www.youtube.com/watch?v=T1Win0bdrHw
https://www.youtube.com/watch?v=3QP2-bzluII
https://www.youtube.com/watch?v=xlUfHBhnjB0