

AULA 01 – PTC 3435

02/08/2018

APRESENTAÇÃO

- **Sala D2-01**
- **3091-1723**
- **htmoriya@usp.br**
- **Moodle**

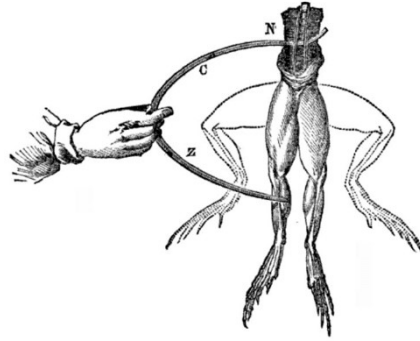
ALUNOS

- **Nome**
- **Curso**
- **Experiência**
- **Expectativas**

DISCIPLINA

- **Objetivos**
- **Formas de avaliação**

1791
Proceedings of the Bologna Academy
Luigi Galvani



David Ames Wells, *The science of common things: a familiar explanation of the first*

Galvani x Volta

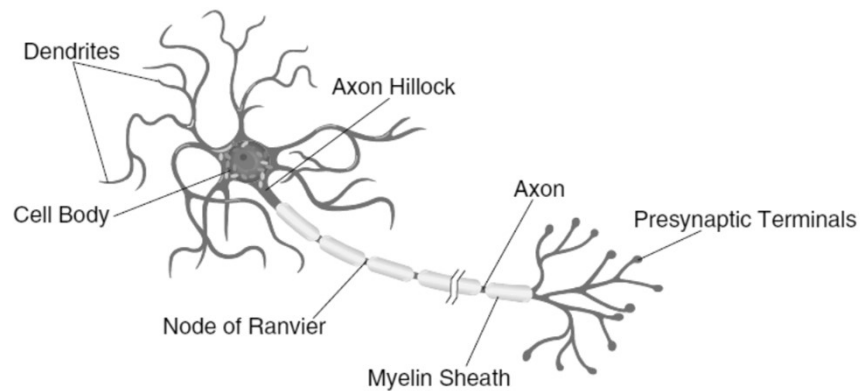
EXPERIMENTO DE GALVANI



<https://youtu.be/sJifWqUa2pY>

ORIGEM DOS BIOPOTENCIAIS

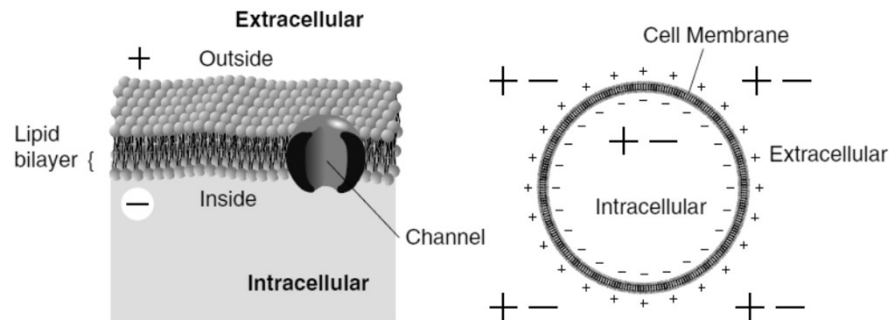
Neurônio típico



Enderle, Introduction to Biomedical Engineering

ORIGEM DOS BIOPOTENCIAIS

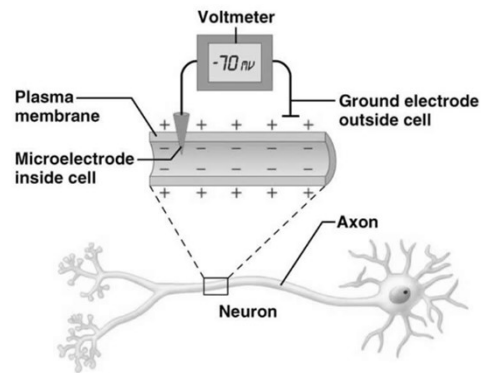
Membrana celular



Enderle, Introduction to Biomedical Engineering

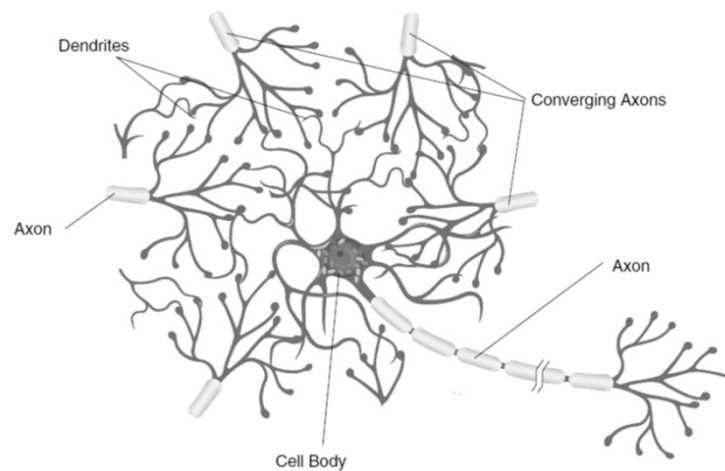
ORIGEM DOS BIOPOTENCIAIS

Membrana celular *Potencial de repouso*



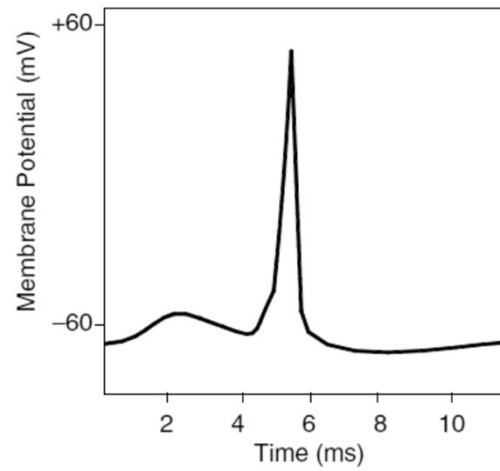
<http://classes.midlandstech.edu/carterp/Courses/bio210/chap11/lecture1.html>

ORIGEM DOS BIOPOTENCIAIS



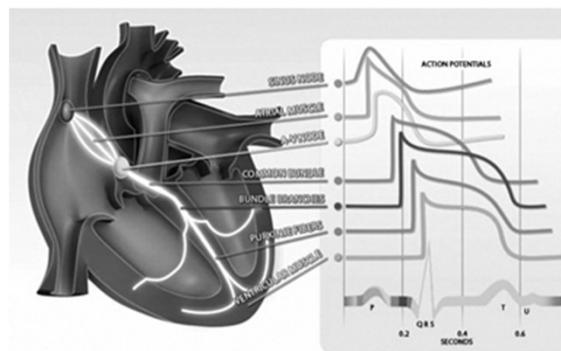
Enderle, Introduction to Biomedical Engineering

ORIGEM DOS BIOPOTENCIAIS



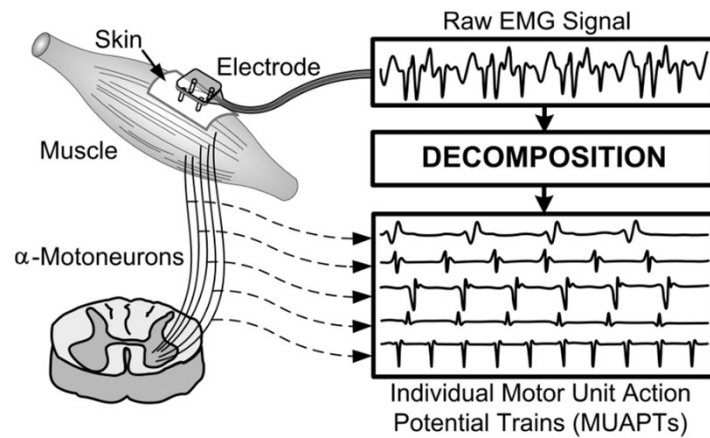
Enderle, Introduction to Biomedical Engineering

ORIGEM DOS BIOPOTENCIAIS



http://www.dronedarone-atrial-fibrillation-pressoffice.com/sites/default/files/2_0.jpg

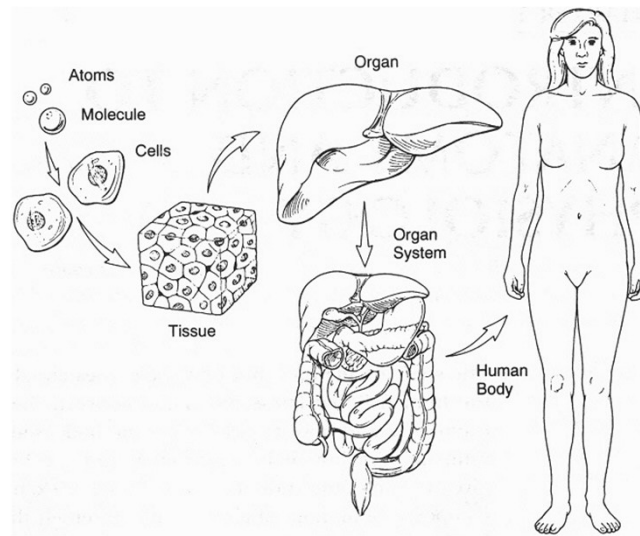
ORIGEM DOS BIOPOTENCIAIS



TERMINOLOGIA

- **Anatomia**
 - ✓ **Ciência que estuda a estrutura do corpo**

NÍVEIS DE ESTRUTURA



Alcamo, I. E. Anatomy & physiology the easy way. Barron's, 1996.

TERMINOLOGIA

- **Fisiologia**
 - ✓ **Ciência que estuda as funções e funcionamento normal dos seres vivos**

FISIOLOGIA

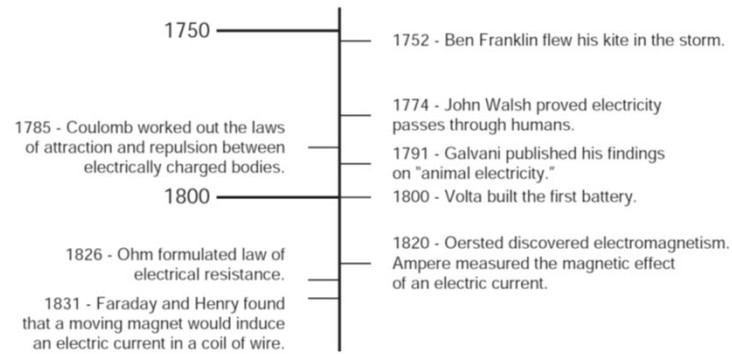


ECG Principle fast.gif. Author: Kalumet. Wikimedia Commons

FISIOLOGIA

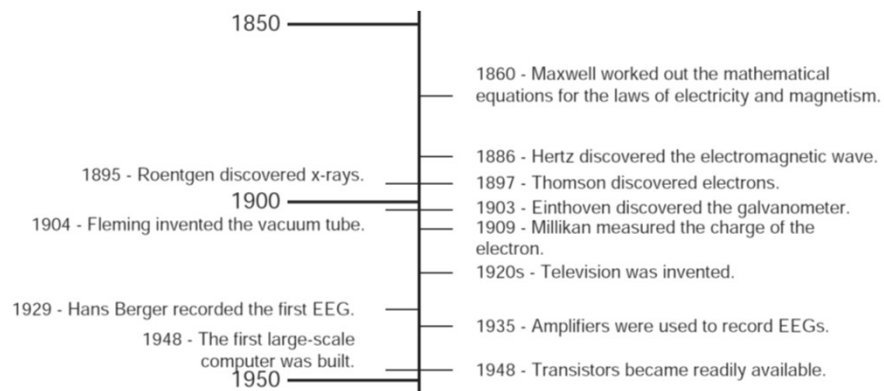


HISTÓRIA



Enderle, Introduction to Biomedical Engineering

HISTÓRIA



Enderle, Introduction to Biomedical Engineering

HISTÓRIA

1960 - Chaddock and Greatbatch created the first implantable pacemaker.

1981 - IBM introduced the first personal computer.

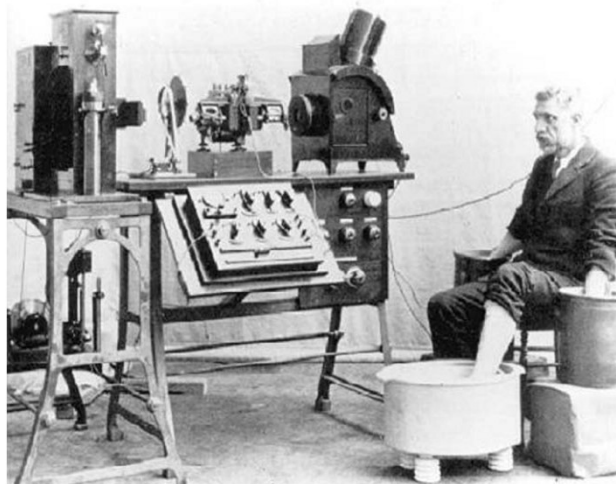
2000

1959 - First transistor-based computer was made.

1972 - First CAT machine was made.
First microprocessor was used.

Enderle, Introduction to Biomedical Engineering

HISTÓRIA

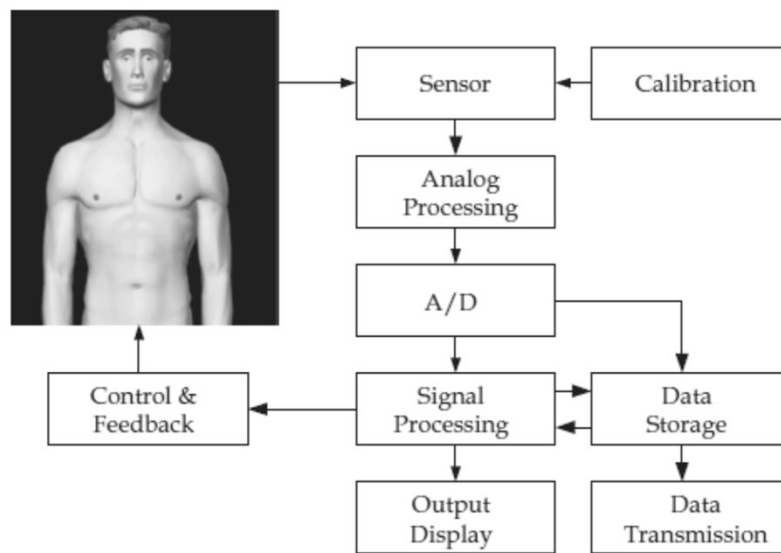


(Bioinstrumentation, Enderle)

HISTÓRIA

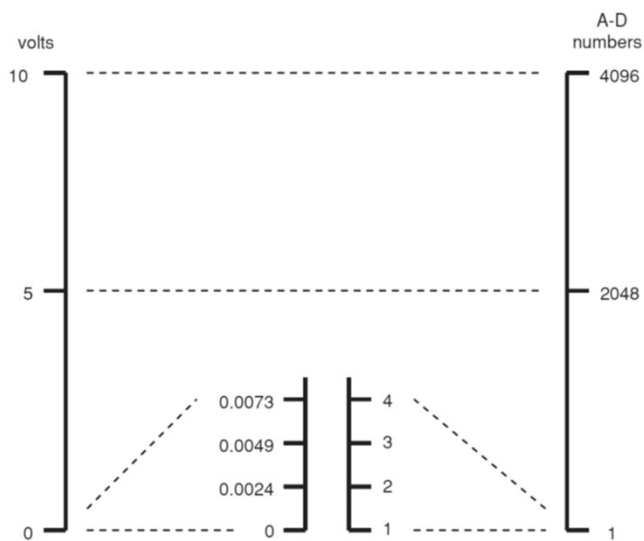


SISTEMA DE INSTRUMENTAÇÃO BIOMÉDICA



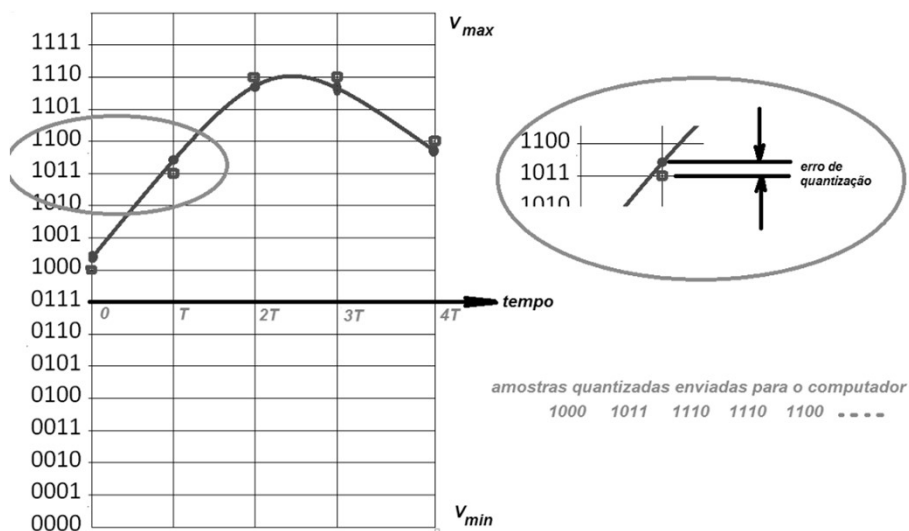
(Bioinstrumentation, Enderle)

CONVERSOR A/D 12 BITS

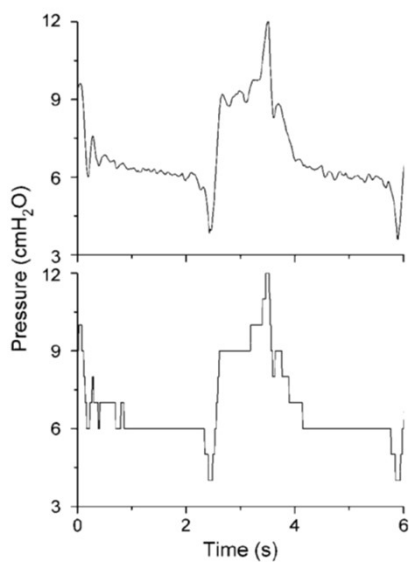


Jason H. T. Bates – Cap. 2
Lung Mechanics: an Inverse Modeling Approach

ERRO DE QUANTIZAÇÃO

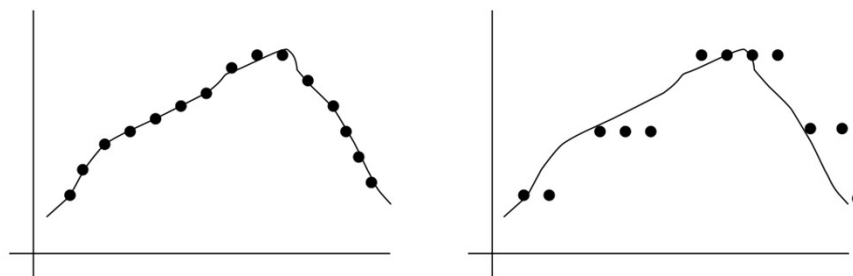


AMPLIFICAÇÃO ADEQUADA



Jason H. T. Bates – Cap. 2
Lung Mechanics: an Inverse Modeling Approach

AMPLIFICAÇÃO ADEQUADA



Jason H. T. Bates – Cap. 2
Lung Mechanics: an Inverse Modeling Approach

VIDEO LAPARASCOPIA