Patient Specific Modeling Of The Cardiovascular System Technology Driven Personalized Medicine 1st E

#patient specific modeling #cardiovascular system #personalized medicine #medical technology #cardiac simulation

Explore the cutting-edge realm of patient-specific modeling within the cardiovascular system, a pivotal area in technology-driven personalized medicine. This resource highlights innovative approaches and methodologies for understanding and treating cardiac conditions by tailoring interventions based on individual patient data and advanced simulations.

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against cardiovascular risk factor lipoprotein (12 Nov), rat-tested depot technology for sustained delivery of GLP-1 receptor agonists against the need for... 486 KB (44,299 words) - 02:49, 8 March 2024
O'Donnell CJ, Nabel EG (December 2011). "Genomics of cardiovascular disease". The New England Journal of Medicine. 365 (22): 2098–2109. doi:10.1056/NEJMra1105239... 78 KB (7,517 words) - 16:12, 1 February 2024
Johansson KA (February 2022). "Estimating impact of food choices on life expectancy: A modeling study". PLOS Medicine. 19 (2): e1003889. doi:10.1371/journal.pmed... 173 KB (17,098 words) - 11:24, 22 February 2024

Cardiovascular System Overview, Animation - Cardiovascular System Overview, Animation by Alila Medical Media 1,556,078 views 4 years ago 6 minutes, 31 seconds - (USMLE topics, cardiology) Functions of the **circulatory system**,, anatomy and basic physiology of the heart, components of blood ...
The Cardiovascular System: An Overview - The Cardiovascular System: An Overview by Strong Medicine 481,405 views 2 years ago 28 minutes - An introduction and broad overview of the **cardiovascular system**,, including anatomy of the heart and blood vessels, the cardiac ...
Subject-Specific Modeling in Computational Cardiac Electrophysiology - Subject-Specific Modeling in Computational Cardiac Electrophysiology by SCIInstitute 474 views 11 years ago 1 hour, 7 minutes - Darrell Swenson.
Intro
Subject Specific Modeling
Load Sharing

Cardiac Electrophysiology
Outline
Cardiac Myocytes
Action Potentials
Cell Model
Myocardial Ischemia
ECG Based Detection
Animal Preparation
Electrodes
Previous Models
Border Zone Simulation
Border Zone Sensitivity
Gradient Magnitude
Geometric Meshing
Non-Conforming vs Conforming
Electrical Currents
Conforming Meshing
Ischemia Model
Ischemia Results
Activation Simulation
Uncertainty
Forward Problem
Heart Position
Sensitivity Studies
Heart Motion
False Positive
Conclusions
Future Research
Acknowledgments
Reaction Diffusion
Patient-Specific Modeling-Heart: Estimation Of Ventricular Fiber Orientations l Protocol Preview - Patient-Specific Modeling-Heart: Estimation Of Ventricular Fiber Orientations l Protocol Preview by JoVE (Journal of Visualized Experiments) 28 views 1 year ago 2 minutes, 1 second - Patient,-**specific Modeling**, of the **Heart**,: Estimation of Ventricular Fiber Orientations - a 2 minute Preview of the Experimental ...
Enhancing Personalized Medicine with Cardiovascular Genomics - Enhancing Personalized Medicine with Cardiovascular Genomics by Mayo Clinic Laboratories 526 views 1 year ago 54 minutes - In this month's “Virtual Lecture,” Linnea Baudhuin, Ph.D., professor of laboratory **medicine**, and pathology in the Division of ...
Introduction
Learning Objectives
Inherited Cardiovascular Disorders
Testing for Inherited CV Disorders
Precision Medicine in Cardiology
Polygenetic Risk Scores
CompBioMed Webinar 1: HPC simulations of cardiac electrophysiology using patient specific models - CompBioMed Webinar 1: HPC simulations of cardiac electrophysiology using patient specific models by Computational Biomedicine 280 views 6 years ago 58 minutes - This video has now been updated and can be viewed here: https://youtu.be/pz8yJmClLQQ.
Introduction to the physiology of the heart
Electrophysiology of the heart
Cell electrophysiology
Tissue electrophysiology
Cardiac modelling
Mathematical modelling
First cardiac AP model
Monodomain and bidomain models
Integrative physiology through modelling
Considered simulation software

2D electrical propagation using Chaste • 2D Mesh geometry
Chaste example 2 • 2D propagation with ischemia
Chaste example 3
3D simulations in Chaste
Personalization of anatomical models
Computer Simulations to explain Cardiac phenotypes
Alya example 1 · Biventricular model (5.2M nodes and 32M clements)
Electro-mechanical modelling
Alya example 2
Final comments
Acknowledgements
Most Common ECG Patterns You Should Know - Most Common ECG Patterns You Should Know by Rhesus Medicine 1,003,440 views 8 months ago 12 minutes, 14 seconds - We look at the most common ECG rhythms and patterns seen in **Medicine**,, including main identifying features of each. For more ...
Sinus Rhythm (Sinus Tachycardia & Sinus Bradycardia
Atrial Fibrillation – AF video link
Atrial Flutter
Premature Ventricular Contraction (PVCs) & Premature Atrial Contractions (PACs)
Bundle Branch Block (LBBB & RBBB)
1st Degree AV Block
2nd Degree AV Block - Mobitz 1 (Wenckebach) & Mobitz 2 (Hay)
3rd Degree Heart Block (Complete Heart Block) Heart Block Video Link
Ventricular Tachycardia & Ventricular Fibrillation
ST Elevation
ECG Interpretation Made Easy (Learn How to Interpret an ECG in 13 Minutes) - ECG Interpretation Made Easy (Learn How to Interpret an ECG in 13 Minutes) by Rhesus Medicine 666,602 views 11 months ago 13 minutes, 8 seconds - A systematic approach to reading an Electrocardiogram (ECG/EKG) in 5 clear steps that will increase confidence in ECG ...
ECG – The Basics You Need To Know
ECG Interpretation – Details and Settings
ECG Interpretation – Axis
ECG Interpretation – Rate
ECG Interpretation – Rhythm
ECG Interpretation – Morphology (QRS)
ECG Interpretation – Morphology (ST Segment)
ECG Interpretation – Morphology (T Waves)
ECG Interpretation – Morphology (QT Interval)
ECG Interpretation – Morphology (U Waves)
Flow Chart
Important Considerations
CAR T Cells: The Ultimate Anti-Aging Solution? | 16 - Longevity This Week #2 - CAR T Cells: The Ultimate Anti-Aging Solution? | 16 - Longevity This Week #2 by The Optispan Podcast with Matt Kaeberlein 9,983 views 2 days ago 50 minutes - While scientific papers are generally considered trustworthy sources of information, it's important to approach them with a critical ...
Trailer
Introduction
Paper: Prophylactic and long-lasting efficacy of senolytic CAR T cells against age-related metabolic dysfunction
The paper's title
Going through the abstract
Does this intervention really improve health and delay aging?
Metabolic improvements
Exercise capacity
Other effects on aging
Possible takeaways from the paper
BBC article about the paper
Immune-based therapies to target aging
Translating these findings to humans

What's next on Longevity This Week
Cardiac Ablation for Atrial Fibrillation (AFib) - Cardiac Ablation for Atrial Fibrillation (AFib) by Rush University System for Health 89,155 views 9 months ago 3 minutes, 25 seconds - Cardiac, ablation for atrial fibrillation (AFib) is a treatment that helps fix your **heart**, rhythm while you're asleep. See how the RUSH ...
Introduction
Technology
Ablation
Blood Flow Through the Heart (Made Easy in 5 Minutes!) - Blood Flow Through the Heart (Made Easy in 5 Minutes!) by ICU Advantage 929,227 views 3 years ago 6 minutes, 8 seconds - An explanation of the flow of blood through the **heart**, made easy to understand in just 5 minutes! In this lesson I cover the ...
Intro
Lesson
Conclusion
Catheter Ablation: What is it and how does it help an irregular heart beat? - Catheter Ablation: What is it and how does it help an irregular heart beat? by Norton Healthcare 299,901 views 2 years ago 3 minutes, 27 seconds - Catheter ablation is a treatment for arrhythmias. Electrophysiologist Kevin Thomas, M.D., of the Norton **Heart**, & Vascular Institute ...
Cardiovascular System 3, Heart, electrical system - Cardiovascular System 3, Heart, electrical system by Dr. John Campbell 715,963 views 8 years ago 23 minutes - The electrical activity for the contraction of the **heart**, is initiated by the: a. sinoatrial node b. atrioventircular node c. medulla ...
Introduction
Heart
Heart pacemaker
AV node
Conducting pathways
Valves
Purkinje fibers
Heart rate
Basics of Cardiac #electrophysiologic study part 1 #epstudy #ablation #SVT #EPS #drnarendrakumar - Basics of Cardiac #electrophysiologic study part 1 #epstudy #ablation #SVT #EPS #drnarendrakumar by HeartbeatsZ Academy 19,421 views 4 years ago 24 minutes - Basics of **cardiac**, #electrophysiologic study #eps #epstudy #ablation #epstudyandablation #epablation Course on **Cardiac**, ...
30 Essential Survival Gear & Gadgets You Must Have - 30 Essential Survival Gear & Gadgets You Must Have by Outdoor Survivalist 2,775 views 6 days ago 32 minutes - Survival gear and gadgets are crucial for staying prepared in emergency situations. However, finding the most essential and ...
Macleod's examination of the cardiovascular system - Macleod's examination of the cardiovascular system by Farsight Channel 2,089,544 views 10 years ago 12 minutes, 55 seconds - This video demonstrates clinical examination techniques as described in Macleod's Clinical Examination. The textbook with ...
feel the pulse with the base of your fingers
measure the blood pressure
inflate the cuff by a further 30 millimeters
listen over the brachial artery with the stethoscope diaphragm
reduce the cuff pressure by 2 to 3 millimeters
place the tip of your thumb between the larynx
turn your head very slightly to the left hand side
look across the neck from the right hand side
look for central cyanosis
obtain a general impression of the cardiac impulse
feel for a right ventricular heave with the heel
feel the carotid pulse with your thumb
hear the murmur of aortic stenosis
listen in the left axilla with the diaphragm
roll onto your left hand side
examine for superficial edema over the sacrum a common location
inspect the abdomen for visible pulsation or surgical scars

inspect the legs and feet considering ischemia and venous insufficiency
use the stethoscope diaphragm
flex the knee to 30 degrees
using the pads of your middle three fingers
measure the ankle brachial
CompBioMed Webinar 1: HPC simulations of cardiac electrophysiology using patient specific models - CompBioMed Webinar 1: HPC simulations of cardiac electrophysiology using patient specific models by Computational Biomedicine 464 views 6 years ago 55 minutes - The webinar was run by the Computational **Cardiovascular**, Science team (CCS) of the University of Oxford and provided an ...
Intro
Brief introduction to (electro)physiology
Introduction to the physiology of the heart
Electrophysiology of the heart
Cell electrophysiology
Tissue electrophysiology
Cardiac modelling
Mathematical modelling
First cardiac AP model
Monodomain and bidomain models
Integrative physiology through modelling
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3D simulations in Chaste
Personalization of anatomical models
Computer Simulations to explain Cardiac phenotypes
Alya example 1
Electro-mechanical modelling
Alya example 2
Acknowledgements
Towards Digital Medicine : Patient-Specific Models of the Heart - Towards Digital Medicine : Patient-Specific Models of the Heart by CITRIS 381 views 13 years ago 46 minutes - Speaker: Hervé Delingette, INRIA Abstract: There is an major evolution of the **medical**, practice towards more quantitative and ...
Intro
Medical Imaging modalities
General Trends in Medical Imaging
Medical Image Analysis
Physiological Modeling of the Heart
Objectives of Personalized Cardiac Modeling
Issues in Cardiac Modeling
A Multi-Physics Problem Reo, Macs
Cardiac Image segmentation based on the CardioViz3D Software
Statistical Atlas of cardiac Fiber Orientation using Canine Diffusion Tensor MRIs Based on 9 canine hearts (E. McVeigh, NIH, JHU)
Fiber Tracking on the Average Cardiac DTI
Modelling Cardiac Electrophysiology
Electrophysiology Simulation
Electromechanical Coupling
Cardiac Contraction
Personalization of Cardiac Models
Ex Vivo Optical Imaging
Without Mechanical Personalization
Virtual Cardiac Resynchonization Therapy
Next Challenges
Electrocardiography (ECG/EKG) - basics - Electrocardiography (ECG/EKG) - basics by Osmosis from Elsevier 3,481,948 views 6 years ago 8 minutes, 36 seconds - What is electrocardiography

(ECG/EKG). ECG is a way to measure the electrical activity of the heart. More videos on ECG ...
ELECTROCARDIOGRAM ELG
ELECTROCARDIOGRAM (ECG IEKG)
CHEST LEADS
8-PART ECG SERIES
Lecture 1 - Introduction to the Cardiovascular System - Lecture 1 - Introduction to the Cardiovascular System by Dr Matt & Dr Mike 62,312 views 3 years ago 37 minutes - The following learning outcomes will be covered in this lecture: 1.1 - Describe the chambers of the **heart**, and the pathway of blood ...
1.1 - Describe the chambers of the heart and the pathway of blood through the heart in the adult (Time
1.2 - Describe the layers of the heart wall including the structure and function of myocardium (Time
1.3 - Describe the surface anatomy relating to the heart, the heart valves, and heart sounds (Time
1.4 - Compare/contrast coronary arteries and their functional significance (Time
Cardiovascular System 1, Heart, Structure and Function - Cardiovascular System 1, Heart, Structure and Function by Dr. John Campbell 5,787,350 views 8 years ago 21 minutes - Which chamber of the **heart**, pumps blood into the pulmonary artery? a. the left atrium b. the right atrium c. the left ventricle d. the ...
Drawing the Heart
Ventricles
Top Chambers of the Heart
Atrial Ventricular Valve
Right Side of the Heart
Pulmonary Arterial Valve
Pulmonary Arterial Semilunar Valve
Tricuspid Valve
Right Atrium
The Flow of Blood through the Heart
Valves
The Layers of the Heart
Pericardium
Endocardium
Cardiac Muscle
Myocardium
Cardiac Septum
Physiology at the Heart of Personalized Medicine - Physiology at the Heart of Personalized Medicine by Amsterdam UMC 125 views 5 months ago 1 minute, 30 seconds - At Amsterdam UMC we use stem cells from **patients**, with inherited **cardiac**, arrhythmias and cardiomyopathies. These **patients**, ...
Medical Terminology of the Cardiovascular System Part 1! - Medical Terminology of the Cardiovascular System Part 1! by CTE Skills.com 19,769 views 2 years ago 10 minutes, 49 seconds - Rather than opening up a book and trying to learn all the **medical**, terminology out there; CTE Skills, in our Anatomy and ...
Intro
Root Element: Cardi/o Cardi/a
Root Element: Phleblo
Root Element: art arteri(o)
Root Element: thrombo
Root Element: hem/o hem/a hemat/o
The Cardiovascular Assessment - Part 1 of 2; History Taking - The Cardiovascular Assessment - Part 1 of 2; History Taking by Allan Gardner 829 views 3 years ago 34 minutes - Uh inquiring about our past **medical**, history helps us to broaden our perspective of the **patient's**, general health um do they have ...
Engineering healthcare systems for discovery and implementation in personalized medicine - Engineering healthcare systems for discovery and implementation in personalized medicine by Yale Cardiovascular Medicine Grand Rounds 120 views 4 years ago 52 minutes - Dan Roden, MD, describes the mechanisms underlying variability in response to **drug**, therapy. Objectives: **1**,. Describe how large ...
Grant support: NIH, American Heart Association, Helen and Robert Kleberg Foundation
The roadmap Some cases, and starting to think about how Big Data can enable personalized medicine

Teen collapses, dies at basketball practice
Searching for genotype-phenotype relations
The genomics of drug-induced long QT syndrome and torsades de pointes, to summarize several decades of work...
Understanding the multiple components of normal QT can inform risk for drug-induced long QT
Polygenic risk scores: putting lots of common genetic variants together
A 50 year old man goes to a cardiologist and says "I want to know what I need to do to stay healthy. By the way, I brought my 23AndMe genotyping with me."
Assessing interactions between biomarkers and disease using electronic health records
An example: lower genetically predicted TSH levels are associated with increased AF risk
What happens if we genotype patients who have no phenotype? The eMERGE PGx experience
Capturing EHR phenotype patterns to create a Phenotype Risk Score for cystic fibrosis
Testing BioVU variants for pathogenicity
Fast forward 25 years: While we are designing PREDICT, the FDA adds pharmacogenetic information to the clopidogrel label.
CYP2C19 genotypes in 13,423 patients at Vanderbilt University Hospital
One predictor of switching from clopidogrel to something else in patients with genetic variants
The challenge: integrating multiple datasets for discovery and implementation
Precision Cardiovascular Medicine through Big Data, Informatics and Biotechnology, Louise Sun, MD - Precision Cardiovascular Medicine through Big Data, Informatics and Biotechnology, Louise Sun, MD by University of Ottawa Heart Institute 195 views 2 years ago 1 hour, 2 minutes - Weekly Research Conference with Dr. Louise Sun, MD, SM, FRCPC, FAHA Director, Big Data and Health Bioinfomatics Research ...
Dr Louise Sun
What Is Big Data
Definition of Big Data
Real World Applications
Disparities in Heart Failure Care
Sex Differences in Heart Failure Outcomes in Ontario
Access to Care
Influence of Procedure Techniques
Patient Defined Outcomes
Mortality Rates by Surgical Type
The Age and Frailty Interaction
Disability Free Survival
Oculus
Association with Hypotension with Mortality
Social Determinants of Health
How Do You Define Heart Failure Administrative Data
Pragmatic Clinical Trials
Falsification Endpoints
preregshortcuts combo course cardiovascular system webinar 1 of 5 (2.25 hours) - preregshortcuts combo course cardiovascular system webinar 1 of 5 (2.25 hours) by PREREG SHORTCUTS 3,681 views 1 year ago 2 hours, 21 minutes - Cardiovascular system, is vital as it's a high weighted chapter in the GPhC framework Struggling to revise Chapter 2 ...
Examination of the Cardiovascular System | Physical Examination - Examination of the Cardiovascular System | Physical Examination by Lecturio Medical 82,091 views 2 years ago 2 minutes, 18 seconds - » LEARN ABOUT: - The intention and limitations of this **cardiovascular**, exam course - How an examiner can assess a **patient**, ...
Cardiac Ablation (surgery) 3D Animation - Cardiac Ablation (surgery) 3D Animation by The Visual Surgery 174,918 views 1 year ago 1 minute, 18 seconds - Cardiac, Ablation How serious is **heart**, ablation surgery? What are the risks and side effects? Ablation has serious risks, although ...
Webinar 6 - Personalised Medicine using Systems and Machine-based Biology Approaches - Webinar 6 - Personalised Medicine using Systems and Machine-based Biology Approaches by Manav - The Human Atlas Initiative 247 views 3 years ago 57 minutes - Webinar Topic: When and Where to Divide to Conquer : **Personalised Medicine**, using **Systems**, and Machine-**based**, Biology ...
Molecular Biology is Evolving Fast
Techniques are Evolving Rapidly...
BIG Data Generation

Interdisciplinary Team - Sadanandam Lab
"Engine" for Stratification and Personalize Cancer Medicine
Cancer is Heterogeneous
Conventional Medicine
Personalised Medicine - When and Where to Divide to Conquer
Complications
Al vs. Machine Learning vs. Deep Learning
Timeline of Machine and Deep Learning Approaches
Outline
exploBATCH - for Batch Diagnosis and Correction in Biomedical Data
Machine Learning Approaches
Pancreatic Adenocarcinoma (PDA)
Example 2 - Discrete Genome-Phenome Integrative Analysis Strategy in Colorectal Cancer with Prognostic Differences
Draw-backs Associated with Conventional Clustering Methods
A Next-Gen Bioinformatics Tool to Combine Omics Profiles with Phenotypes
Simultaneous Identification of Subtypes and Associated Drugs in Breast Cancer Cell Lines
Two Major Multi-Omics Integrative Subtyping Analysis
Cluster of Cluster Analysis of TCGA Breast Cancer Data
Deep Learning involves Neural Network
Indian Cancers Towards Affordable Personalized Treatment Strategies
Summary Subtypes are context Specific
PBMC RNA Biosensor for COVID Patient Response
Comprehensive View of Biosensor Analysis
Search filters
Keyboard shortcuts
Playback
General
Subtitles and closed captions
Spherical videos