

# Estado da Arte da Telemedicina

19-07-2016  
09:00h



SAÚDE DO FUTURO  
FUTURO DA SAÚDE com Mais Qualidade



György Miklós Böhm, professor emérito da FMUSP, criou a Disciplina de Telemedicina em 1997 e 1º presidente do CBTms (2003)



Chao Lung Wen

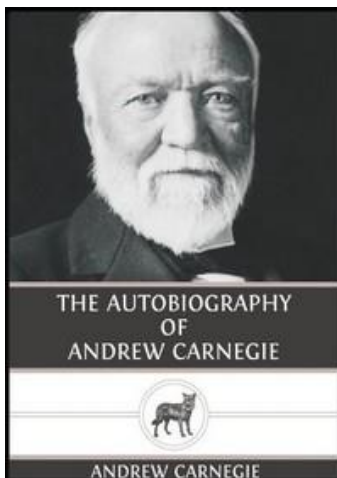
- Médico formado pela FMUSP em 1985.
- Professor Associado e Chefe da Disciplina de Telemedicina.
- Líder do Grupo de Pesquisa USP de Telemedicina, Tecnologias Educacionais e eHealth – Diretório de Pesquisa CNPq.
- Coordenador do *Projeto Homem Virtual e Anatomia Realística Morfofuncional com impressora 3D* e do *Programa Jovem Doutor*.



## Andrew Carnegie

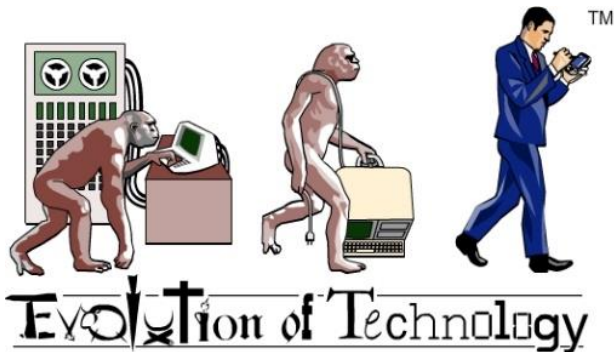
Era considerado o Rei do Aço. Fundou a Companhia de Aço Carnegie e a keystone Bridge Works, que construiu a primeira ponte de ferro em Ohiao, nos Estados Unidos

Medo x confiança – ponto de mudança



É jovem? Quase idoso?

É provocadora, evolutiva,  
transformadora,  
reorganizadora,  
estruturante?



**Modernidade para época**  
**Inovação transformadora**  
**Em mudança constante**

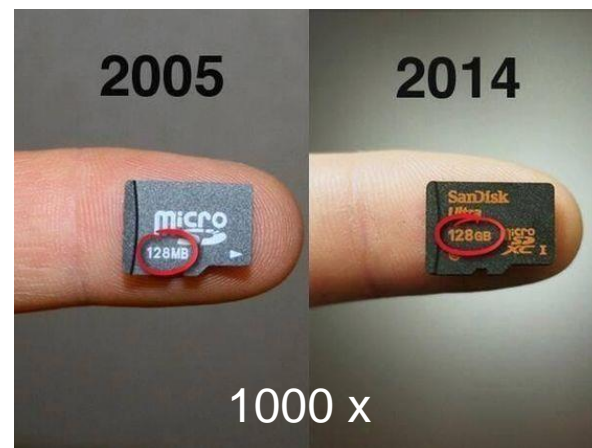
# O que é modernidade?



# Estamos numa ebulição de inovações e mudanças sociais que mal percebemos...

Você lembra de ....

- Quando surgiu o Facebook? **2004**
- Quando surgiu o iPhone? **2007**
- Quando surgiu o Whatsapp? **2009**
- Quando surgiu o iPad? **2010**



# Mobile Health

Disrupção - Dicionário On x videoconferencia robotico x mobile teledermatology - x Google Tradutor x

www.ncbi.nlm.nih.gov/pubmed/?term=mobile+teledermatology

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mobile health

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mobile health applications

mobile health technology

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mobile health application

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mobile health intervention

fda regulation mobile health

mobile health interventions

mobile healthcare

mobile health diabetes

mobile health clinics

fda regulation of mobile health technologies

mobile health heart

mobile health app

an evaluation of mobile health application tools

mobile health clinic

diabetes mobile health

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mobile health developing countries

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Items: 1 to 2

Two Dec

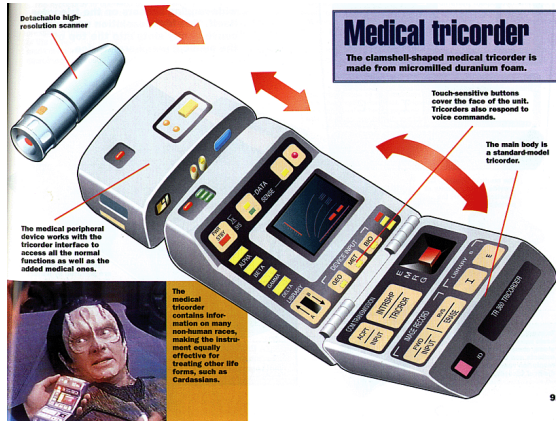
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PMID: 269  
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Use of Smartphones in Telemedicine: Comparative Study Between Standard and Teledermatological Evaluation of High-Complex Care Hospital Inpatients.  
Okita AL, Tinoco LJ, Patatas OH, Guerreiro A, Criado PR, Gabbi TV, Ferreira PS, Neto CF.



91



tricorder concept design



a



b







## CELL PHONES I'VE OWNED 2000 - 2013





link.estadao.com.br/noticias/inovacao,samsung-pode-lancar-celular-com-tela-dobravel-em-2017,1

Google Translate Portal FFM USP Sistemas USP intranet.phcnet.usp.br 3ders.org - video Pro

# Samsung pode lançar celular com tela dobrável em 2017

De acordo com a 'Bloomberg', um dos dispositivos em desenvolvimento poderia se abrir para ser usado como tablet

07/06/2016 | 20h27

f t p & in e p

Por Redação Link - O Estado de S. Paulo

A person is shown holding a Samsung smartphone with a curved screen. The device is partially unfolded, demonstrating its flexibility. The screen displays a home screen with various app icons. The device is shown from a perspective that highlights its curved design.

## Apollo 11



iPhone 6 é  
32.600 x mais  
rápido

Realiza  
120.000.000  
instruções de  
forma mais  
rápida



**NASA engineers  
operating IBM  
System/360 Model 75  
mainframe  
computers**

Novembro de 2014



# O computador IBM Deep Blue supera o Kasparov - 1977



**11,38 GFLOPS** (Giga floating-point operations per second).

Podia avaliar 200 milhões de posições no tabuleiro de xadrez por segundo.



Abril de 2014



**142 GFLOPS**

Article types

- Clinical Trial
- Review
- Customize ...

Text availability

- Abstract
- Free full text
- Full text

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- 5 years
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  1. Grindlay K, Grossman D. J Telemed Telecare. 2016 Jul 14. PMID: 27418557 [Similar articles](#)
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  4. [Telemedical Education: Train](#) Pathipati AS, Azad TD, Jethu

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- [Telemedicine provision of medic](#)
  1. Grindlay K, Grossman D. J Telemed Telecare. 2016 Jul 14. pii: 1357633X16659166. [Epub ahead of print] PMID: 27418557 [Similar articles](#)
  2. [Remote triage support algorithm](#) Achkoski J, Koceski S, Bogatinov J R Army Med Corps. 2016 Jul 14. pii: j Review. PMID: 27418264 [Similar articles](#)
  3. [Diabetes Educators: Perceived E](#) [Related Technologies.](#) James S, Perry L, Gallagher R, L J Diabetes Sci Technol. 2016 Jul 13. pii: 13071111. PMID: 27417141 [Similar articles](#)

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Items: 1 to 20 of 23137

<< First < Prev Page 1 of 1157 Next >

- [Telemedicine provision of medical abortion in Alaska: Through the provider's lens.](#)
  1. Grindlay K, Grossman D. J Telemed Telecare. 2016 Jul 14. pii: 1357633X16659166. [Epub ahead of print] PMID: 27418557 [Similar articles](#)
  2. [Remote triage support algorithm based on fuzzy logic.](#) Achkoski J, Koceski S, Bogatinov D, Temelkovski B, Stevanovski G, Kocev I. J R Army Med Corps. 2016 Jul 14. pii: jramc-2015-000616. doi: 10.1136/jramc-2015-000616. [Epub ahead Review. PMID: 27418264 [Similar articles](#)
  3. [Feasibility of extracting data from electronic medical records for research: an international comparative study.](#) van Velthoven MH, Mastellos N, Majeed A, O'Donoghue J, Car J. BMC Med Inform Decis Mak. 2016 Jul 13;16(1):90. doi: 10.1186/s12911-016-0332-1. PMID: 27411943 [Free PMC Article](#) [Similar articles](#)

# Telemedicina de baixo custo (hoje) – alta performance em 2010?

www.ncbi.nlm.nih.gov/pubmed/?term=low+cost+mobile+health

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PubMed low cost mobile health Search

Article types: Clinical Trial, Review, Customize ...  
Text availability: Abstract, Free full text, Full text  
PubMed Commons: Reader comments, Trending articles  
Publication dates: 5 years, 10 years, Custom range...  
Species: Humans, Other Animals  
Clear all  
Show additional filters

Format: Summary Sort by: Most Recent Send to Filters: Manage Filters

**Search results**  
Items: 1 to 20 of 1021 << First < Prev Page 1 of 52 Next >> Last >>

Sort by **Relevance** to quickly find articles that most closely match your query.

- [Active Tuberculosis Case Finding Interventions Among Immigrants, Refugees and Asylum Seekers in Italy.](#)  
1. Schepisi MS, Gualano G, Piselli P, Mazza M, D'Angelo D, Fasciani F, Barbieri A, Rocca G, Gnolfo F, Olivani P, Ferrarese M, Codecasa LR, Palmieri F, Girardi E.  
Infect Dis Rep. 2016 Jun 24;8(2):6594. doi: 10.4081/idr.2016.6594. eCollection 2016 Jun 24.  
PMID: 27403270 **Free PMC Article**  
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- [Teletoxicology: Patient Assessment Using Wearable Audiovisual Streaming Technology.](#)  
2. Skolnik AB, Chai PR, Dameff C, Gerkin R, Monas J, Padilla-Jones A, Curry S.  
J Med Toxicol. 2016 Jul 5. [Epub ahead of print]  
PMID: 27381429  
[Similar articles](#)
- [Asynchronous Detection of Trials Onset from Raw EEG Signals.](#)  
3. Lopez-Gordo MA, Murcia MD, Padilla P, Pelayo F, Fernandez E.  
Int J Neural Syst. 2016 Apr 26:1650034. [Epub ahead of print]  
PMID: 27377663  
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- [Family Planning Counseling in Your Pocket: A Mobile Job Aid for Community Health Workers in](#)

Results by year  
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Find related data  
Database: Select  
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Search details  
low[All Fields] AND ("economics" [Subheading] OR "economics"[All Fields] OR "cost"[All Fields] OR "costs and cost analysis"[MeSH Terms] OR ("costs"[All Fields] AND

Search See more...

Recent Activity  
Turn Off Clear

# Ultrassom portátil

# Propedêutica clínica complementada por US?

The screenshot shows a web browser with multiple tabs open, including 'Disrupção - Dicionário On...', 'videoconferencia robotico', 'portable ultrasound to tele...', 'Google Tradutor', and 'smartphone digital dermo'. The address bar shows the URL: [www.ncbi.nlm.nih.gov/pubmed/?term=portable+ultrasound+to+telemedicine](http://www.ncbi.nlm.nih.gov/pubmed/?term=portable+ultrasound+to+telemedicine). The page is the PubMed search results page for the query 'portable ultrasound to telemedicine'. The search bar contains the query and a 'Search' button. Below the search bar, there are options for 'Format: Summary', 'Sort by: Most Recent', and 'Send to'. The search results section shows 'Items: 1 to 20 of 32'. The first result is a study titled 'Teleoperated Echograph and Probe Transducer for Remote **Ultrasound** Investigation on Isolated Patients (Study of 100 Cases)'. The authors listed are Arbeille P, Zuj K, Saccomandi A, Ruiz J, Andre E, de la Porte C, Carles G, Blouin J, Georgescu M. The publication is in 'Telemed J E Health' from 2016 Jul;22(7):599-607. The PMID is 26741191. On the right side of the page, there are sections for 'Find related data', 'Database: Select', 'Find items', and 'Search details' which shows the search query: 'portable[All Fields] AND ("ultrasonography"[Subheading] OR

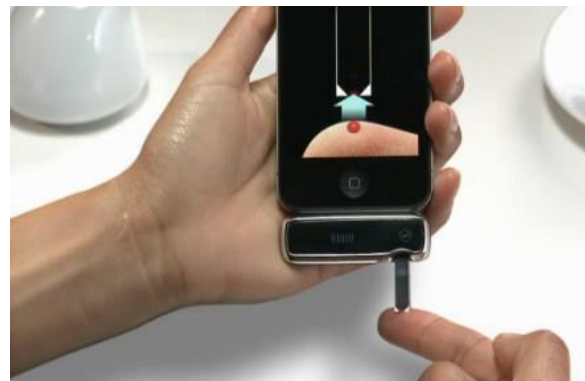


# Dispositivos baseados em Smartphones



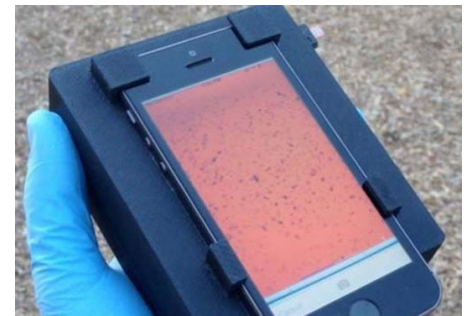
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a





# Dispositivos baseados em Smartphones



www.ncbi.nlm.nih.gov/pubmed/25775968

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Biosens Bioelectron. 2015 Aug 15;70:5-14. doi: 10.1016/j.bios.2015.03.006. Epub 2015 Mar 5.

**Portable smartphone quantitation of prostate specific antigen (PSA) in a fluoropolymer microfluidic device.**

Barbosa AI<sup>1</sup>, Gehlot P<sup>1</sup>, Sidapra K<sup>1</sup>, Edwards AD<sup>2</sup>, Reis NM<sup>3</sup>.

Author information

**Abstract**

We present a new, power-free and flexible detection system named MCFphone for portable colorimetric and fluorescence quantitative sandwich immunoassay detection of prostate specific antigen (PSA). The MCFphone is composed by a smartphone integrated with a magnifying lens, a simple light source and a miniaturised immunoassay platform, the Microcapillary Film (MCF). The excellent transparency and flat geometry of fluoropolymer MCF allowed quantitation of PSA in the range 0.9 to 60 ng/ml with <7% precision in 13 min using enzymatic amplification and a chromogenic substrate. The lower limit of detection was further improved from 0.4 to 0.08 ng/ml in whole blood samples with the use of a fluorescence substrate. The MCFphone has shown capable of performing rapid (13 to 22 min total assay time) colorimetric quantitative and highly sensitive fluorescence tests with good %Recovery, which represents a major step in the integration of a new generation of inexpensive and portable microfluidic devices with commercial immunoassay reagents and off-the-shelf smartphone technology.

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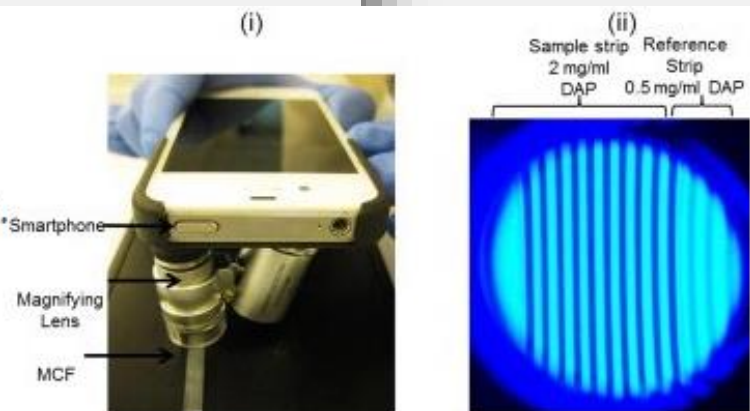
**KEYWORDS:** Colorimetric; Fluorescenc

PMID: 25775968 DOI: 10.1016/j.bios.2015.

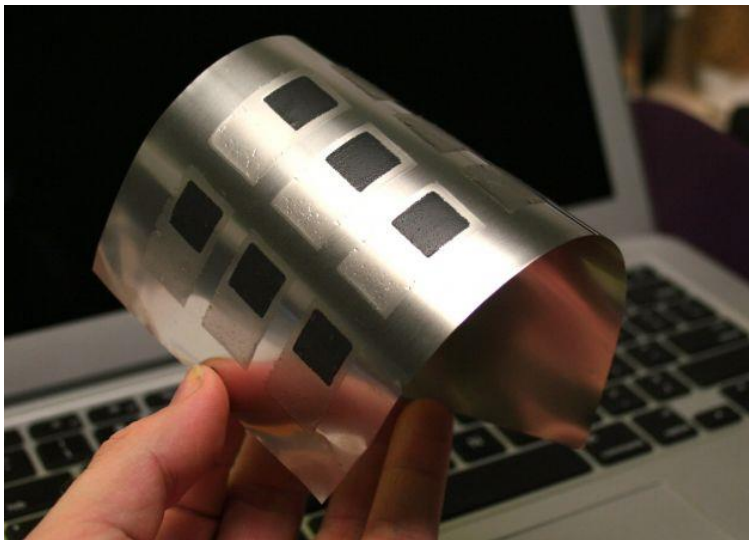
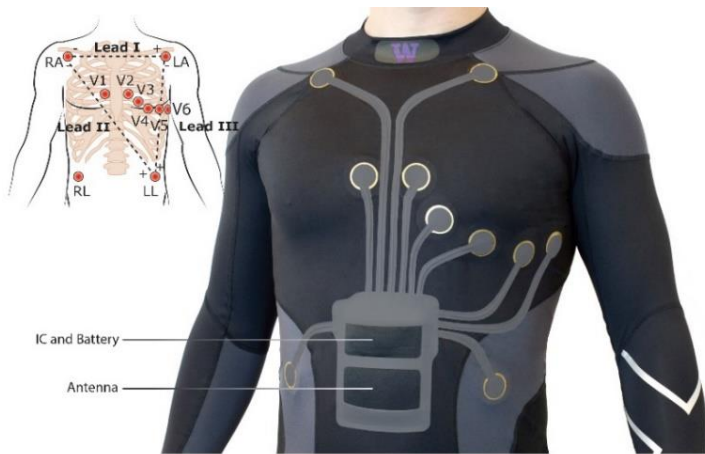
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offer a low-cost alternative option.



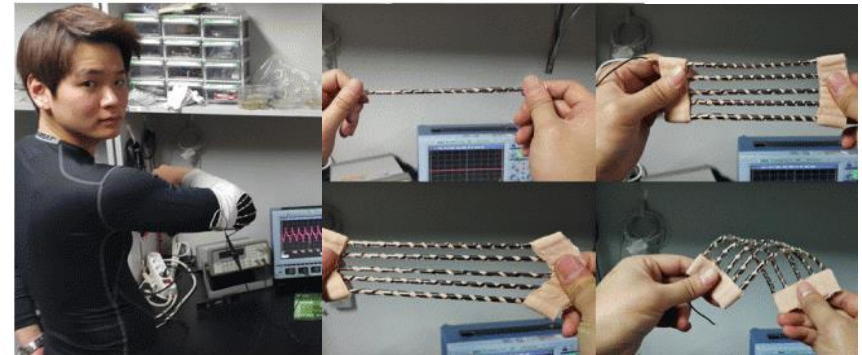
# Roupas inteligentes



ology » Engineering » January 28, 2015

## Body motion energy harvester may power medical

January 28, 2015



Measurement of the device implemented in wearable form: here, five of the structures connected in parallel cope with the full range of (left: Mr. Jinsung Lee, right: Prof. Kyoung Suk Yun).

nanotubos de ouro banhados em gel eletrolítico - perde somente 5% de sua capacidade total após mais de 200 mil ciclos de recarga.



## MEDICAL GADGET OF THE WEEK: THE OTO PRO SMARTPHONE OTOSCOPE

POSTED ON DECEMBER 15, 2014 BY ADMIN

In the US, ear infections are one of the most common reasons for children in visiting paediatricians. In fact, as high as 90% of children tend to have ear infections before they turn seven. Not just children, even adults face ear pain and ear-related disorders, and that number is as high as 20 million doctor visits every year.

Recognizing this field as ripe for innovation, CellScope developed the Oto device, which is the world's first smartphone-enabled otoscope for both doctors and the general public.



### WHAT IT IS

The Oto comes in 2 variants, the Oto HOME™ for the general public and the Oto PRO™ for clinicians.

The Oto HOME is primarily targeted towards parents of young children. When parents suspect their



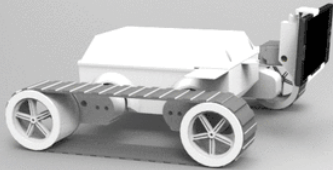
# Telepresença em medicina



**RambleBot** - Telepresence robot you control remotely online

Buy RambleBot 

RambleBot.com



Standard telepresence bot only \$199

- Tough rubber tracks work outside and inside
- 3 cell 12volt 24 - 48hr rechargeable lipo battery
- 180° vertical vision, up and down
- Solid metal shoulder platform on left and right
- AC recharging adapter

**Qualidade da Câmera**  
 Quatro Leds verdes indicam quando será necessário recarregar.

**Qualidade da Bateria**  
 O PadBot irá parar caso precise bater em algum objeto ou pessoa.

**Recarga por Indução**  
 Para fazer com que o PadBot seja alimentado para frente ou para trás direita e esquerda.

**Qualidade da Imagem**  
 Toda distância ao o PadBot será próximo de uma borda ou algo que possa impedir sua movimentação.

**Qualidade da Imagem**  
 Toda distância ao o PadBot será próximo de uma borda ou algo que possa impedir sua movimentação.

**Qualidade da Imagem**  
 Toda distância ao o PadBot será próximo de uma borda ou algo que possa impedir sua movimentação.

• MARCA: IEK  
 • MODELO: PADBOT  
 • DISPONIBILIDADE: EM ESTOQUE

R\$ 5.998,00

Qtd / 1 +-

COMPRAR

Adicionar à lista de desejos  
Comparar este produto

★★★★★ 4 comentários | Escreva um comentário

[Facebook](#)
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## Kubi Telepresence Robot

\$499.00

Kubi makes video calls easier and more engaging by turning tablets into web controlled telepresence robots that pan and tilt, letting you interact with people face to face.

Kubi has many uses in business – from home office to receptionists. Kubi works in many ways – or use ours.

1

ADD TO CART



## PadBot v.2

"Easily drop-in on your office, co-workers, or family on demand!"



ADD TO CART

Price: \$797.00

FREE Shipping Worldwide!

Are you interested in getting a simple rebate while helping other people?

Robot Review Rebate: \$75



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ESTADÃO

encarecer ida ao exterior

NATÁLIA CACIOLI

Sector de turismo passou a ser tributado em 25%, mas negocia uma redução da alíquota para 6%

NEGÓCIOS

A corrida das empresas pela sala de aula do futuro

MARINA GAZZONI

Escolas e universidades testam uso de tablets, games e óculos de realidade virtual no processo de ensino

Para sobreviver, editoras apostam em 'Netflix' didático

Empresas agora digitalizam livros escolares e tentam vender o serviço para as escolas

patrocinado.estadao.com.br

Blog dos Colégios

VEJA MAIS

White-Ponte x Guarany-Black

economia.estadao.com.br/noticias/geral/editoras-apostam-em-netflix-didatico,1825046

ESTADÃO

E&N

ÚLTIMAS BROADCAST FATOS RELEVANTES GOVERNANÇA NEGÓCIOS SEU IMÓVEL SUA CARREI

Editoras apostam em 'Netflix' didático

MARINA GAZZONI - O ESTADO DE S. PAULO

24 Janeiro 2016 | 22h 00 - Atualizado: 24 Janeiro 2016 | 20h 58

Empresas digitalizam livros escolares e tentam vender o serviço para as escolas, com material complementar e atualização periódica

A demanda dos grupos de educação por conteúdo virtual tem obrigado as editoras de livros didáticos a repensar seu modelo de negócios. Para sobreviver, elas precisam adaptar os livros impressos para conteúdo digital. Mais do que um e-book, elas são cobradas para desenvolver materiais interativos e abastecer

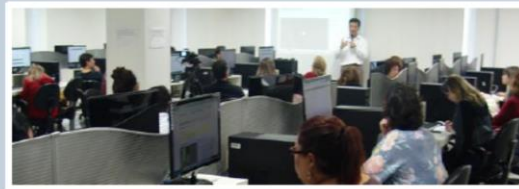
# Aula Presencial do Futuro (Interativa Conectada)



## Sala de aula do Futuro

Votador de pergunta  
recorrente, transmissão  
online, chat e pesquisa web.  
Usando Lab. de Informática

### B) Sala de Aula do Futuro



**Novo modelo de aula presencial interativa propõe a redução em 50% das aulas expositivas**

Desenvolvida pela Disciplina de Telemedicina do Departamento de Patologia da Faculdade de Medicina da USP, a **Aula Presencial Interativa Conectada** foi aplicada em aulas dos cursos de pós-graduação e de cultura e extensão. O uso de recursos de transmissão online, interação entre os participantes e votação de dúvidas recorrentes, concomitantemente à explanação do professor, aumenta a



10º Encontro USP-ESCOLA - Geral

digital.fm.usp.br/culturaeextensao/mod/page/view.php?id=4056

Dúvidas mais votadas - Dia 15 de Julho

Votador de dúvidas: Aula Presencial do Futuro - 15/07/2015

Classificação	Dúvida
25 votos	Atualmente é proibido o uso de celular nas escolas devido ao mau uso pelos alunos, seria válida a utilização dos celulares em situações como essas da educação 3.0, já que as escolas não dispõem de recursos em salas de aula para a estrutura apresentada?
20 votos	Como os educadores podem se preparar em sua formação ou quais competências tecnológicas serão necessárias na educação 3.0?
20 votos	Essa mudança de estrutura de educação é a mudança de uma estrutura rígida para uma estrutura adaptada para a educação 3.0 não é tecnologia a ser utilizada?
20 votos	Com o advento e a disseminação do conceito de educação 3.0, como preparar os ambientes escolares para receber tais novidades? Há uma necessidade de uma mudança na estrutura educacional?
20 votos	Há escolas voltadas apenas para o vestibular e para os exames específicos (ENADE, etc.) que não têm interesse neste tipo de educação 3.0. Como alterar este panorama?
19 votos	Muitas vezes não conseguimos trabalhar em conjunto com todos os docentes devido a vários fatores (falta de tempo, desinteresse por parte do colega etc.). Como vencer esta situação?
19 votos	Intelectualmente sabemos que precisamos mudar nossos paradigmas dentro da educação, ainda existem muitos colegas (professores) com receio de aderir a esse novo espaço. De que forma podemos proporcionar para os que ainda tem medo a tecnologia?
19 votos	Poderia ler algum livro para saber apresentar rapidamente como estruturar o Jovem Onliner?
18 votos	Existem cursos para aprofundamento sobre a educação 3.0? Onde?
17 votos	Essa mudança de educação 2.0, em que estamos inseridos, para a 3.0 não depende de nós. Para o professor de escola pública é uma realidade ainda muito distante, quase uma utopia. Para o professor de escola particular que não trabalha com a parte de tecnologia, a educação 3.0 não se acomoda a eles.

**Navegação**

- Página inicial
- Meia página inicial
- Meu perfil
- Curso atual
- 10º Encontro USP-ESCOLA
- Participantes
- Entendimentos
- Geral
- Dúvidas mais votadas 15 de Julho
- Meus cursos

**Administração**

- Administração da Página
- Editar configurações
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10º Encontro - quarta-feira - parte 01

digital.fm.usp.br/culturaeextensao/mod/dmplaylist/view.php?id=4057

Lista de vídeos

- 10º Encontro - quarta-feira - parte 01
- 10º Encontro - quarta-feira - parte 02

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- Participantes
- Entendimentos
- Geral
- Aula Presencial - Dia 15 de Julho
- Meus cursos

**Administração**

- Administração da Playlist
- Editar configurações
- Papeléis atribuídos localmente
- Permissões
- Verificar permissões
- Filtros
- Logs





# Servidor para encontros síncronos integráveis (vídeo e webconferência)

Sala C (Discussão) - Adobe Connect

Reunião Layouts Pods Áudio

Vídeo Parar minha webcam

Participantes (75)

- Ricardo Brianezi Tiraboschi
- Hosts (1)
  - Chao Lung Wen
- Apresentadores (73)
  - Administrador Telemedicina
  - Adriana Yineth Montero Cruz
  - Alessandra Silva Bedin Ciminelli
  - Alice de Queiroz Constantino M...
  - Ana Caroline Coutinho Iglesias
  - Ana Elizabeth Gomes de Melo T...
  - Ana Kober Nogueira Leite
  - Anderson Rodrigues Brandão de
  - André Luiz Beer Furlan
  - Antenor Pereira Bonfim Neto
  - Antonides Nascimento Assunção
  - Arlindo Cardoso Lima Neto
  - Beatrice Nuto Nóbrega
  - Camila da Silva Bicalho
  - Carla Santos Medeiros
  - Carlos Gustavo Vasconcelos de Mor...
  - Cinthia Denise Ortega
  - Danusa de Souza Ramos
  - Davi Lemos Real Santos
  - Debora
  - Diogo Tiago da Silva
  - Eduardo Baptista
  - Eric Homero Albuquerque Paschoal

Notas 10

Bate-papo (Todos)

Arlindo Cardoso Lima Neto: (para retornos, etc)



In conference: Alexandro.Martins@video.arkadin.com

Arkadin Healthcare (value Proposition).pdf - Adobe Acrobat Reader DC

Introducing Arkadin Healthcare  
Education, Promotion & engagement  
with HCPs

Alexandro Martins

41:45

ooco estão digitando...



# Realidade Virtual

The screenshot shows a web browser with multiple tabs. The active tab is 'virtual reality therapy - PubMed'. The address bar shows the URL 'www.ncbi.nlm.nih.gov/pubmed/?term=virtual+reality+therapy'. The page header includes 'NCBI Resources' and 'Sign in to NCBI'. The main content area features the 'PubMed.gov' logo and a search bar with the text 'virtual reality'. A dropdown menu is open, displaying a list of search suggestions: 'virtual reality', 'virtual reality stroke', 'virtual reality rehabilitation', 'virtual reality training', 'virtual reality therapy', 'virtual reality exposure', 'virtual reality stroke rehabilitation', 'rehabilitation virtual reality', and 'virtual reality balance'. On the left side, there are filters for 'Article types' (Clinical Trial, Review, Customize...), 'Text availability' (Abstract, Free full text, Full text), and 'PubMed Commons'. The 'Search results' section shows 'Items: 1 to 2' and a list starting with '1. Effect of...' and '1. Stroke: A...'. On the right, there is a 'Download CSV' button and a bar chart showing search trends over time.

# Impressora 3D

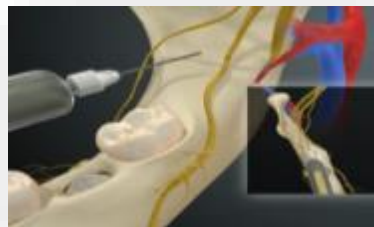
The screenshot shows a web browser with multiple tabs. The active tab is '3d printer radiotherapy - PubMed'. The address bar shows the URL 'www.ncbi.nlm.nih.gov/pubmed/?term=3d+printer+radiotherapy'. The page header includes 'NCBI Resources' and 'Sign in to NCBI'. The main content area features the 'PubMed.gov' logo and a search bar with the text '3d printer'. A dropdown menu is open, displaying a list of search suggestions: '3d printer', '3d printers', '3d printer radiotherapy', '3d printer dental', '3d printer scaffold', '3d printer liver', '3d printer bone', '3d printer neurosurgery', and '3d printer orthopedic'. On the left side, there are filters for 'Article types' (Clinical Trial, Review, Customize...), 'Text availability' (Abstract, Free full text, Full text), and 'PubMed Commons'. The 'Search results' section shows 'Items: 1 to 2' and a list starting with '1. A Compr...' and '1. Tempor...'. On the right, there is a 'Download CSV' button and a bar chart showing search trends over time.

# Homem Virtual

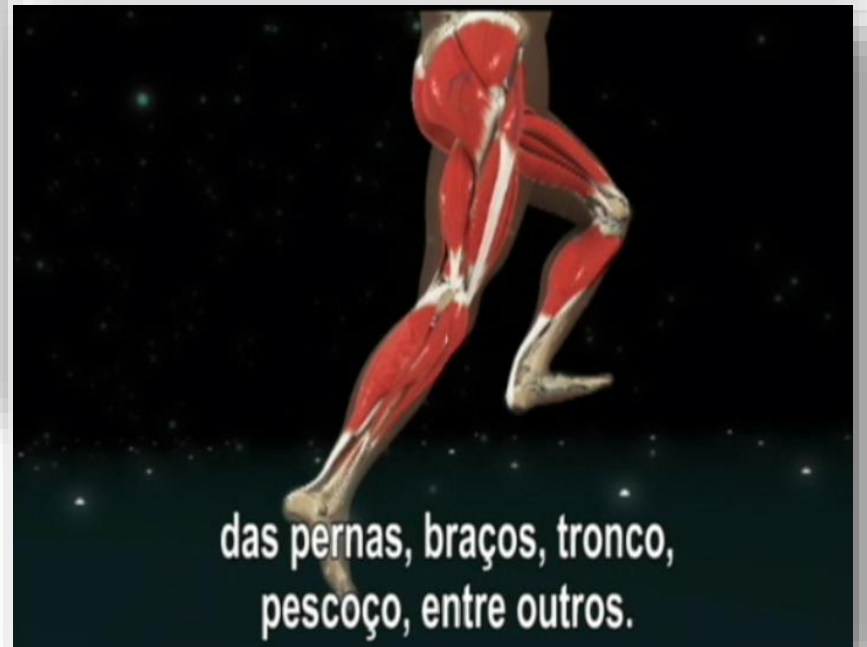
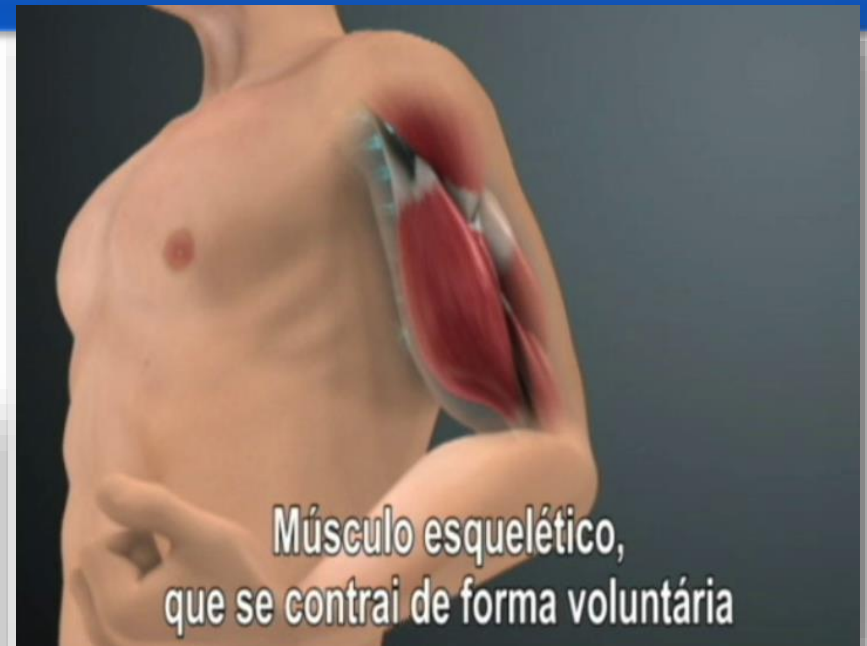
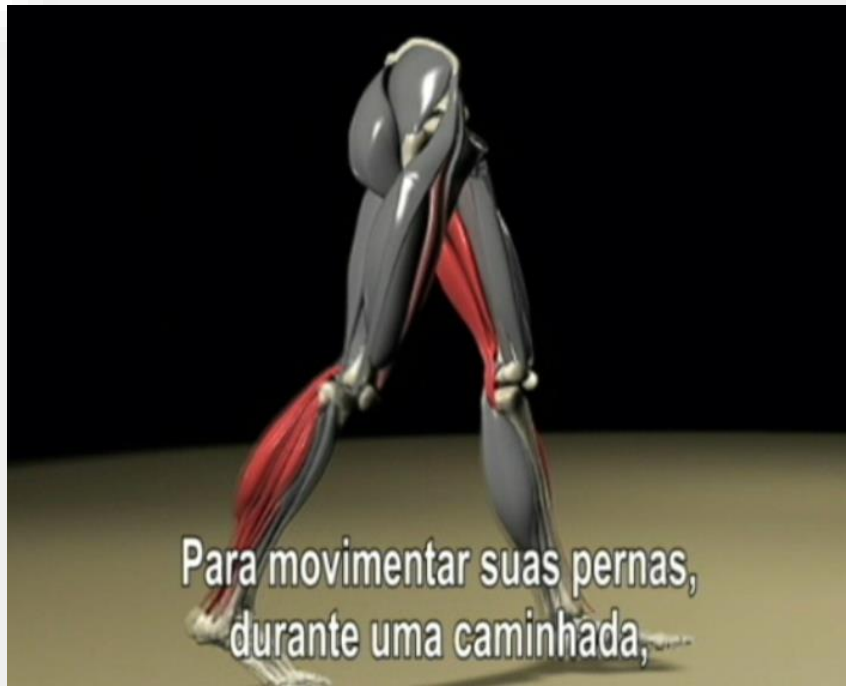
É a arte de se comunicar usando os recursos da computação gráfica 3D. Aprendizado de assuntos complexos de uma forma simples e dinâmica.

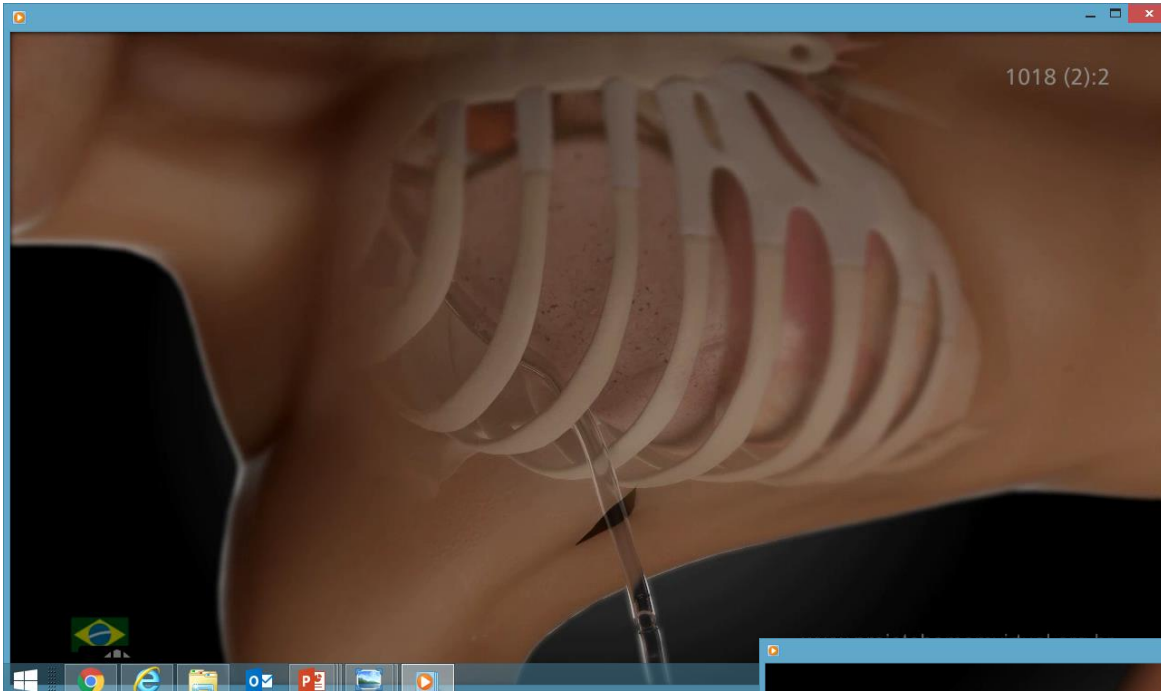
Produção em impressora 3D – Anatomia de referência significativa morfofuncional

1. Especialistas no assunto
2. Estrategista de Telemedicina
3. Digital Designers



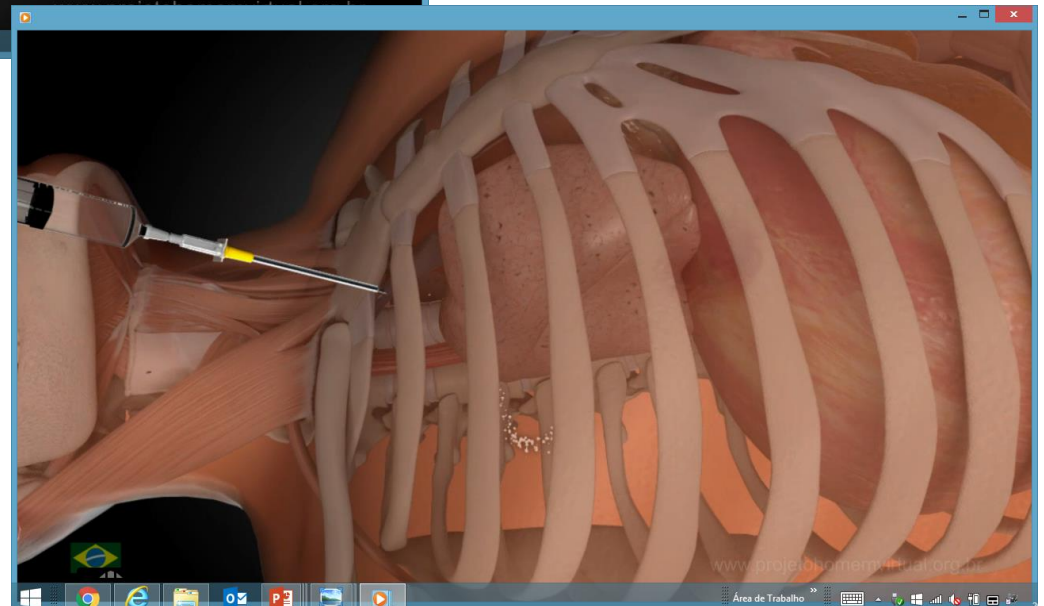
# Locomoção





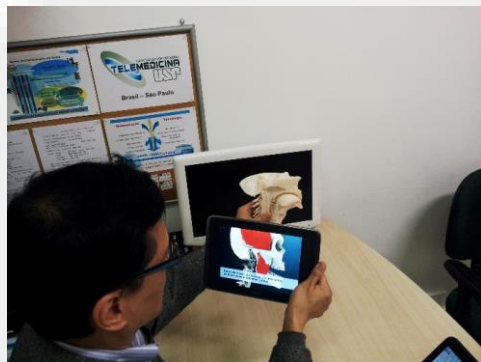
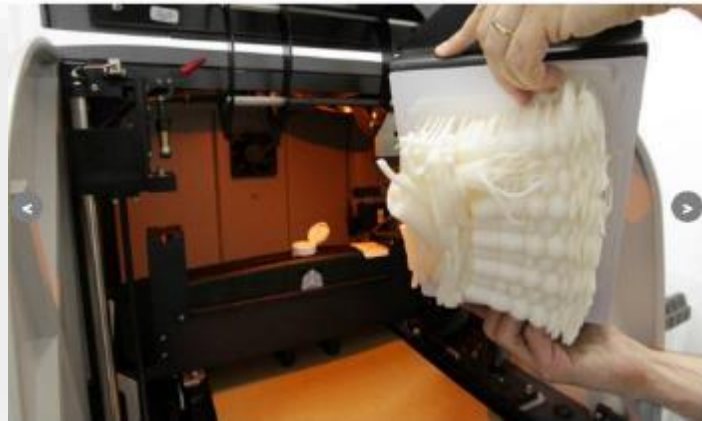
## Drenagem Torácica

## Punção Torácica



# Inovalab em Saúde e Mídias Interativas 3D

- Sistema de computação gráfica 3D
- Impressoras 3D – filamento de plástico e resina fotossensível
- Realidade aumentada



Realidade aumentada

ESTADÃO

# São Paulo

## Órgãos em 3D revolucionam curso de Medicina

PARLAFELIX - O ESTADO DE S. PAULO  
29 Outubro 2015 | 23h 00

Parceria da USP levou peças para a Universidade do Estado do Amazonas e é alternativa ao ensino com cadáver; método permite recorte e ampliações

A rotina de estudos do aluno de Medicina André Gomes, de 26 anos, sobre o funcionamento de órgãos passou por uma revolução. Se antes ele precisava de cadáveres ou das imagens em livros, agora, o estudante da Universidade do Estado do Amazonas (UEA) conta com peças em 3D que estão ao seu alcance graças a uma parceria com a Faculdade de Medicina da Universidade de São Paulo (USP).

Com a estrutura tecnológica da USP e uma impressora 3D, cerca de mil alunos dos cursos de Medicina, Odontologia e Enfermagem da universidade amazoneuse estão aprofundando os estudos e tendo acesso a modelos de órgãos com doenças a um detalhamento que não seria possível apenas com o uso de corpos. O projeto vai completar um ano no próximo mês e a UEA foi a primeira entidade a receber a iniciativa.

“É uma alternativa ao ensino com o cadáver, porque nem sempre o estudante precisa estar em laboratório. O órgão em 3D permite um contato manual e é uma grande contribuição para o estudo da anatomia”, diz o estudante.

sexta-feira, 6 de novembro de 2015

Diário Oficial Poder Executivo - Seção I

ESTADÃO

São Paulo



ESTADÃO PME - LINKS PATROCINADOS

IV - São Paulo, 125 (206)

Diário Oficial Poder Executivo - Seção I

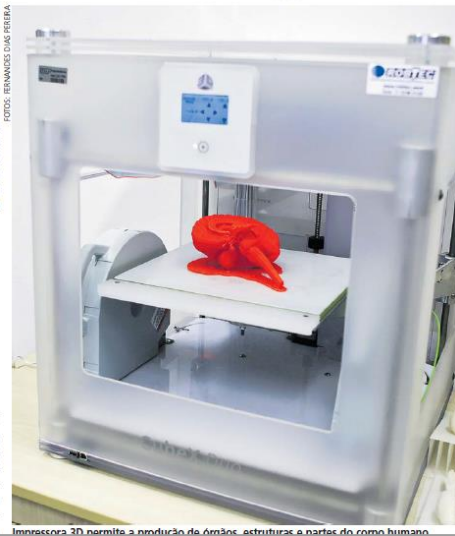
sexta-feira, 6 de novembro de 2015

# Medicina da USP inova no ensino com órgãos em 3D

Com o coração em mãos, é possível observar válvulas, artérias e ventrículos cardíacos em detalhes, sob vários ângulos, e ainda perceber como estão relacionados anatomicamente. O órgão de resina com forma e características fiéis ao real é produzido em uma impressora 3D e vem sendo utilizado há um ano e meio em aulas da Faculdade de Medicina da Universidade de São Paulo (FMUSP), assim como outras estruturas do corpo humano, em tamanhos variados.

*Técnica desenvolvida no setor de Telemedicina da universidade está em uso e disponível a unidades de ensino e demais instituições interessadas*

“Com eles, pode-se ensinar muito mais do que se imagina”, avalia o chefe da disciplina de Telemedicina do Departamento de Patologia da faculdade, Chao Wen. Foi exatamente essa ideia que o motivou a adotar a nova tecnologia disponível da impressão em



Coração - Forma e características realísticas

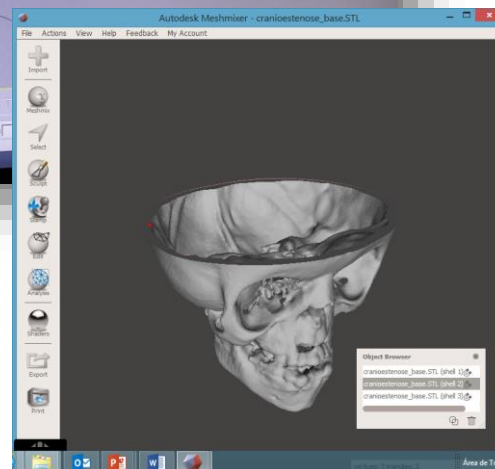
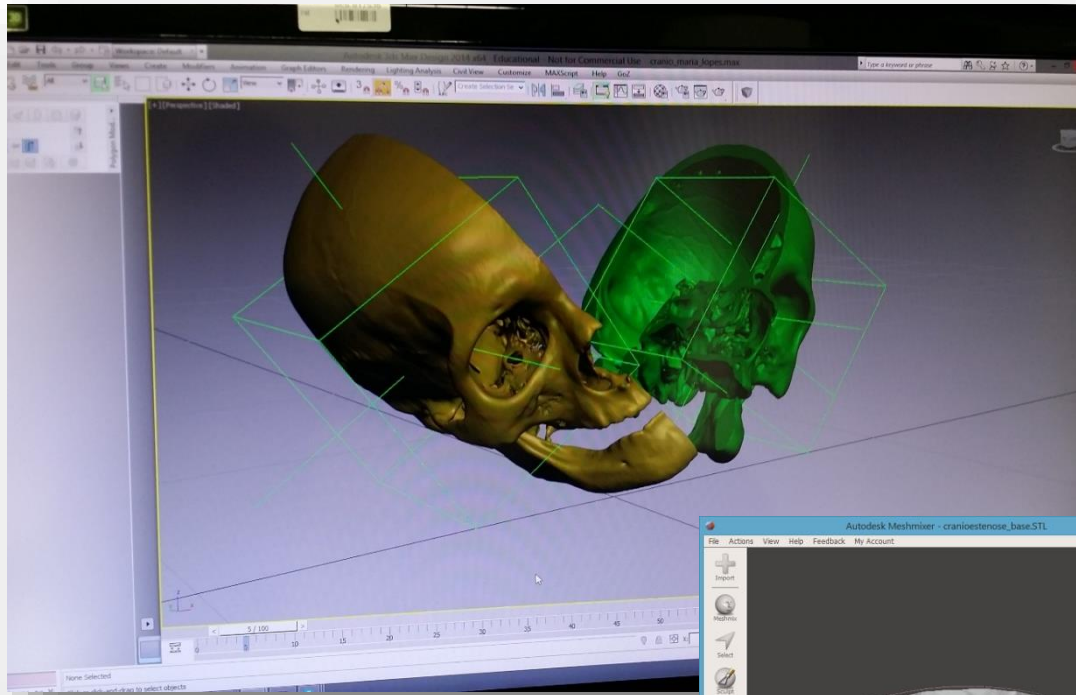


Representação da pele ampliada em 3D

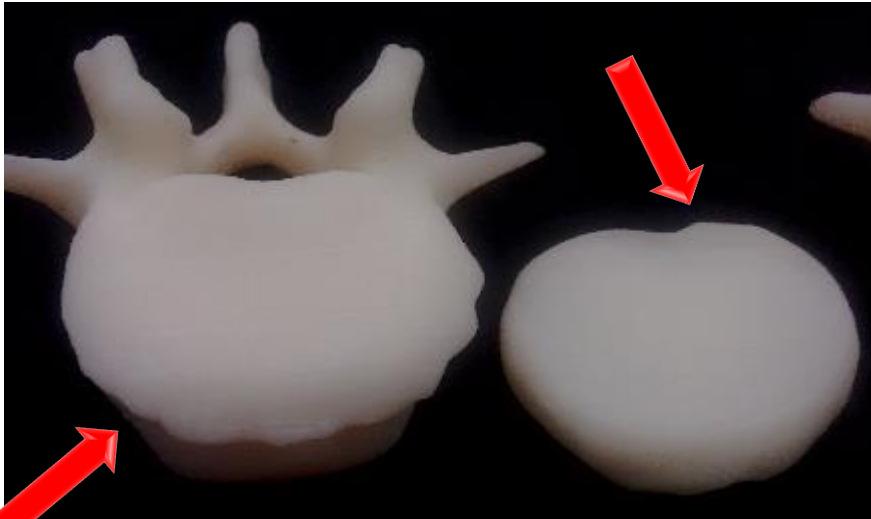
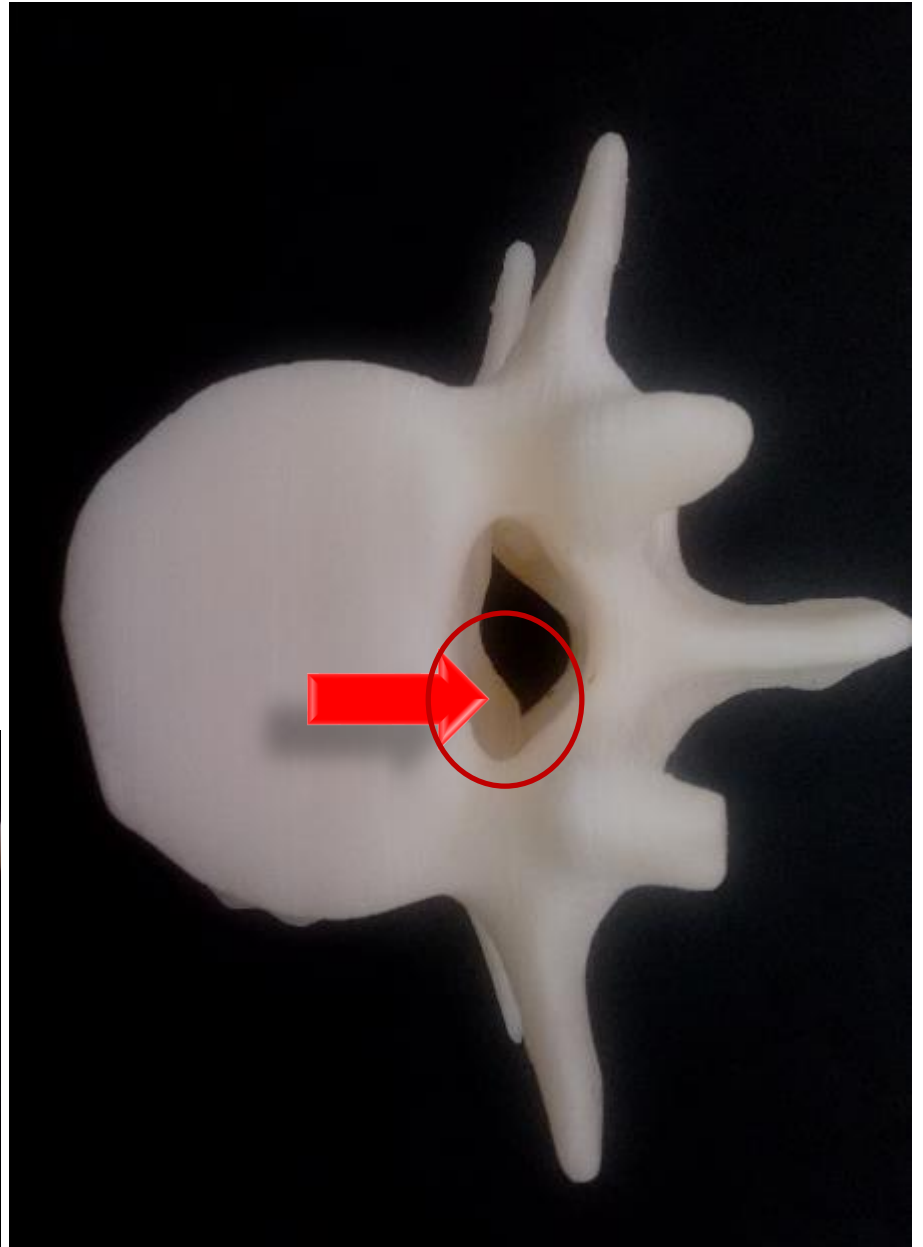
Impressora 3D permite a produção de órgãos, estruturas e partes do corpo humano

# Radiologia - Imagens Tomográficas

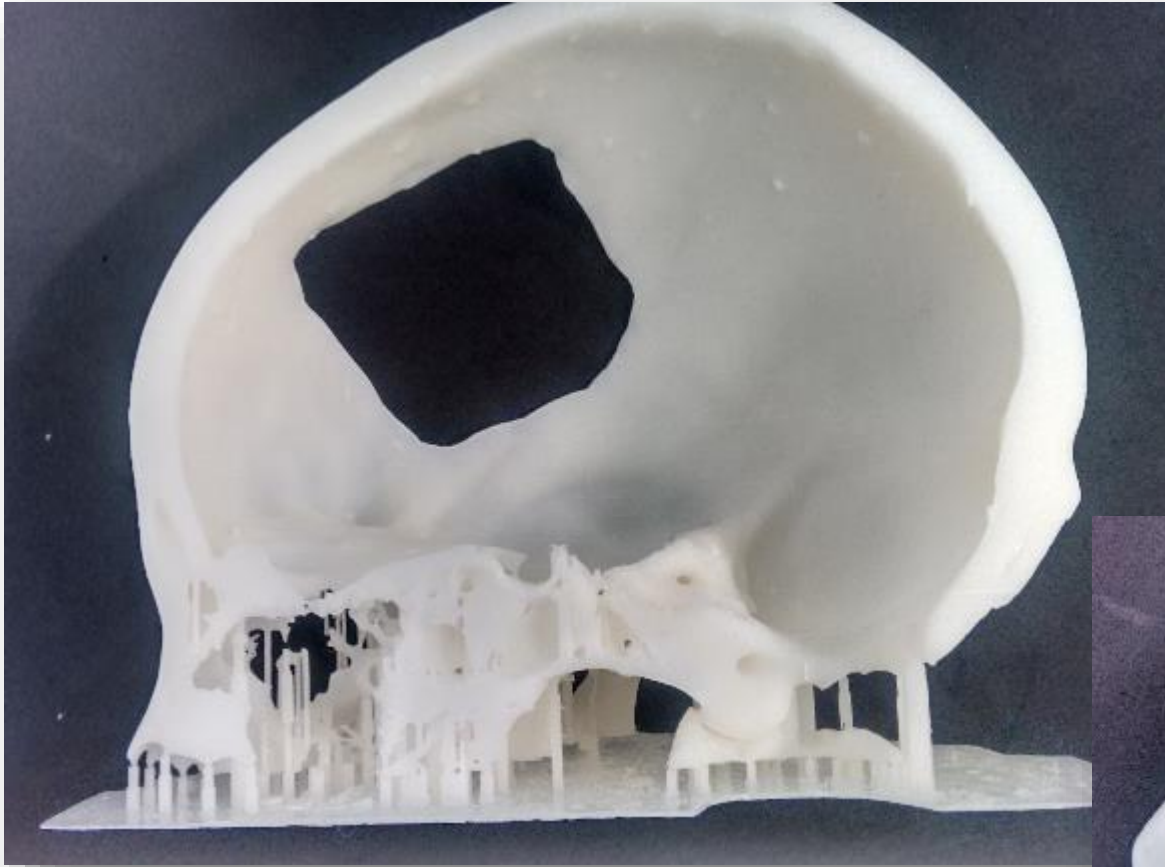
## Características do modelo poligonal

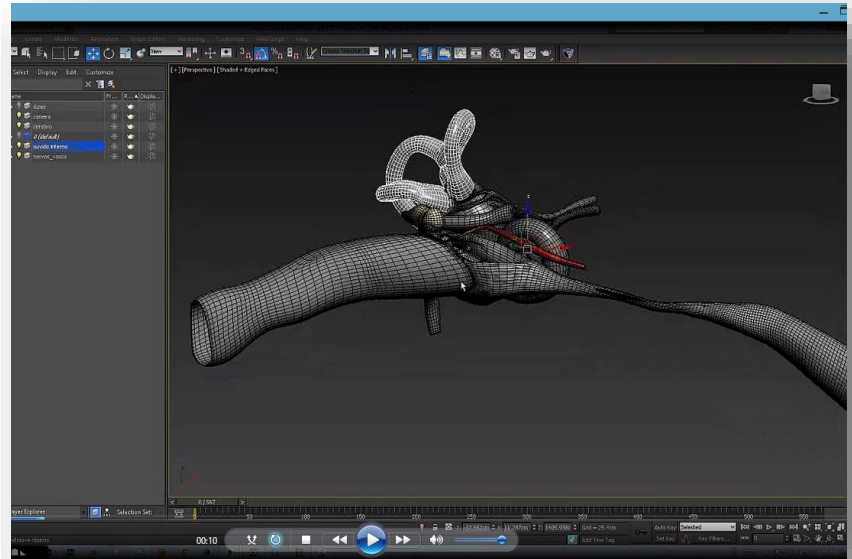
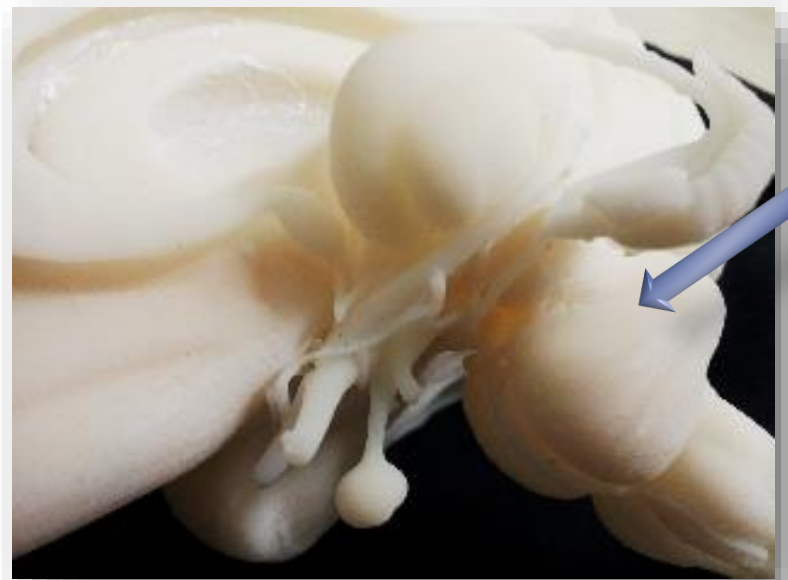






# Produção de Próteses sob medida para Cirurgia de Cranioplastia







## G1 - Jovem cria produtos ortopédicos...

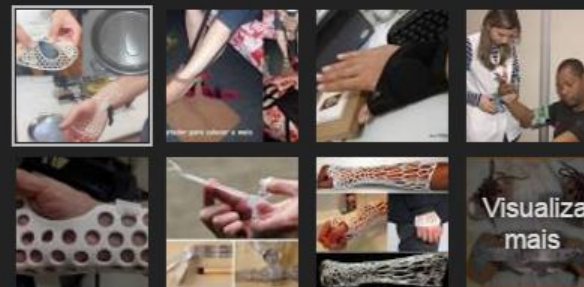
g1.globo.com - 620 x 465 - Pesquisa por imagem

Órtese em estado sólido é colocada em água

[Visitar página](#)

[Visualizar imagem](#)

Imagens relacionadas:



As imagens podem ter direitos autorais. - [Enviar feedback](#)



quinta-feira, 21 de abril de 2016

## A revolução que a impressão 3D poderá causar na indústria farmacêutica

As impressoras 3D ainda não fazem parte da vida cotidiana da maioria da população, mas tudo indica que a tecnologia não somente veio para ficar, como transformará dramaticamente diversos segmentos da indústria e até mesmo do comércio em um futuro próximo. E a indústria farmacêutica, bem como o setor de biotecnologia, serão profundamente impactados – para melhor.

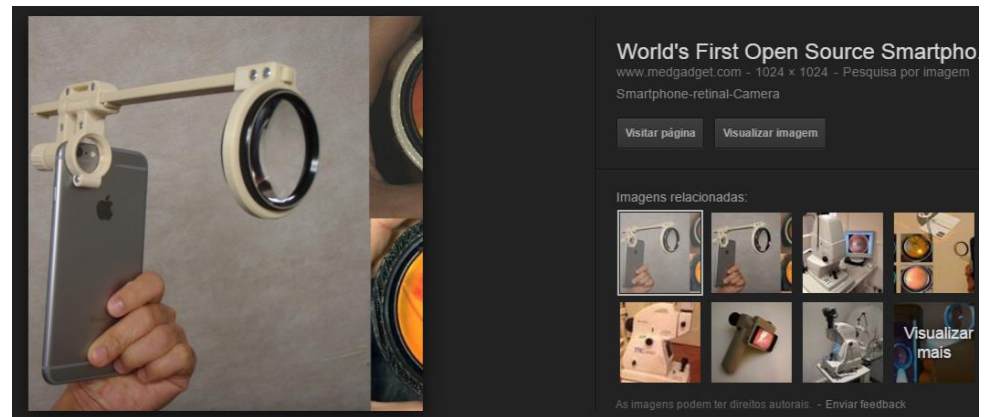


## MobileODT diagnoses cervical cancer with a smartphone and a 3D printed case

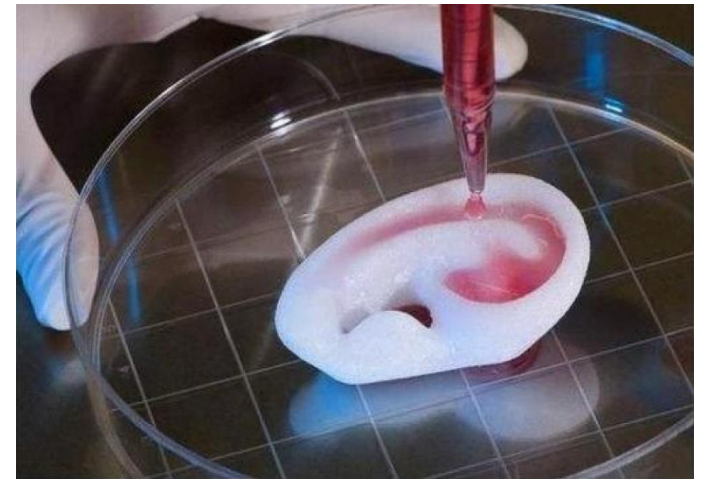
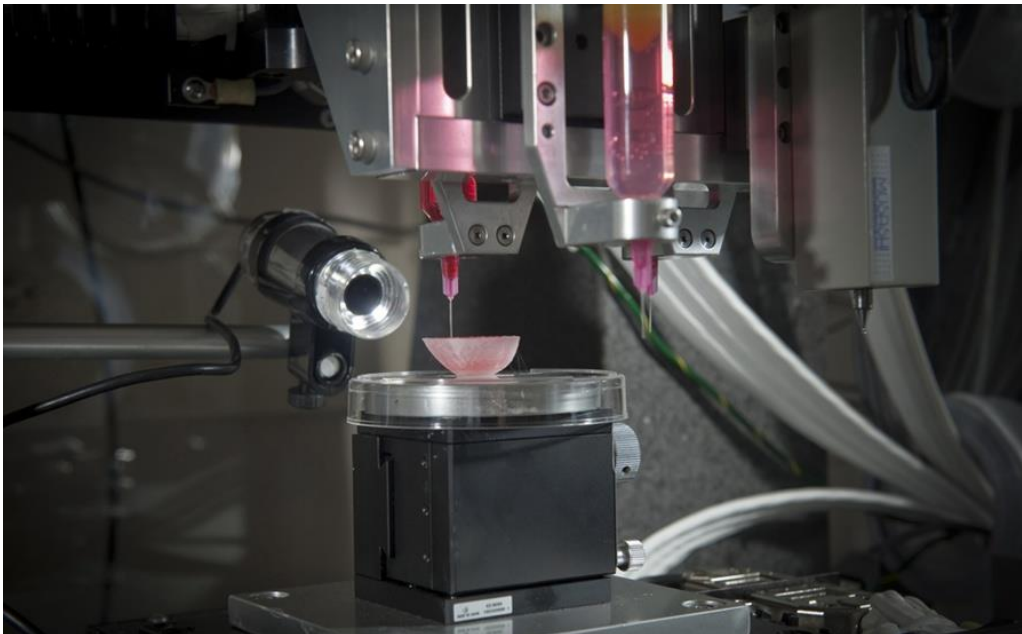
Nov 1, 2015 | By Alec

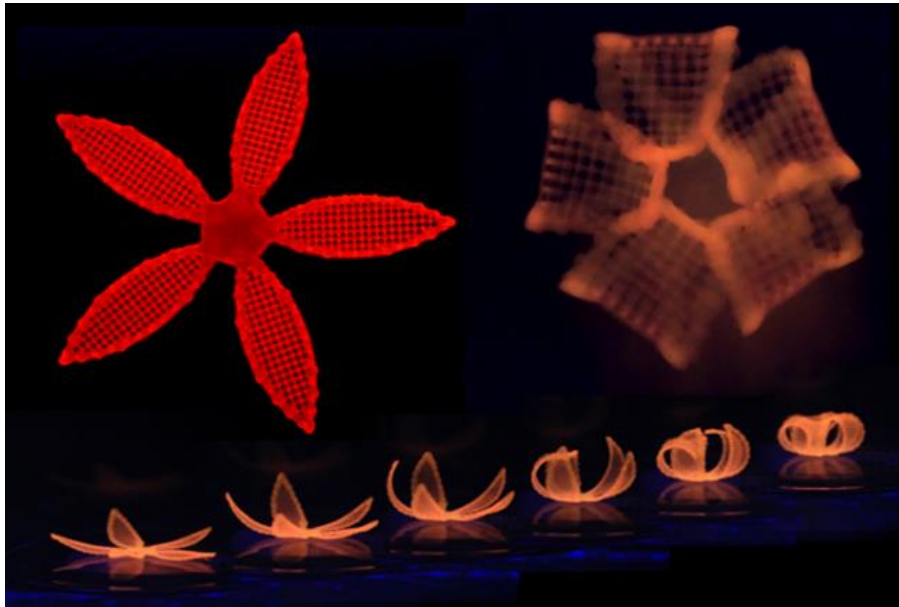


## Produção de adaptadores



# Bioimpressoras 3D – Células Estaminais e Polímeros





## Impressoras 4D podem se tornar um...

www.techtudo.com.br - 695 x 463 - Pesquisa por imagem

Técnica visa a criação de objetos que podem sofrer alterações na sua forma com o tempo

Visitar página

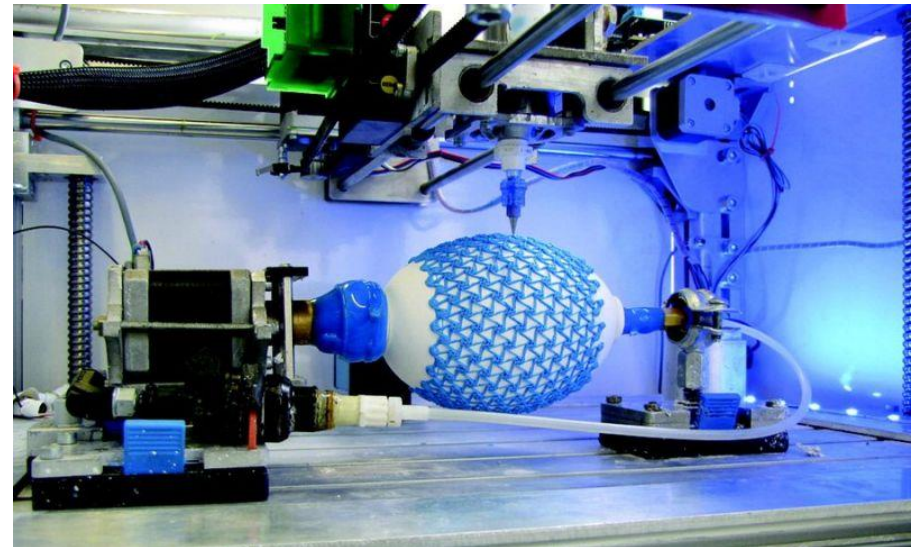
Visualizar imagem

Imagens relacionadas:



As imagens podem ter direitos autorais. - Enviar feedback

A **impressão 4D** pode ser definida como o uso combinado de impressão 3D em conjunto com a mudança de forma. Com sua própria versão da impressão de 4D, Fergal B está explorando a fabricação de **músculo artificial**, criando membranas de silicone tubular sem costura com atuadores (DEA), uma forma de polímeros eletroativos que induz



# Robos para terapias assistivas

Disrupção - Dicionário On x videoconferencia robotico x assistive robots - PubMed x Google Tradutor

www.ncbi.nlm.nih.gov/pubmed/?term=assistive+robots

EFAP - Game Bombeir Google Translate Portal FFM USP Sistemas USP intranet.phcnet.usp.br 30 3ders.org - video Pro Neonatal Neonatal estatistica 1 Neonatal - Estatistica

NCBI Resources How To Sign in to NCBI

PubMed.gov US National Library of Medicine National Institutes of Health

PubMed assistive robots Search

Create RSS Create alert Advanced Help

Article types  
Clinical Trial  
Review  
Customize ...

Text availability  
Abstract  
Free full text  
Full text

PubMed Commons  
Reader comments  
Trending articles

Publication dates  
5 years  
10 years  
Custom range...

Species  
Humans  
Other Animals

Clear all

Show additional filters

Format: Summary Sort by: Most Recent Send to Filters: Manage Filters

### Search results

Items: 1 to 20 of 97 << First < Prev Page 1 of 5 Next > Last >>

- [Collaborative robotic biomechanical interactions and gait adjustments in young, non-impaired individuals.](#)  
Dionisio VC, Brown DA.  
J Neuroeng Rehabil. 2016 Jun 16;13(1):57. doi: 10.1186/s12984-016-0166-1.  
PMID: 27306027 [Free PMC Article](#)  
[Similar articles](#)
- [Robot deployment in long-term care : Case study on using a mobile robot to support physiotherapy.](#)  
Gerling K, Hebesberger D, Dondrup C, Körtner T, Hanheide M.  
Z Gerontol Geriatr. 2016 Jun;49(4):288-297. Epub 2016 Jun 3.  
PMID: 27259706 [Free PMC Article](#)  
[Similar articles](#)
- [\[Should assistive robots have a "personality"? : Potential of simplified robot personalities\].](#)  
Mayer P, Panek P.  
Z Gerontol Geriatr. 2016 Jun;49(4):298-302. doi: 10.1007/s00391-016-1068-3. Epub 2016 May 31. German.  
PMID: 27245227  
[Similar articles](#)
- [Ethical challenges in the use of social service robots for elderly people.](#)  
Körtner T.  
Z Gerontol Geriatr. 2016 Jun;49(4):303-307. Epub 2016 May 25.

### Related searches

[socially assistive robots in elderly care](#)

### Titles with your search terms

[Socially assistive robots in elderly care: a systematic review ir \[J Am Med Dir Assoc. 2012\]](#)

["Are we ready for robots that care for us?" Attitudes and opinio \[Front Aging Neurosci. 2015\]](#)

[The use of socially assistive robots for dementia care. \[J Gerontol Nurs. 2012\]](#)

[See more...](#)

### Find related data

Database: Select

Find items

### Search details

```
assistive[All Fields] AND robots[All Fields]
```





# Telereabilitação

The screenshot shows a web browser window with the URL [www.ncbi.nlm.nih.gov/pubmed/?term=telehomecare](http://www.ncbi.nlm.nih.gov/pubmed/?term=telehomecare). The browser tabs include "Disrupção - Dicionário On", "videoconferencia robotico", "telehomecare - PubMed", "Google Tradutor", and "robotic biomechanical int".

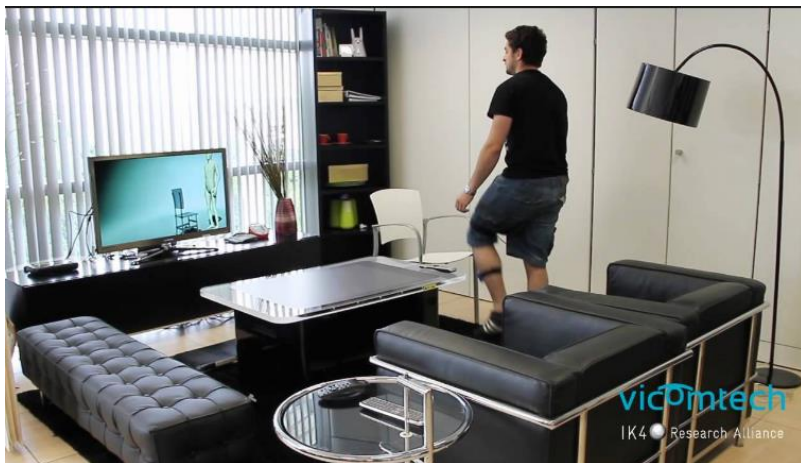
The page displays the PubMed search interface. The search term "telerehabilitation" is entered in the search bar. A dropdown menu shows suggestions for the search term, including "telerehabilitation", "telerehabilitation stroke", "telerehabilitation physiotherapy", "telerehabilitation copd", "telerehabilitation knee", "telerehabilitation review", "cardiac telerehabilitation", "telerehabilitation for persons with multiple sclerosis", "cognitive telerehabilitation", "telerehabilitation neurological", "telerehabilitation services", "telerehabilitation cardiac", "stroke telerehabilitation", "telerehabilitation cost", "teleretinal", "teleretinal screening", "telerehabilitation for people with low vision", "review telerehabilitation", "telerehabilitation multiple sclerosis", and "game-based telerehabilitation".

The search results are displayed in a list format. The first three results are:

- [Interacting with the Internet: A Decision Support System for Patients with Multiple Sclerosis](#)  
Korsbakk, M. S., et al. *Nurs Health Pract*. 2008; 22(1): 268-274. PMID: 26812345. [Similar articles](#)
- [Utilizing Health Information Technology in the Home: A Decision Support System for Patients with Multiple Sclerosis](#)  
Kang Y, M. *Comput Intell Nurs*. 2008; 22(1): 268-274. PMID: 26812345. [Similar articles](#)
- [Telemedicine in the Home: A Decision Support System for Patients with Multiple Sclerosis](#)  
Murgia F, et al. *Clin Ter*. 2008; 22(1): 268-274. PMID: 26794821. [Similar articles](#)

The page also includes a sidebar with filters for Article types, Text availability, PubMed Commons, Publication dates, and Species. The search results section includes a "Turn off" button and a "Search" button.

# Telereabilitação



### ▪ Capacetes que pensam

Chegam ao mercado aparelhos que usam impulsos do cérebro para comandar videogames e interagir no mundo virtual



Luciana Sgarbi



Aliexpress  
pt.aliexpress.com  
emotiva a mais r  
equipado com ut  
usá-lo para mon

Visitar página

Imagens relacion



As imagens podem



### Conexão do Cérebro Com Memórias ...

www.conhecimentohoje.com.br - 550 x 505  
- Pesquisa por imagem

É um sistema completo que permite enviar mensagens de texto a partir de comandos mentais. Segundo o fabricante, uma velocidade de 5 a 10 caracteres por...

Visitar página Visualizar imagem

Imagens relacionadas:



# Uso de Biosensores

www.ncbi.nlm.nih.gov/pubmed/?term=telemedicine+using+biosensors

NCBI Resources How To Sign in to NCBI

PubMed telemedicine using biosensors Search

Format: Summary Sort by: Most Recent Send to Filters: Manage Filters

Article types: Clinical Trial, Review, Customize ...

Text availability: Abstract, Free full text, Full text

PubMed Commons: Reader comments, Trending articles

Publication dates: 5 years, 10 years, Custom range...

Species: Humans, Other Animals

Clear all Show additional filters

### Search results

Items: 1 to 20 of 70

<< First < Prev Page 1 of 4 Next > Last >>

- [Wearable Devices and Biosensing: Future Frontiers.](#)
  - Chai PR. J Med Toxicol. 2016 Jun 28. [Epub ahead of print] No abstract available. PMID: 27352082 [Similar articles](#)
  - [Remote Patient Monitoring via Non-Invasive Digital Technologies: A Systematic Review.](#)
    - Vegetna A, Tran M, Angelaccio M, Arcona S. Telemed J E Health. 2016 Apr 26. [Epub ahead of print] PMID: 27116181 [Similar articles](#)
    - [Portable smartphone quantitation of prostate specific antigen \(PSA\) in a fluoropolymer microfluidic device.](#)
      - Barbosa AI, Gehlot P, Sidapra K, Edwards AD, Reis NM. Biosens Bioelectron. 2015 Aug 15;70:5-14. doi: 10.1016/j.bios.2015.03.006. Epub 2015 Mar 5. PMID: 25775968 **Free Article** [Similar articles](#)
      - [Detection of protein biomarker using a blood glucose meter.](#)
        - Lan T, Xiang Y, Lu Y. Methods Mol Biol. 2015;1256:99-109. doi: 10.1007/978-1-4939-2172-0\_7.

### Find related data

Database: Select Find items

### Search details

```
("telemedicine"[MeSH Terms] OR "telemedicine"[All Fields]) AND ("biosensing techniques"[MeSH Terms] OR ("biosensing"[All Fields] AND "techniques"[All Fields]) OR
```

Search See more...

### Recent Activity

Turn Off Clear

- telemedicine using biosensors (70) PubMed
- low cost mobile health (1021) PubMed
- Home telemonitoring for chronic disease management: an economic assessment PubMed
- Telehomecare Reduces ER Use and Hospitalizations at William Osler Heal PubMed

# 1. Googles Smart Lens



A smart contact lens measuring the glucose amount in tears was recently brought out by Google as wearable biosensors, the same company that brought out Google Glass and Google Driverless Car. It consists of a small glucose sensor and a wireless chip. Built into the lens and between two layers of the lens material, the glucose sensor and wireless chip is embedded. The aim of this WBS is to help diabetic patients. A

small pin size hole in the lens allows the tear fluid to go into the sensor to measure blood sugar levels. Electronics lie outside the pupil and iris hence there is no damage to the eye.

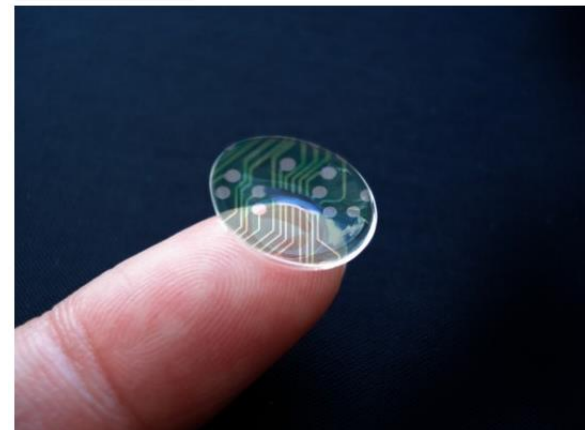
cumbersome stress test. Almost at the same time, in 2014, Google launched its contact lenses capable of monitoring blood sugar noninvasively. In a stroke of reductionism permitted by new materials and technologic progress, the people at Palo Alto fit a capacitor, an antenna, a controller and a biosensor in the thickness of a contact lens (Figure 2, upper panel).



Analyte	Tear fluid concentration [mM]	Blood concentration [mM]	Diagnostic application
Glucose	0.011–0.051	3.3–6.5	Diabetes management
Lactate	2.0–5.0	0.36–0.75	Ischemia, sepsis, liver disease and cancer
Na <sup>+</sup>	120–165	130–145	Hyper/hyponatremia
K <sup>+</sup>	20–42	3.5–5.0	Hyper/hypokalemia and an indicator of ocular disease
Ca <sup>2+</sup>	0.4–1.3	2.0–2.6	Hyper/hypocalcemia
Mg <sup>2+</sup>	0.5–0.9	0.7–1.1	Hyper/hypomagnesemia
Cl <sup>-</sup>	118–135	95–125	Hyper/hypochloremia
HCO <sub>3</sub> <sup>-</sup>	20–26	24–30	Respiratory quotient indicator
Urea	3.0–6.0	3.3–6.5	Renal function
Pyruvate	0.05–0.35	0.1–0.2	Genetic disorders of mitochondrial energy metabolism
Ascorbate	0.22–1.31	0.04–0.06	Diabetes
Total Protein	~7 g/L	~70 g/L	Dry eye conditions, ocular insult and inflammation
Dopamine	0.37	475 × 10 <sup>-9</sup>	Glaucoma

## Patients' Week 2011: Biosensors as a source of patient insights

By Davis Walp on Sep 23, 2011



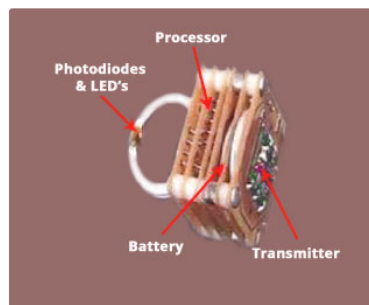
**Healthpatch** Biosensor has made the wearable technology one of the important routes to mobile health. HealthPatch, as wearable biosensors has the ability to monitor chronic diseases. Biometric data and any disease sign is wirelessly sent and are monitored by doctors and patients via **Bluetooth**. HealthPatch, developed by Vital Connect, is now under review, but has been brought out in Canada and Europe. In Healthpatch, the sensor is fitted to a disposable and adhesive patch. This patch is designed such that it is suitable to be placed on the chest. The sensor here has the ability to gather biometric datas like **Pulmonary** (sleep duration, Respiratory rate, , sleep quality ,sleep actigraph/sub-posture), **Neurologic**( Gait analysis, fall detection/severity), **Cardiovascular** (heart rate variability, heart rate, Single-lead ECG, contextual heart rate), and Other(step count, posture, Temperature ,summarized activity, energy expenditure, stress).



with New Product Launch at the 2016 HIMSS Conference & Exhibition



## 8. Ring Sensor

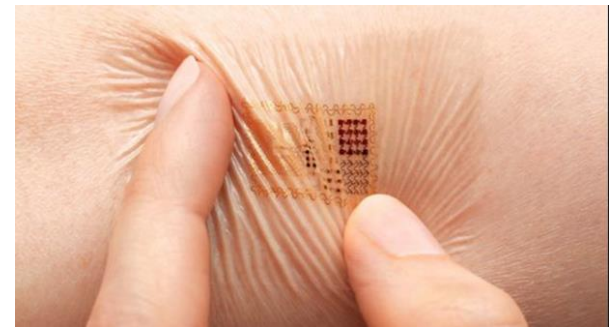


Ring Sensor is a **pulse oximetry sensor** which allows monitoring heart rate and oxygen saturation. The device is shaped like a ring and it can be worn for long periods of time. Red LED, Infra-red LED and a photodiode are embedded in the ring. The whole process is scheduled and controlled by a single processor. Transmitted waves are sent through a digital wireless communication link which when received are analyzed by a home computer. Technology of pulse oximetry is built into the computer for monitoring the patient's pulses and blood oxygen saturation. Now ring sensor is also used for different electronic projects. The ring sensor can be worn all the times. Due to this, continuous health monitoring is possible.

The heartbeat pulses shown are noise free and hence this wearable biosensor is really good.

## 7. Wearable Biosensors tattoos monitor sweat to track weight

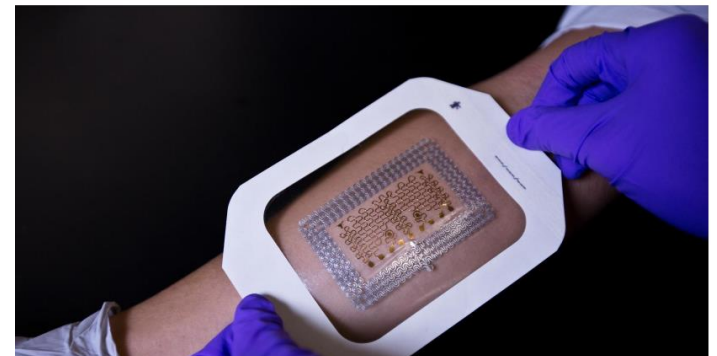
Laboratory for Nanobioelectronics by Professor Joe Wang has developed simple, sensitive and fairground WBS tattoos that help us to metabolite levels in sweat and monitor electrolytes. To access the biological health of the wearer, these wearable biosensors have been integrated with electrochemical sensors which help in monitoring lactate levels and pH in the sweat. The biosensor tattoos can be directly applied on skin or clothing. Researchers say that, higher the amount of electrolytes, ammonia and sodium in sweat, higher is the person's physical activity. This technology is good for people who need to know their weight and daily levels of physical activity.



## Be Cheaper and Easier to Make

sept. 29, 2015

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Only in

Stratix 10  
FPGA + SoC

Go faster ▶

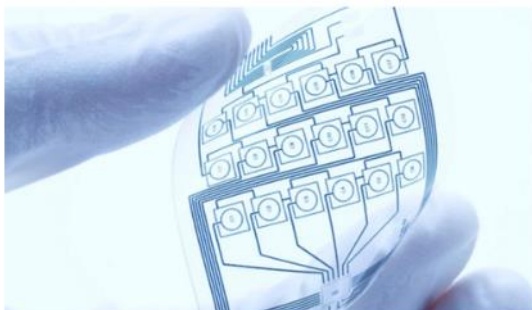
ALTERA  
now part of Intel

1 comments post a comment

Like 6 Tweet Share 12 G+ 0

New biosensors and bioelectronics systems work with smartphones and wearables. How are you designing with these sensors and where can we find the best information about them?

The future of healthcare may be glimpsed at the edges of wearable and sensor technology.





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1. [Digital reporting of whole-slide images for preimplantation renal biopsies.](#)  
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2. [Integration of tablet technologies in telemedicine for the management of breast cancer.](#)  
Giansanti D, Pochini M, Giovagnoli M, et al. *Telemed J E Health.* 2014 Oct;20(10):909-14. PMID: 25290667 [Free PMC Article](#) [Similar articles](#)

3. [Validation of a novel robotic telepathology preparation system for breast cancer.](#)  
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[Virtual slide telepathology enables an innovative telehealth rapid breast care clinic.](#)  
López AM<sup>1</sup>, Graham AR, Barker GP, Richter LC, Krupinski EA, Lian F, Grasso LL, Miller A, Kreykes LN, Henderson JT, Bhattacharyya AK, Weinstein RS. *Semin Diagn Pathol.* 2009 Nov;26(4):177-86.

## Author information

### Abstract

An innovative telemedicine-enabled rapid breast care service is described that bundles telemammography, telepathology, and teleoncology services into a single day process. The service is called the UltraClinics Process. Since the core services are at four different physical locations a challenge has been to obtain STAT second opinion readouts on newly diagnosed breast cancer cases. In order to provide same day QA review of breast surgical pathology cases, a DMetrix DX-40 ultrarapid virtual slide scanner (DMetrix, Inc., Tucson, AZ) was installed at the participating laboratory. Glass slides of breast cancer and breast hyperplasia cases were scanned the same day the slides were produced by the University Physicians Healthcare Hospital histology laboratory. Virtual slide telepathology was used for STAT quality assurance readouts at University Medical Center, 6 miles away. There was complete concurrence with the primary diagnosis in 139 (90.3%) of cases. There were 4 (2.3%) major discrepancies, which would have resulted in a different therapy and 3 (1.9%) minor discrepancies. Three cases (1.9%) were deferred for immunohistochemistry. In 2 cases (1.3%), the case was deferred for examination of the glass slides by the reviewing pathologists at University Medical Center. We conclude that the virtual slide telepathology QA program found a small number of significant diagnostic discrepancies. The virtual slide telepathology program service increased the job satisfaction of subspecialty pathologists without special training in breast pathology, assigned to cover the general surgical pathology service at a small satellite university hospital.

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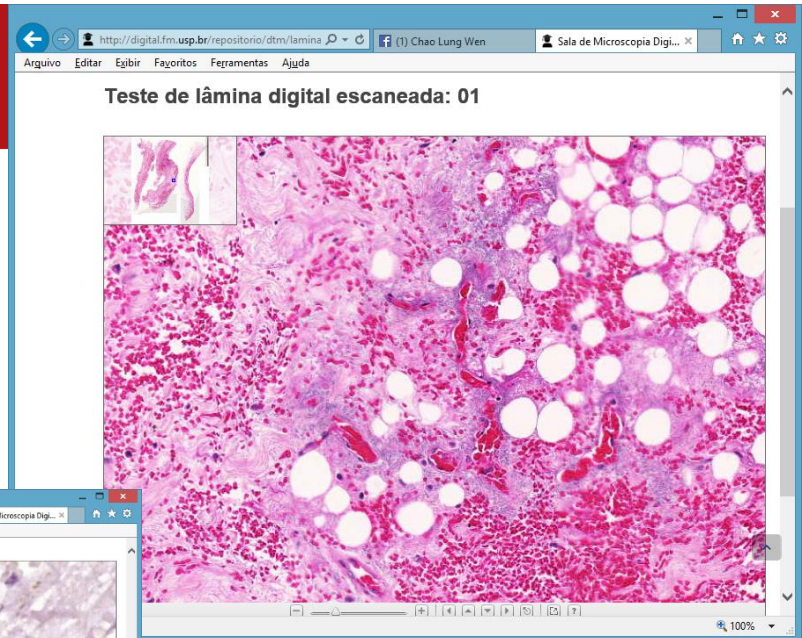
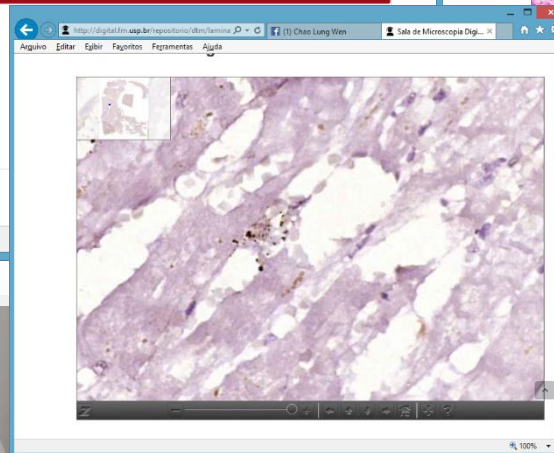
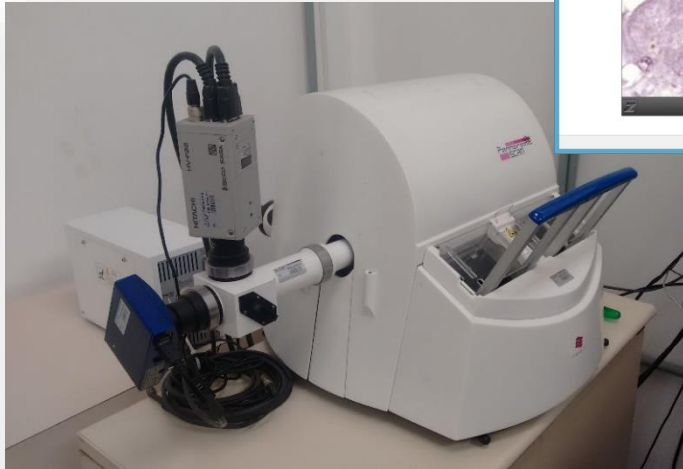
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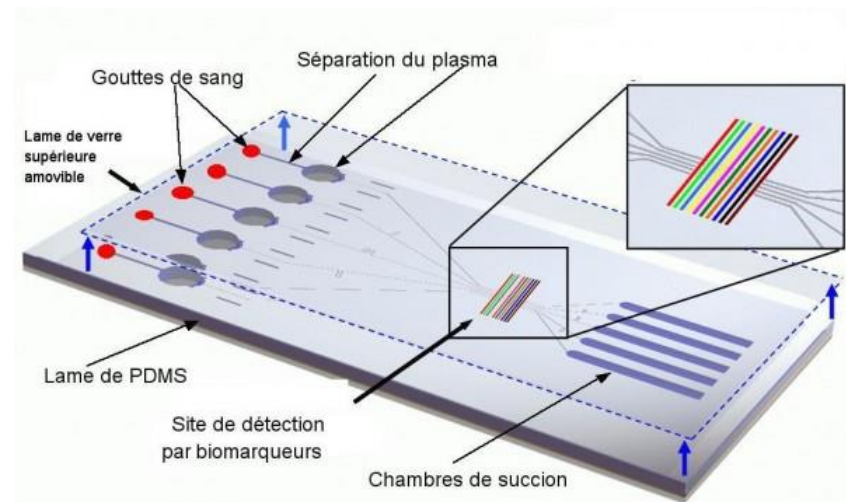
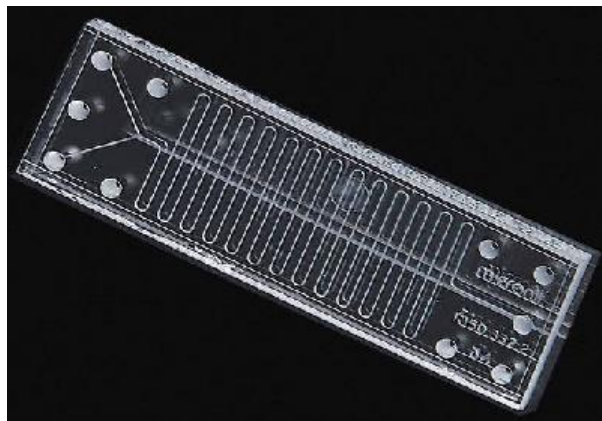
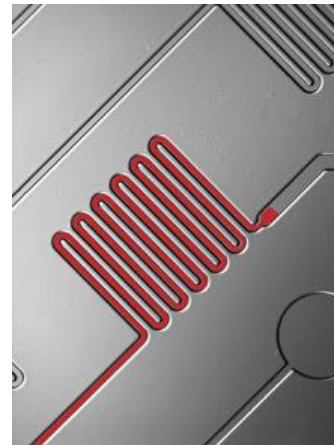
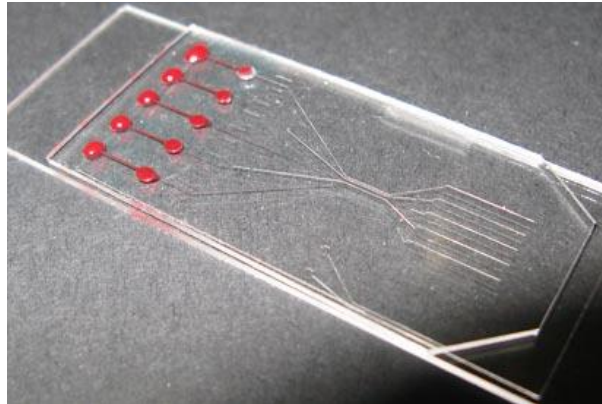
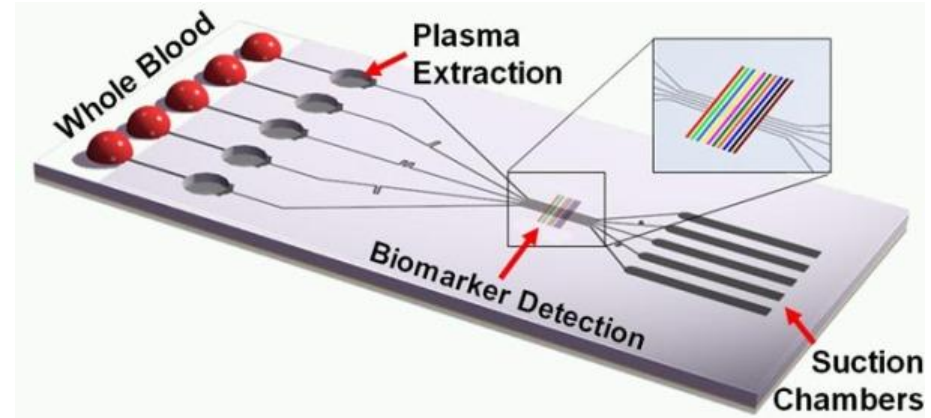
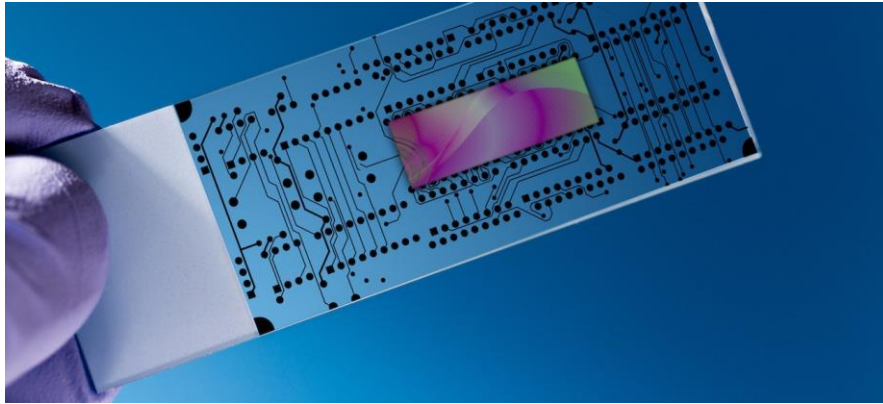
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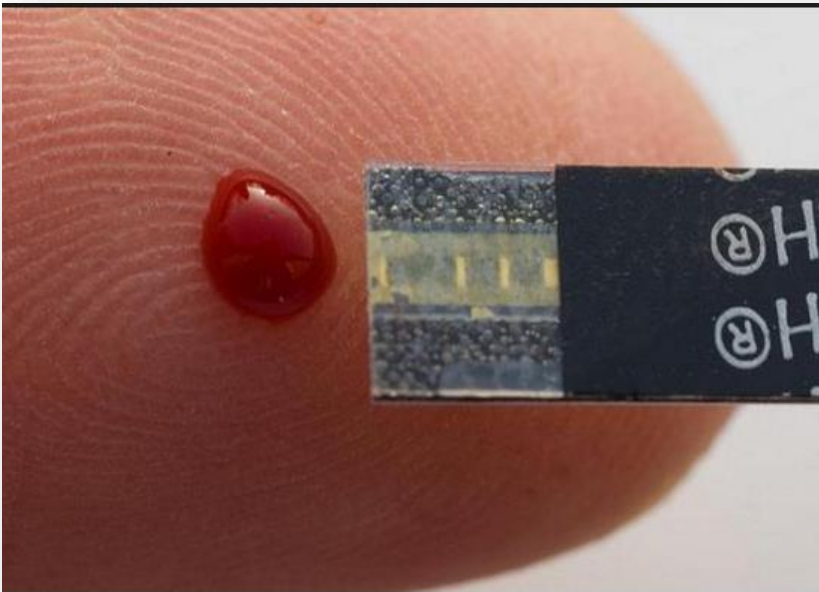
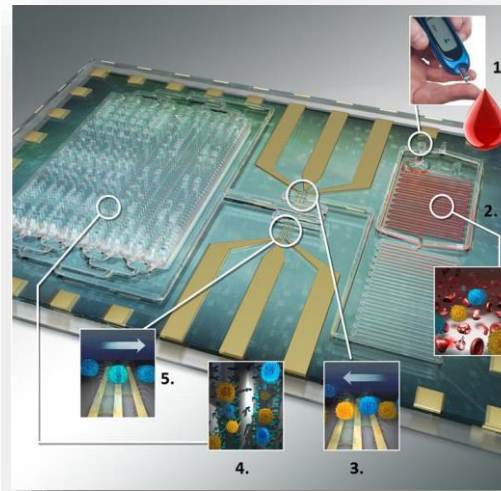
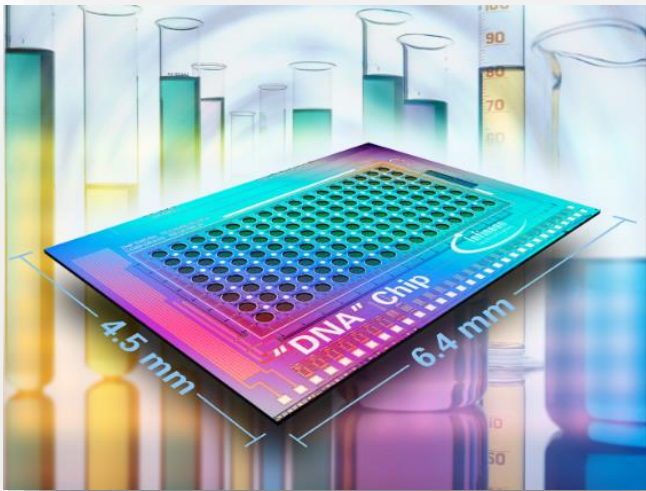
The screenshot shows a web browser with multiple tabs. The active tab is 'biochip - PubMed - NCBI'. The address bar shows 'www.ncbi.nlm.nih.gov/pubmed/?term=biochip'. The page displays search results for 'biochip' with 1263 items. The first four results are:

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2. Ikonnikova AY, Yatsenko YE, Kremenetskaya OS, Vincovskiy VA, Ovsepyan VA, Nasedkina TV. *Mol Biol (Mosk).* 2016 May-Jun;50(3):474-9. doi: 10.7868/S0013788X16050034. PMID: 27414785 [Similar articles](#)
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3. Eskiocak AH, Ozkesici B, Uzun S. *Case Rep Dermatol Med.* 2016;2016:1653507. doi: 10.1155/2016/1653507. PMID: 27403352 **Free PMC Article** [Similar articles](#)
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- [Contact lens sensors in ocular diagnostics](#)  
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- [Miniature biofuel cell as a potential power source for glucose-sensing contact lenses](#)  
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- [Construction of near-infrared photonic crystal glucose-sensing materials for ratiometric sensing of glucose in tears](#)  
3. Hu Y, Jiang X, Zhang L, Fan J, Wu W. *Biosens Bioelectron.* 2013 Oct 15;48:94-9. doi: 10.1016/j.bios.2013.03.082. Epub 2013 Apr 11. PMID: 23651573 [Similar articles](#)
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4. O'Donnell C, Efron N. *Clin Exp Optom.* 2012 May;95(3):328-37. doi: 10.1111/j.1444-0938.2012.00738.x. Epub 2012 Apr 27. Review. PMID: 22537249 **Free Article** [Similar articles](#)





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- [Development and Validation of the User Version of the Mobile Application Rating Scale \(uMARS\)](#)
- 1. Stoyanov SR, Hides L, Kavanagh DJ, Wilson H.  
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Clin J Am Soc Nephrol. 2016 Jun 6;11(6):1054-62. doi: 10.2215/CJN.10681015. Epub 2016 May 12.  
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- [Co-creation of an ICT-supported cancer rehabilitation application for resected lung cancer survivors: design and evaluation](#)
- 3. Timmerman JG, Tónis TM, Dekker-van Weering MG, Stuiver MM, Wouters MW, van Harten WH, Hermens HJ, Vollenbroek-Hutten MM.  
BMC Health Serv Res. 2016 Apr 27;16(1):155. doi: 10.1186/s12913-016-1385-7.  
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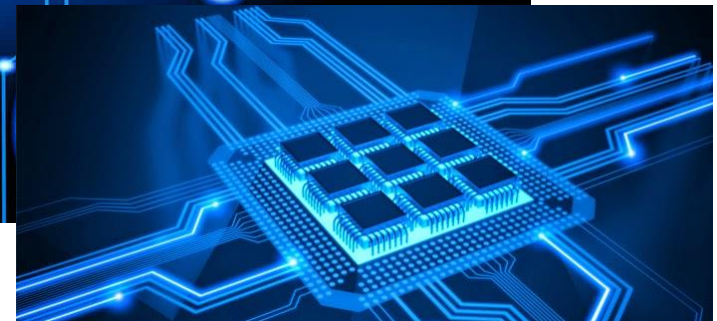
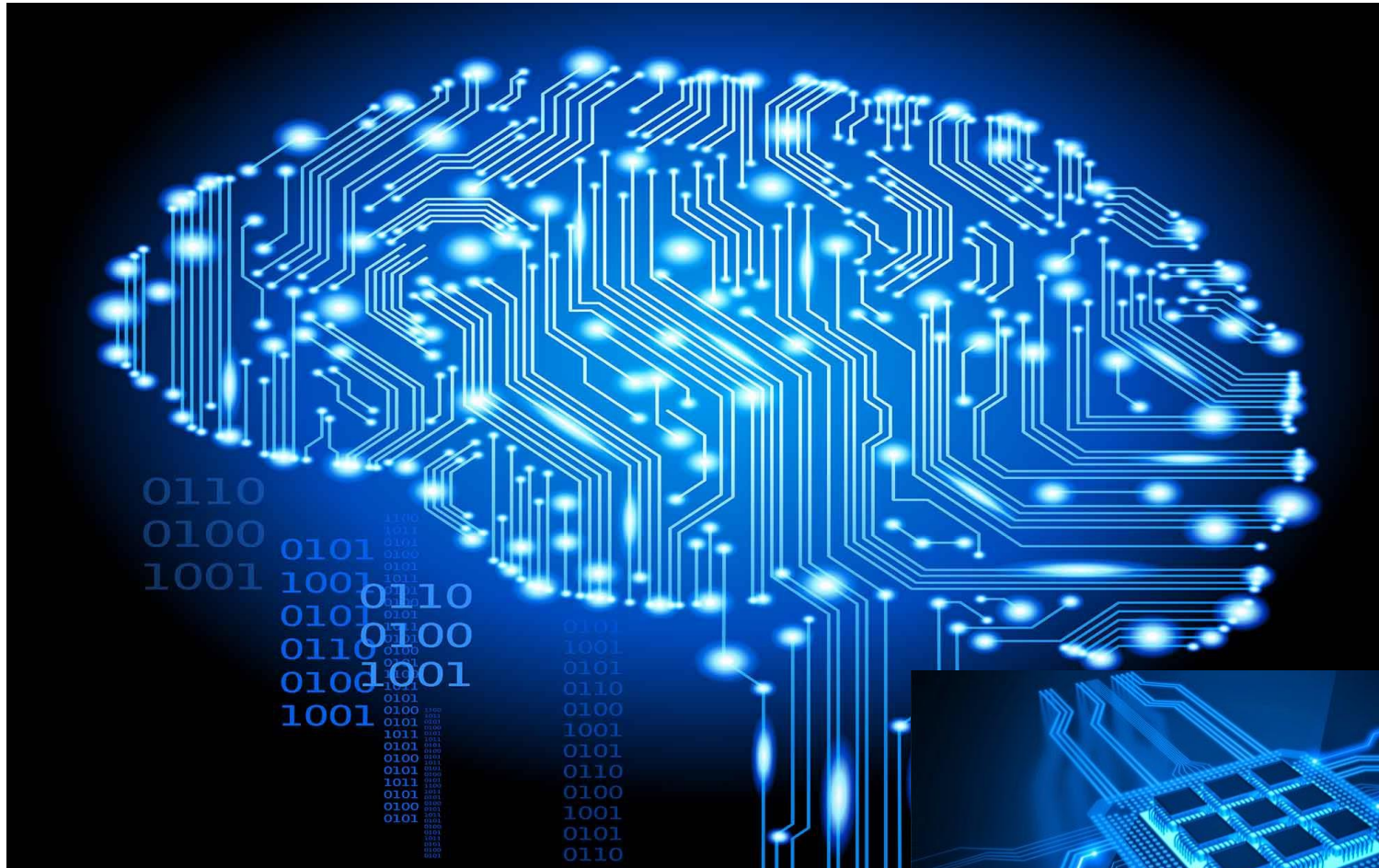
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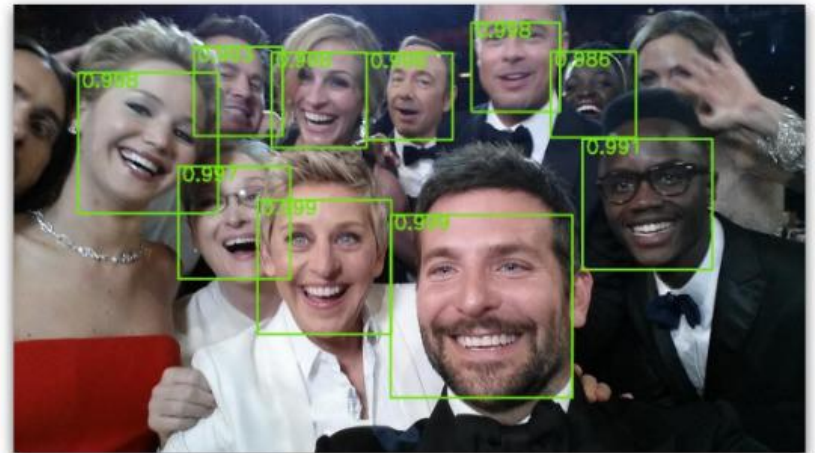
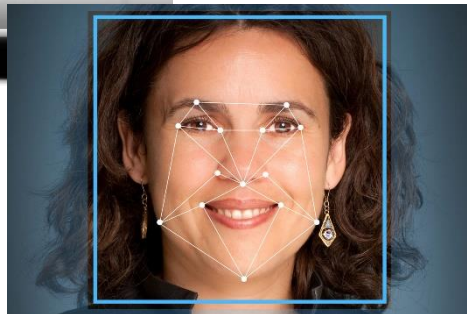
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# Inteligência Artificial







# UOL notícias Tecnologia

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## Piloto de caça criado por inteligência artificial vence humano em combate simulado 8

BBC BRASIL

Chris Baraniuk - Technology reporter 29/06/2016 | 08h44



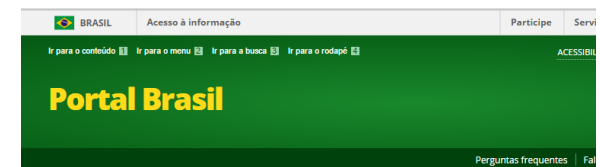
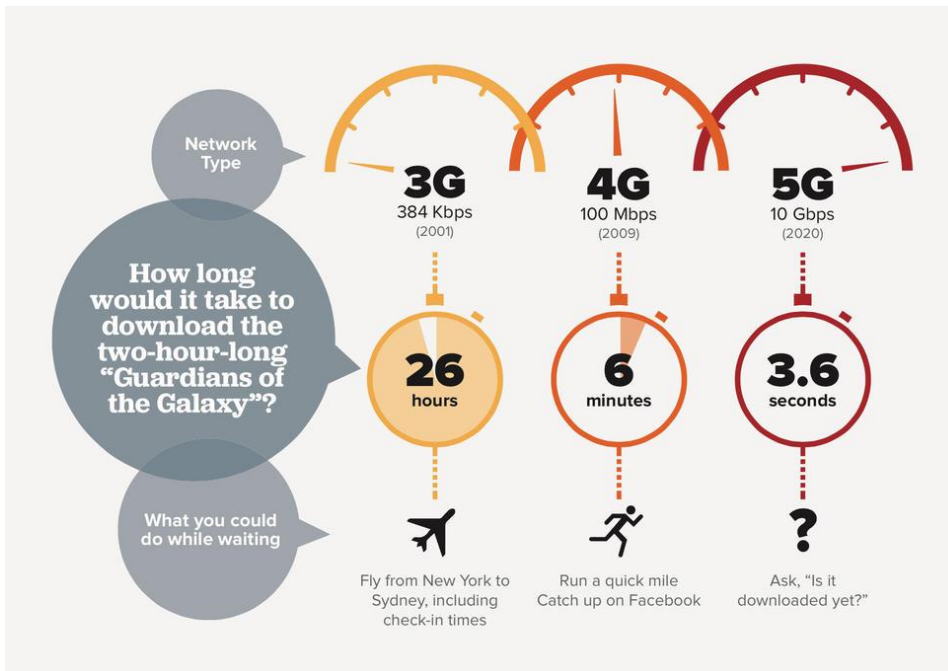
Especialista em aviação afirma que os resultados são promissores

Um sistema de pilotagem de caças criado por inteligência artificial derrotou dois jatos em uma simulação de combate.

O piloto, batizado de Alpha, usou quatro jatos virtuais para defender uma área de



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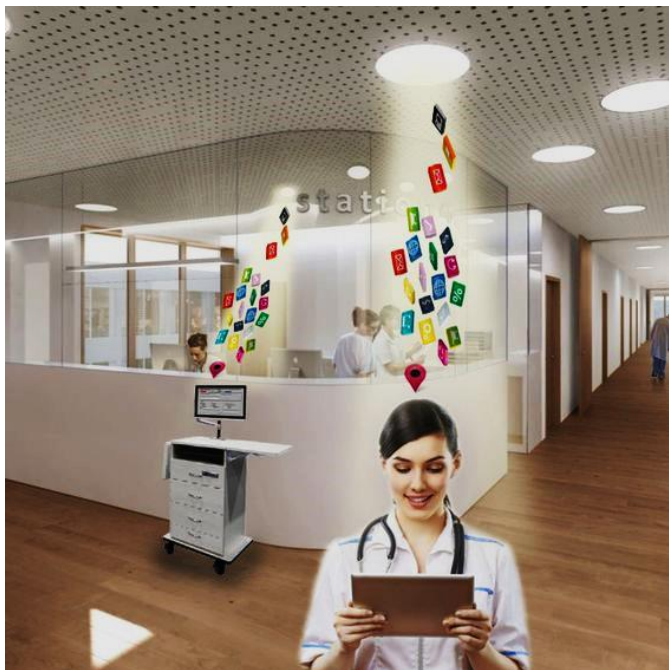
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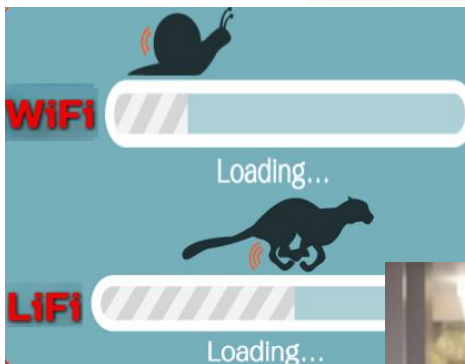
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1	SPEED	> 1 GB/S	around 150 Mb/s
2	Medium of data transfer	Use light as carrier	Use radio spectrum
3	Spectrum range	Visible light has 10000 times more	Having less spectrum range than VLC
4	Cost	Cheaper	Expensive
5	Network topology	Point to point	Point to point
6	Operating frequency	Hundreds of Tera Hz	2.4 GHz

Meghnad Saha Institute of Technology



# Perspectivas Futuras

“ O único lugar onde o sucesso vem antes do trabalho é no dicionário ”

Albert Einstein



“ O segredo do sucesso não é prever o futuro. É preparar-se para um futuro que não pode ser previsto. ”

~ Michel Hammer ~

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