



# INTEL – FAPESP Workshop: Intel research activities with system-on-a-chip (SoC) devices and opportunities of collaboration

Prof. Roberto Marcondes Cesar Jr.  
Head Coordinator of Physics, Mathematics, Chemistry and Engineering



Program	
<b>9h45</b>	Welcome coffee
<b>10h00</b>	Opening
<b>10h10</b>	Roberto Marcondes Cesar Jr. FAPESP, Head Coordinator: Physics, Mathematics, Chemistry and Engineering Partnership FAPESP – Intel
<b>10h30</b>	David Ott Intel, University Collaboration Office, Research Director
<b>11h15</b>	David Johnston Intel, Security Architect Intel Perspectives on Side Channel Attack Resistance in Lightweight SoC Devices
<b>12h00</b>	Closing

## São Paulo Research Foundation (FAPESP)

Supporting Research in All Fields of Knowledge, Scientific Exchange and Dissemination of Science and Technology

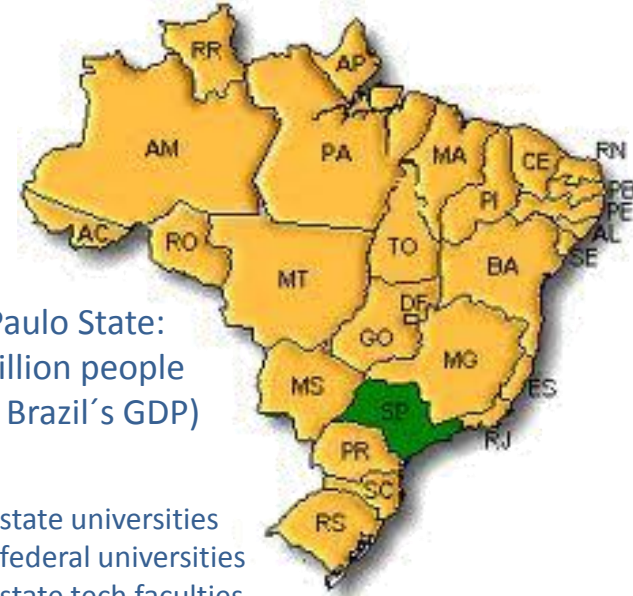
1% of all state taxes to fund the Foundation

US\$ 600 million revenues in 2013

Not more than 5% to cover administrative costs

12.451 new contracts for research projects  
(approx. 24K proposals/year)

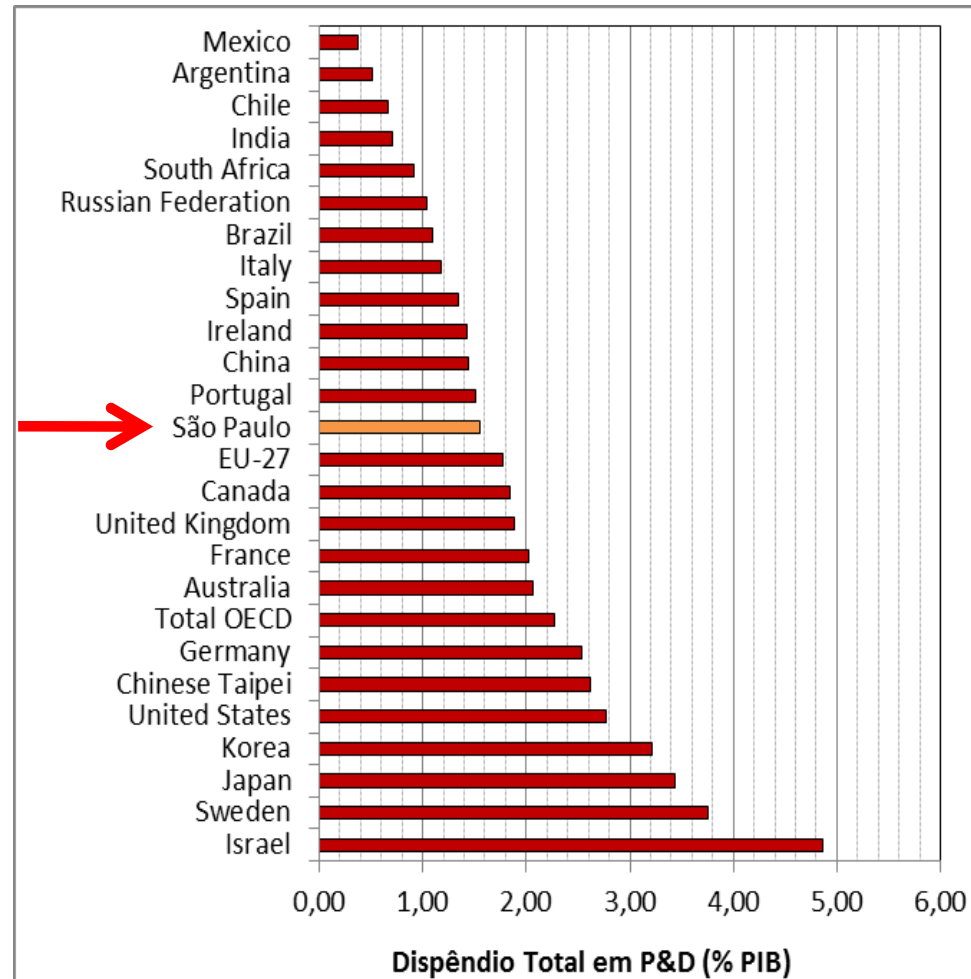
All proposals are *peer reviewed* (by national or international *ad hoc* reviewers)



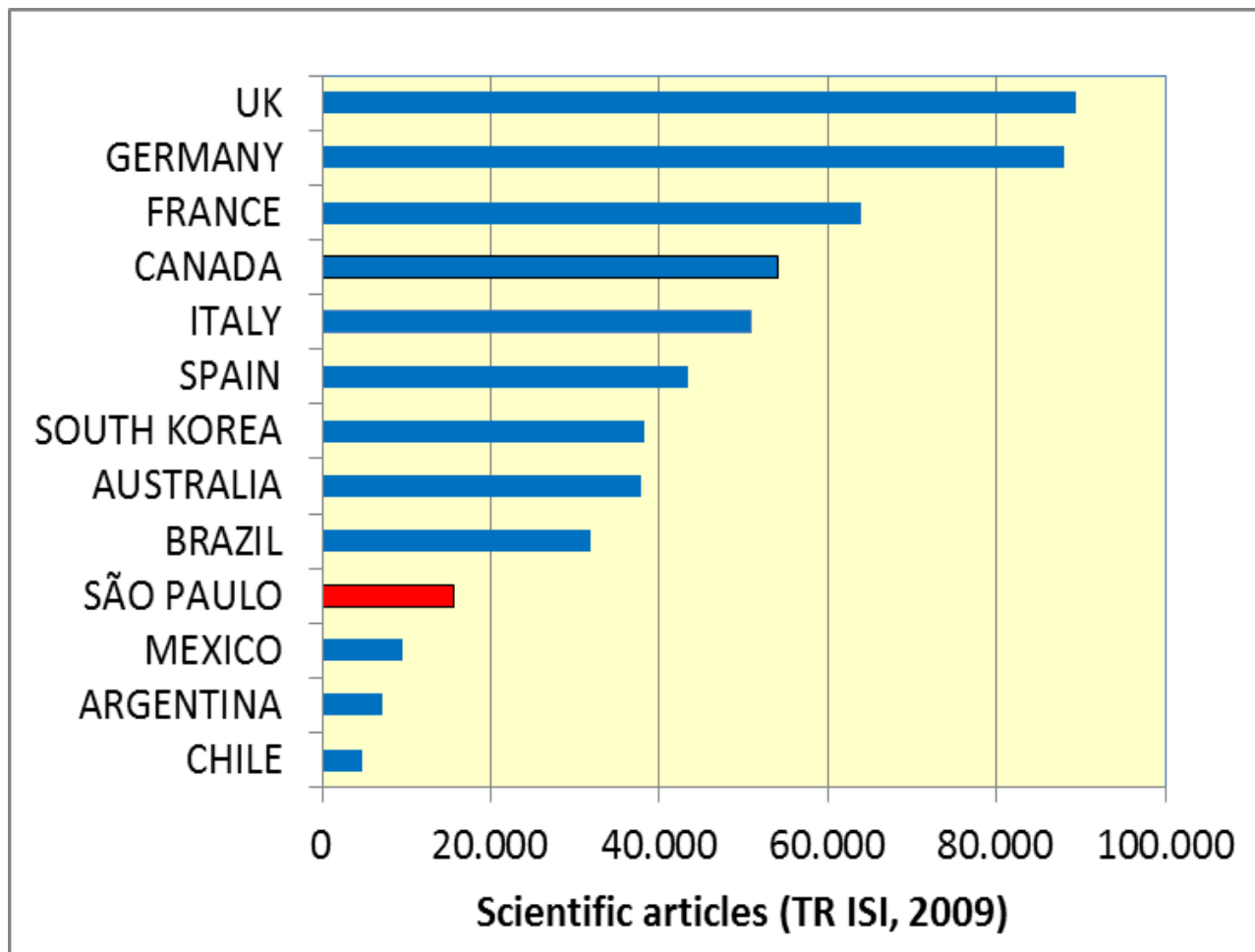
São Paulo State:  
41 million people  
(34% Brazil's GDP)

- 03 state universities
- 03 federal universities
- 52 state tech faculties
- 22 research institutes (19 state and 03 federal)
- 01 State Funding Research Foundation (FAPESP)

## International standing



# São Paulo: 2<sup>nd</sup> largest science producer in Latin America (2009)



Centers for Research, Innovation and Diffusion (CEPID)

Green Economy Research Programs :

Biota Program: Virtual Institute for Biodiversity

BIOEN Program: Bioenergy Research Program

PFGCC: Global Climate Change Research Program

Industry-University Joint R&D (PITE)



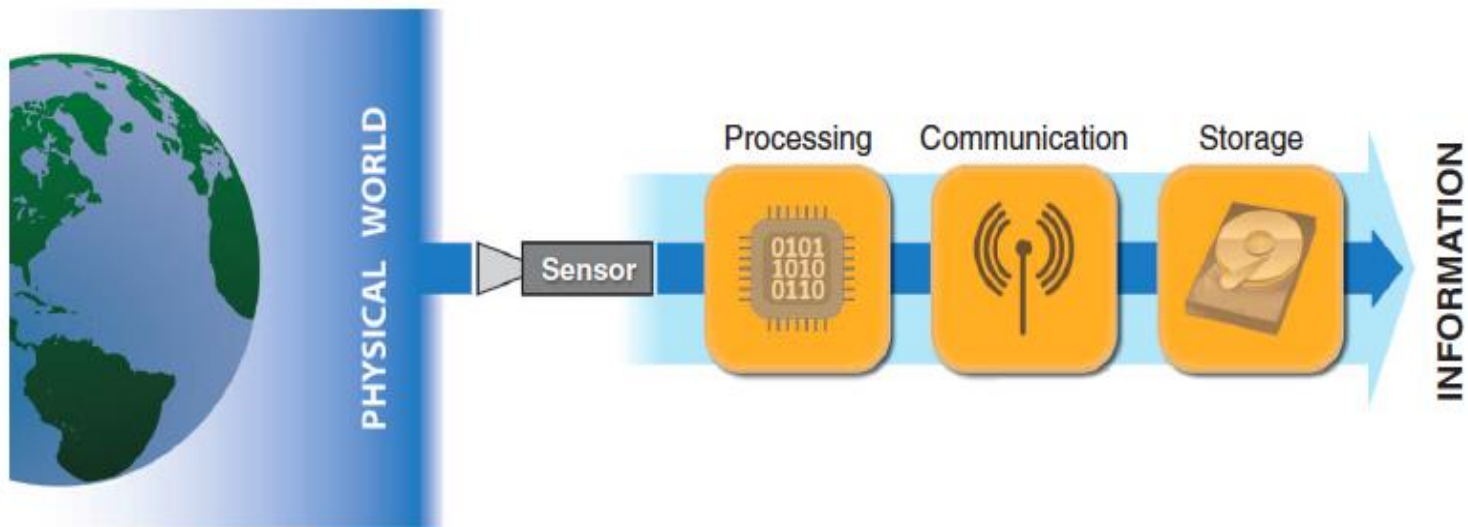
Large, Multiuser Research Equipments

Small Bussiness R&D (PIPE)

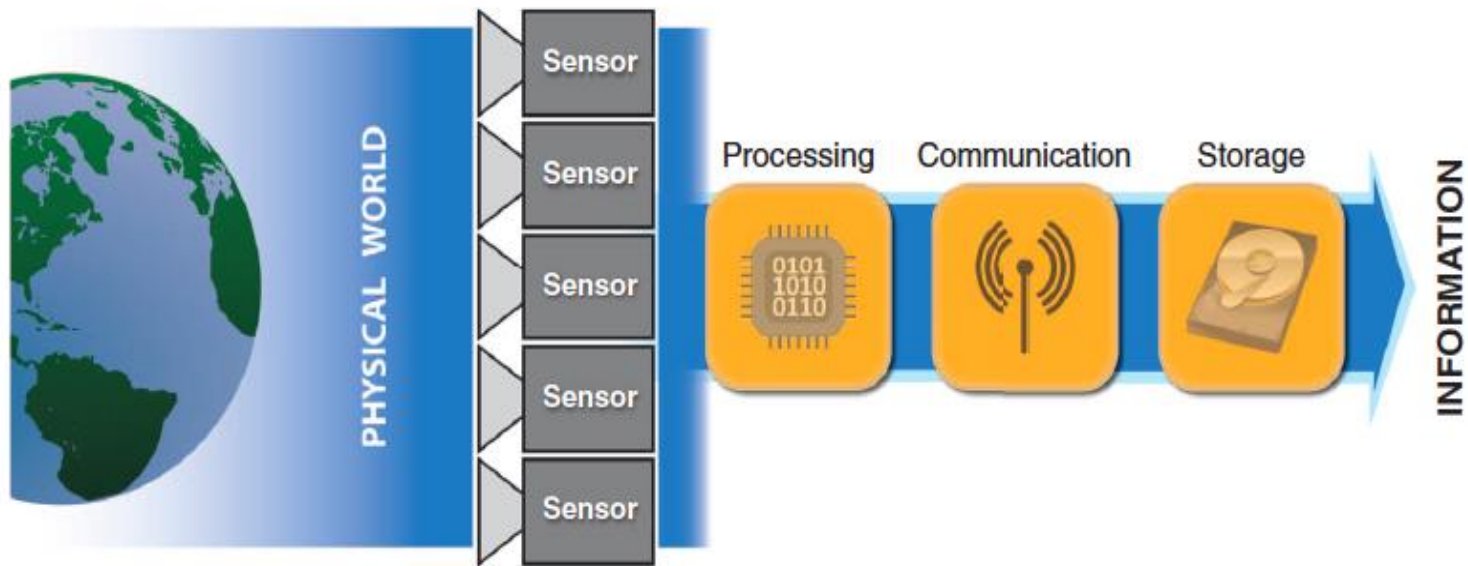
Regular Research Grants







R Baraniuk, *Science*, 2011



**Fig. 1.** Dealing with the sensor data deluge. In a conventional sensing system (top), the sensor is the performance bottleneck. In a data deluge–era sensing system (bottom), the number and resolution of the sensors grow to the point that the performance bottleneck moves to the sensor data processing, communication, or storage subsystem.



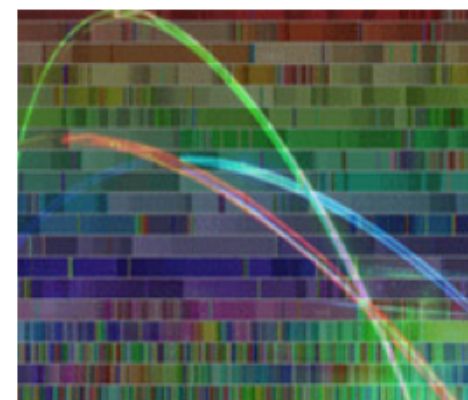
## FAPESP announces call for eScience program

FAPESP announce a call for research proposals for the new Research Program on eScience.

The call for research proposals is open to interested researchers associated to non-profit teaching and research institutions in the State of São Paulo. The main goal is to identify, select and broaden world-class, basic and applied research associated to the relevant topics described in the call.

Relevant topics for this call for research proposals are as follows. However, the call for proposals is not restricted to these topics and additional issues that fit in any eScience area are welcome.

- eScience algorithms and models
  - Mathematical models
  - Data-oriented approaches
  - Digital repositories and data management
  - Extreme scale approaches
- Cyberinfrastructure to support eScience
  - Novel hardware
  - Novel uses of cyberinfrastructure
  - Software, services, protocols, and research tools
- eScience target domains, including:
  - Agricultural Sciences



Proposals can be submitted electronically until April 28th, 2014



Especiais

## R\$ 98 milhões para pesquisas sobre a internet

19/12/2013

Rodrigo Garcia, Raupp, Lafer, Paulo Bernardo e Meirelles, durante a cerimônia de assinatura do convênio para apoiar projetos sobre aplicações-chave, engenharia e tecnologia e fundamentos científicos (foto: Eduardo Cesar)

**Agência FAPESP** – O Ministério das Comunicações, o Ministério da Ciência, Tecnologia e Inovação e a FAPESP firmaram um convênio de cooperação no valor de R\$ 98 milhões para apoiar projetos de pesquisa científica e tecnológica que contribuam para o desenvolvimento da internet no Brasil.

A assinatura do convênio, ocorrida na quarta-feira (18/12) na sede da FAPESP, contou com a presença dos ministros Marco Antônio Raupp (Ciência, Tecnologia e Inovação) e Paulo Bernardo (Comunicações); de Rodrigo Garcia, secretário de Desenvolvimento,

Ciência, Tecnologia e Inovação do Estado de São Paulo; João Carlos Meirelles, assessor especial de Assuntos Estratégicos do governo do Estado de São Paulo; Celso Lafer, presidente da FAPESP; Carlos Henrique de Brito Cruz, diretor científico da FAPESP; Virgílio Augusto Fernandes Almeida, secretário de

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Notícias

### Ciência de Alimentos na Unicamp oferece disciplina de pós

Aulas serão ministradas pelos professores Frédéric Carlin, do Inra, e Anderson Sant'Ana, da Unicamp

Notícias

### Laboratório da



Notícias

### Pós-doutorado em Espectroscopia Vibracional com Bolsa da FAPESP

Bolsista atuará em projeto temático no Instituto de Química da USP

Notícias

### Instituto de Pesquisa em

## FAPESP AND INTEL CALL FOR PROPOSALS (CFP)

### 1. INTRODUCTION

FAPESP and INTEL publish this Call for Proposals and invite interested researchers, working within public or private Higher Education or Research Institutions in the State of São Paulo, to submit projects under the cooperation agreement between FAPESP and INTEL, under the terms and conditions hereinafter set forth.

### 2. SUBJECT

Academic research on side-channel resistant security for system-on-a-chip (SoC) devices.

### 3. OVERVIEW

FAPESP and Intel's corporate University Research Office (URO) invite proposals from researchers in the State of São Paulo in Brazil on side-channel resistant security for lightweight Internet of Things (IoT) devices. IoT devices are expected to proliferate significantly in the coming years and pose unique challenges due to limited hardware resources, energy constraints, cost limitations, low bandwidth, and physical exposure to attackers. Unlimited access to IoT devices, in particular, creates opportunities for attackers to exploit side-channel information in order to obtain cryptographic keys, access-controlled data, or other types of protected information. Intel requests proposals for non-incremental research leading to compelling techniques and technologies that will make future lightweight IoT devices significantly more secure against side channel attacks than the current state-of-the-art.

### 4. BACKGROUND

System-on-a-Chip (SoC) based devices are expected to proliferate significantly in the coming years. One well-known source projects the total number of Internet connected devices globally to reach 25 billion by 2015 and 50 billion by 2020.<sup>1</sup> Dramatic increases in SoC-based device technologies will continue to be seen in such fields as

- Consumer electronics (digital cameras, media players, GPS devices, gaming)
- Mobile communications (smart phones, feature phones, cellular base stations)
- Health and medicine (diagnostic equipment, patient monitoring devices, medical imaging)
- Transportation (vehicle control systems, traffic monitoring and regulation)
- Energy (smart meters, climate sensors, energy management systems)



Cooperative Agreement signed on 24/04/2013

2<sup>nd</sup> Call for Proposals to be launched

Funding US\$ 200.000,00

2 years-grant

### Theme of the CFP

Academic research on side-channel resistant security for system-on-a-chip (SoC) devices.



### 3 Research Vectors:

**RV1: Cryptography**

**RV2: Data Communications**

**RV3: Software**

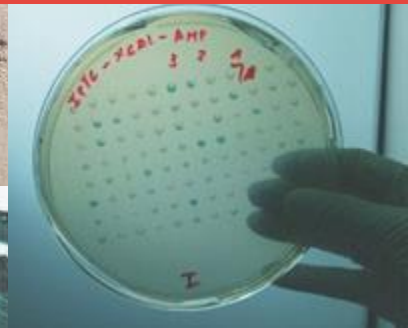




Thank you!

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FAPESP 50 ANOS



Data: 05/06/2014