



Nao

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# The Aldebaran Project



## Mission

Create and deliver affordable autonomous and easily programmable humanoid robots.



## Time-to-Market

Convergence between project, market, costs and availability of technologies.



# About Aldebaran Robotics

## Financial

- 4 M€ Equity
- 4 M€ Public grant and subsidies
- A total of 15 000 R&D days
- 5 M€ fund raised end of 2007
- 65 employees

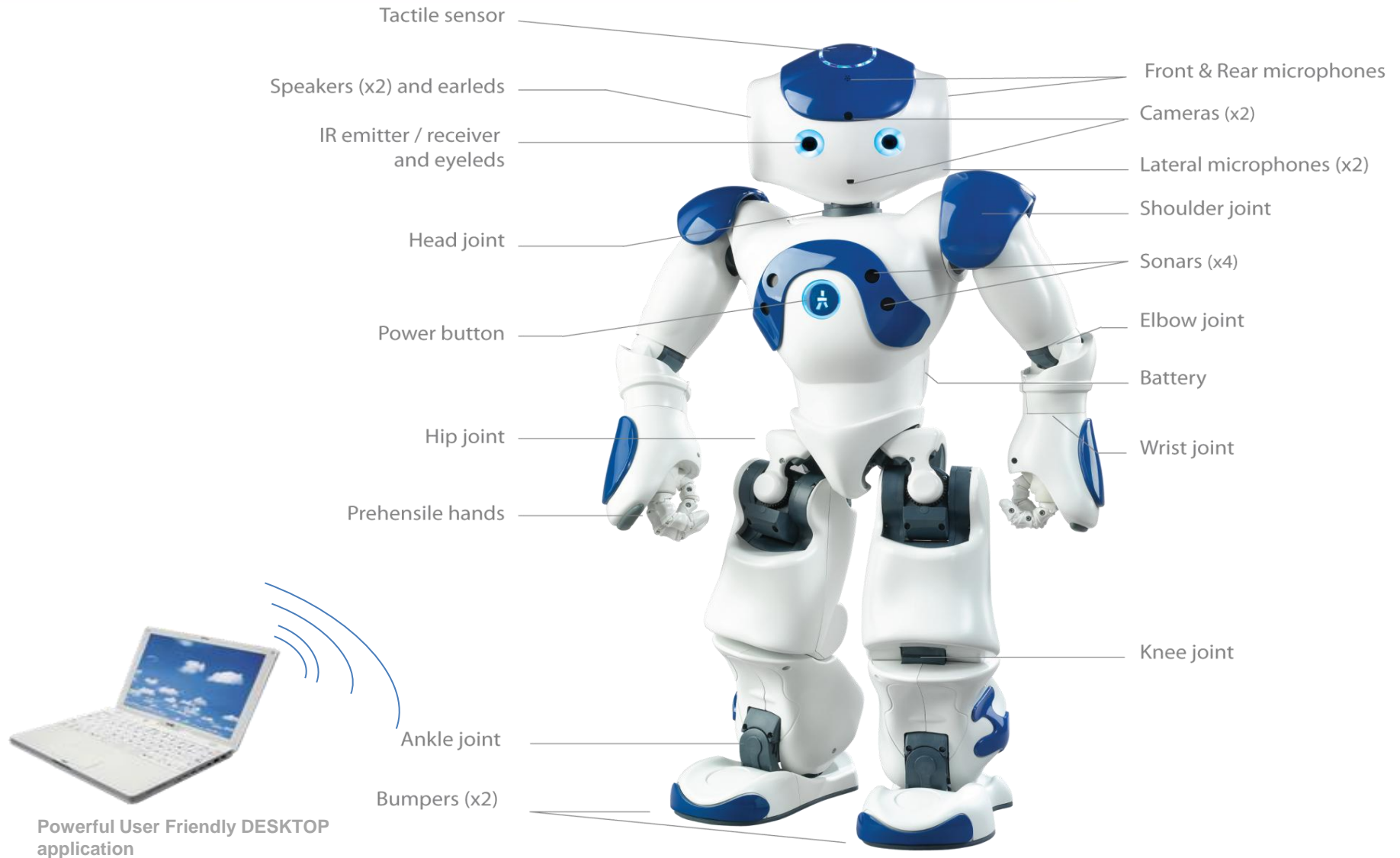
## Key support

- Aldebaran Robotics is member of several research consortiums in France or funded by the EC (i.e. Felix Growing, ROMEO, GVLeX...)
- New robotics cluster launched in France around Aldebaran Robotics with support of government: CAP ROBOTIQUE

Aldebaran Robotics relies on strong financial resources and a large network of academic partners.



# The product as a whole



# Who is already using Nao?

- Lockheed Martin
- KAIST
- University of Maastricht
- Xiamen University
- INRIA Orsay
- University of Wales
- National Institute of Astrophysics
- Bar Ilan University
- and many more...

## RoboCup 09 standard league:

Carnegie Mellon, University of Pennsylvania, Bowdoin College, Austin Villa Texas, University of New South Wales, Humbolt Berlin, Dortmund, Bremen, Aachen, Technical University of Greece, Bogazici University of Turkey, University of Murcia, NUI MayNooth Ireland, University of Chile, Faculty of Engineering at University of Rome...



# Our involvement in cooperative projects

## **Feelix Growing (UK, Greece, Switzerland, France)**

**FEEL, Interact, eXpress: interdisciplinary investigation of socially situated development from an integrated or global perspective as a key paradigm towards achieving robots that interact with humans in their everyday environments in a rich, flexible, autonomous and user-centered way. <http://www.feelix-growing.org/>**

## **ROMEO (France) Robot Companion & Personal Assistant**

**Conception and development of a humanoid robot of bigger proportions based on advanced physique and electronic platform, with elementary perception, fundamental capacities and integrating an advanced dialogue, cognition and interaction systems.**

## **GVLeX (France) Expressive reading for artificial agents**

**Based on learning from corpus of expressive reading (recordings of professional actors' reading) and automatic semantic analysis of tales for children, the robot or the avatar is able to read, in an expressive way, 15 minutes long stories. Expression will be carried out by voice and gestures.**



# And now let's do science



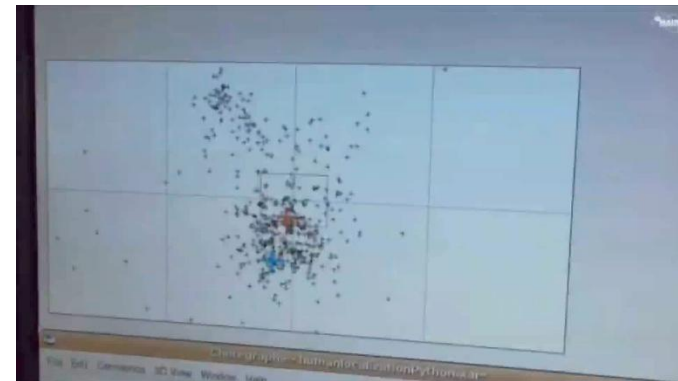
**Genetic algorithm**



**Inertial sensor**



**Stiffness & haptics**



**Particles filter**



# Controlling Nao's platform



choregraphe

The screenshot shows the Choregraphe software interface. At the top, there's a menu bar with 'File', 'Edit', 'Connection', 'Behaviors', '3D View', 'Window', and 'Help'. Below the menu is a toolbar with various icons. The main workspace is divided into several panels. On the left, there's a 'Timeline' panel with a horizontal axis from 0 to 135. It contains three tracks: 'Behavior layers' with a 'keyframe1' marker, 'Motion layers' with a wavy line, and 'Motors' with a 'Show/Hide all motors' checkbox. Below the timeline is a 'Box List' panel showing a tree structure of behaviors and objects. The central area is a 'Stage' where a 3D model of a Nao robot is shown in a blue and white color scheme. A 'Motion' window is open over the robot, displaying a 3D model of its head and neck with a blue ribbon indicating movement. The window has a slider set to 0.0 and a value of -24.0. A 'Say' window is also visible, containing the text 'Hello'. The bottom left corner shows 'FPS: 21.3'.



# Telepathe

Telepathe Desktop

Load Plugin  
cameraviewer

Video Settings

Other parameters

Framerate 30

resolution 320 \* 240

black white

mark detection

face detection

logo detection

Select bottom camera

Auto gain

Gain 31

Auto white balance

Blue chroma 128

Red chroma 80

Brightness 158

Contrast 71

Saturation 128

Hue 1

Lens correction x 130


Lens correction y 130

Auto exposition

Exposure 33342

Vertical Flip

Horizontal Flip



Timestamp: 1229617993.563382 seconds, fps: 4.6

Play button, Stop button

The easiest way to see what Nao sees...

