



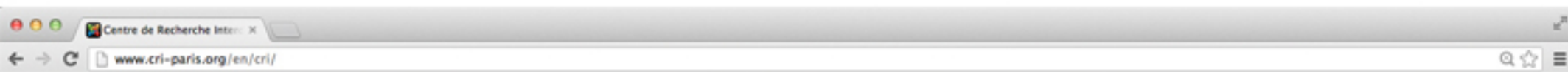
Centre  
**CR**  
Recherches  
interdisciplinaires

FONDATION  
BETTENCOURT  
SCHUELLER

Ana María Campos \* Catalina Quijano

juilio 8 al 26 de 2013

# http://www.cri-paris.org/



**CRI PARIS**

**FDV PHD PROGRAM**

**AIV MASTER**

**FDV BACHELOR**

**YOU ARE ALL WELCOME TO JOIN US FOR THE 2013 NIGHTSCIENCE EVENT BETWEEN JULY 12... MORE DETAILS**

You are in / Home / CRI PARIS



## THE CENTER FOR RESEARCH AND INTERDISCIPLINARITY (CRI)

- Calendar
- Research @ CRI
- Education X.0
- Events
- Scientific clubs
- Blog naked science
- iGEM Paris LB
- Summer school
- Library
- Press review
- Videos
- Intranet Moodle
- Twitter
- Practical info



### The CRI

Located 5 minutes walk from the Luxembourg Gardens at the Paris Descartes Medicine Faculty in Cochin, the Centre for Research and Interdisciplinarity (CRI) was founded in 2005 as a convivial place at the crossroad between Life Sciences and exact, natural, cognitive and social sciences.

Renovated in 2009, our environment includes a fully-equipped seminar room, a meeting room, office space for visiting professors, a library and coffee rooms and a modelling as well as wet-lab space.

### >>>> CRI NEWS

#### Associated graduate studies programs

The CRI hosts the Frontiers in Life Sciences FdV Bachelor Program, the Interdisciplinary Approaches to Life Sciences master program (M1 and M2 AIV) and the European Interdisciplinary Liliane Bettencourt "Frontiers in Life Sciences PhD program (FdV) of the Paris Descartes and Paris Diderot universities (Pole de Recherche et d'Enseignement Supérieur Université Paris Cité), accommodating the brightest

# Education

## Inviting the public into the research realm

PARIS  
French scientist seeks to widen the reach of leas and hypotheses

BY D.D. GUTTENPLAN  
François Taddei has three lives. Like many academic scientists, he divides his time between teaching and his own research, continuing from the sixth floor of the medical faculty at Paris Descartes University, where he researches the evolution and adaptation of bacteria, to the second floor of the same building, where as director of the Center for Research and Interdisciplinary he supervises students working on everything from genetics to the use of computer games in scientific research.  
Interviewed in his teaching office, located on the grounds of the former Cochin Hospital, he described a new project based on recruiting the dog owners of Paris to gather biomedical data on their pets.  
"It's crowdsourcing, but instead of crowdsourcing in a way that the owner is very passive, we want to engage them in proposing ideas and suggesting hypotheses," he said. "It's making them part of the research community rather than exploiting them as just data providers."  
Bringing the public into the research community is Dr. Taddei's passion — and the key to his third life, which currently takes place in Bagneux, a suburb south of Paris. With the help of Anne Anouar, a teacher at the Paul Valentin Couterne school, he has recruited a group of 11 primary school students to work with two of France's leading myrmecologists.



François Taddei, above, a researcher, has recruited a group of 11 primary school students, ...



... are not experts, Dr. Taddei calls this "learning through research."  
"The idea is to help the students realize that even on a small thing like ants they can be actors in their own knowledge," Dr. Taddei said. "And, furthermore, that they can also be actors in a global society."  
Ms. Anouar's objective is slightly different. A former trainee at the French Foreign Ministry, she returned as a teacher after having her own children. "When I first met François, I was originally very cautious," she said, but "thanks to one of the parents' neighbors in France, Thea and in your kids to be their 'mom from really depressed background," she said.  
"They love it when we get prey in and the ants attack. What they like most is to

behave like scientists. They write a lot, and they observe a lot."  
When asked whether she was hoping to turn them into scientists, she replied, "I'm not sure this is my aim."  
"My aim is to make them think a lot, and let them think in a rational way," she said. "After their interactions with François and the two researchers gives them very important role models."  
The ant table is Ms. Anouar's classroom is always the center of attention. "Students are allowed to come to the table whenever they have finished their other work," she says.  
Thanks to computer software developed by long-time colleague Dr. Taddei from Inserm, the French National Institute of Health and Medical Research, each member of the colony of

100 ants has been given a different color code so that its movements can be recorded on camera and then tracked continuously. This allows students to observe the way the ants interact, follow one another's trails and move in a coordinated way to attack prey and bring food back to the nest.  
Her students have learned that, like ants, scientific progress does not always proceed in a straight line. "The ants tend to do a lot — sometimes because of the ants not being as careful as they should," Ms. Anouar said. "We used to have a rabbit in the class, and the kids got very emotionally attached. With the ants it's more about the science."  
Dr. Taddei says that while he hopes the



students' observations will lead to publishable research, getting them involved in the process is just as important.  
"When we started working together the kids in this class had no idea what a scientist was," he said. "It takes months for kids to understand what research is, why your results need to be reproducible and why your work needs to be precise." At present the students report their observations via the Twitter handle @jeanmichelantoni.  
Dr. Taddei's own scientific career followed a path as evergreen as any ant



**François Taddei**  
@FrancoisTaddei

thinking about the future of learning during the night and doing night science during the day

Paris based world citizen · [cri-paris.org/fr/accueil-cri...](http://cri-paris.org/fr/accueil-cri...)

# TaMaRa Staff.

## Ariel B. LINDNER

**Senior Researcher**

tel: +33 (0)1 44 41 25 25 - fax: +33 (0)1 44 41 25 29

[ariel.lindner@inserm.fr](mailto:ariel.lindner@inserm.fr)

**Evolutionary Systems Biology Team**

**U1001 INSERM**

*Centre for Research and Interdisciplinarity (CRI) faculty  
of Medicine, Paris Descartes University*



Ariel Lindner Faïsal Aldaye (Harvard) CRI 6-5-2011

### Civil status

Date and place of birth: November 2, 1967; Ramat-Gan, Israel  
Married + 1 child

### Current positions

2009 - **Senior researcher** (CR1) INSERM U1001

2008 - **Director, Interdisciplinary Approaches to Life Sciences M.Sc. Program** Paris Diderot & Descartes Universities

2005 - **Vice Director, Centre for Research and Interdisciplinarity (CRI) Molecular, Medical and Evolutionary Genetic Laboratory** (INSERM U1001) Faculty of Medicine, Paris Descartes University, Paris, France

### Academic degrees

**H.D.R.** (2011) Habilitation to Direct Research (French Diploma)  
Faculty of Medicine, Paris Descartes University, Paris, France

**Ph. D.**, Life Sciences (1996-2002), Department of Molecular Immunology  
Weizmann Institute of Science, Israel. Supervision: Prof. Z. Eshhar. Thesis title: *Hydrolytic antibodies: Mechanistic studies and novel selection methodologies.*

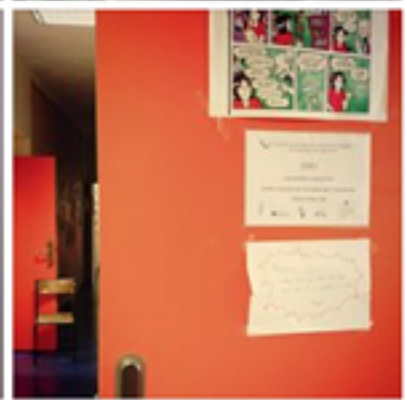
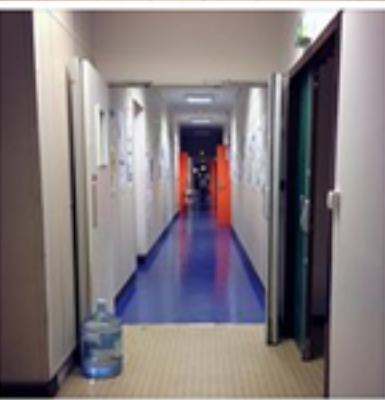
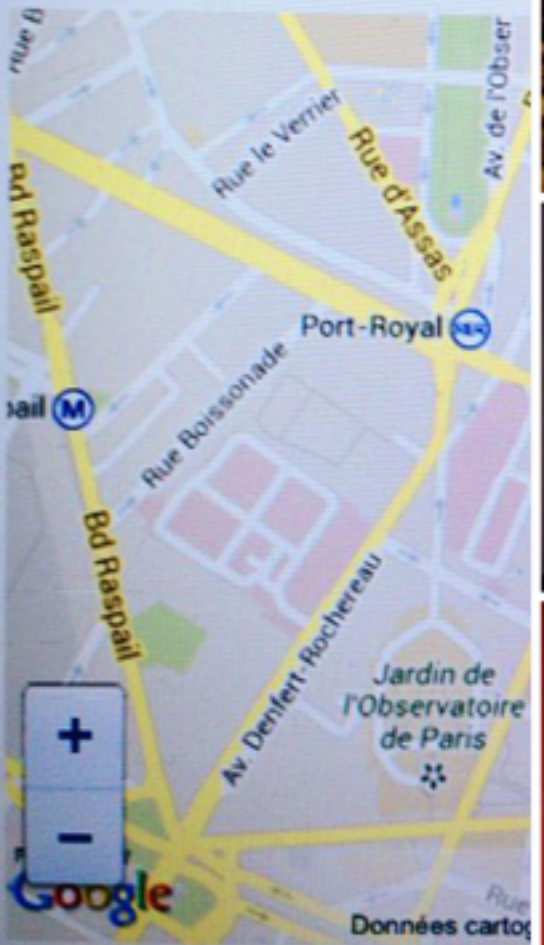
**M. Sc.**, Life Sciences (1994-1995), Department of Chemical Immunology Weizmann Institute of Science, Israel.  
Supervision: Prof. Z. Eshhar. Thesis title: *Experimental approaches to peptide cleaving antibodies.*

**B. Sc.**, Chemistry (1989-1992), Faculty of Sciences 'Amirim' interdisciplinary honorary program. The Hebrew  
University of Jerusalem, Israel. *Summa cum Laude.*

Centre for Research and Interdisciplinary Studies  
 Faculty of Medicine Cochin Paris Descartes University  
 24, rue du Faubourg Saint Jacques  
 75014 Paris, France

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 RER B: Port Royal station  
 BUS : 38 (Observatoire Port Royal)  
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[for more information, RATP](#)



Concours international de jeux pour  
l'apprentissage par la recherche et le  
questionnement

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Développez votre idée en 4 pages pour le 30 septembre

Grand Prix  
+

- Défis ouverts
- Défis ciblés
- Catégorie Chercheurs
- Catégorie Pros

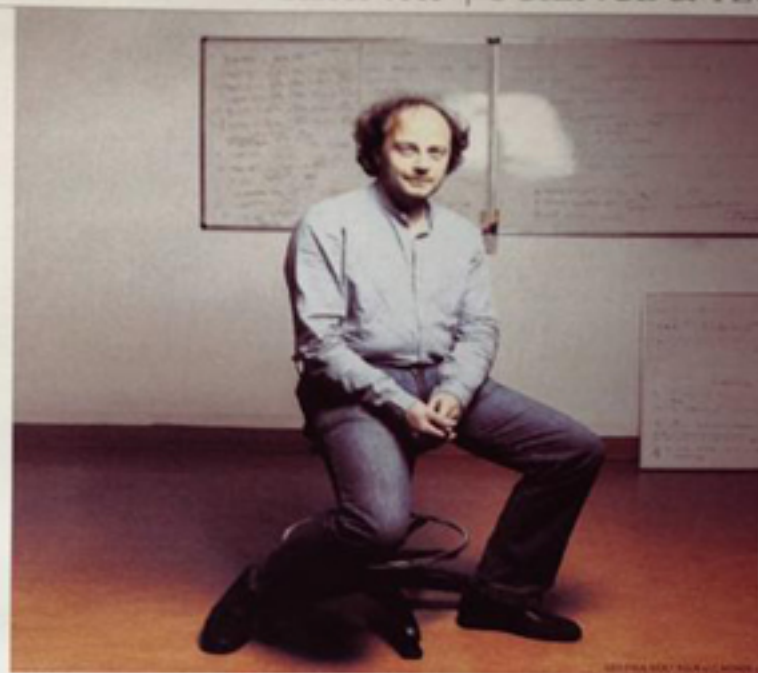
International Game Competition  
for Education and Research

Informations et inscriptions sur  
[www.IGAM4ER.ORG](http://www.IGAM4ER.ORG)

Finale à Paris, en décembre 2013  
à la Cité des Sciences et de l'industrie

@IGAM4ER  
igam4er@gmail.com

Institut Innovant de Formation par la Recherche  
Centre de Recherche Interdisciplinaire  
Citizen Cyberlab



## François Taddei, chercheur interdiscipliné

PORTRAIT | Ce polytechnicien dirige un institut innovant  
pour la formation par la recherche, à Paris

mémorable d'une journée entière avec François Taddei et Miroslav Radman à parler biologie, éducation, recherche.

On l'aura compris, François Taddei est toujours un chercheur, mais plus vraiment en biologie. « Mes travaux sur les bactéries et leur évolution m'ont convaincu que ce que je voulais faire dans l'éducation avait quelque fondement », explique-t-il. Il a ainsi étudié la coopération entre bactéries, les effets collectifs, les phénomènes de coévolutions. L'interdisciplinarité était souvent nécessaire pour aborder ces questions. Exactement ce qu'il défend pour des enseignements rénovés. « Quand j'ai eu à me frotter, à l'univers, aux questions éthiques posées par mes travaux ou ceux de mes collègues, j'ai pris conscience que la recherche, que j'avais toujours considérée comme un jeu, ne l'était plus vraiment. J'ai alors préféré travailler sur les questions d'éducation. »

Un père déposé, les attentats du 11 septembre 2001 et les interrogations de collègues étrangers au moment des épreuves de 2005 dans les banlieues françaises l'ont aussi conduit à cette bifurcation et à cette volonté, en quelque sorte, de changer le monde, en travaillant à la formation des jeunes de tous âges.

Au sein du CRIL, l'intervention est donc partout. François Taddei a des liens avec des enseignants qui travaillent avec leur classe de primaire. Il a contribué au lancement de Paris-Montagne, une association qui permet l'accueil de lycéens

dans les laboratoires de recherche. Il promeut sans cesse la science citoyenne et aime à citer cette même américaine devenue chercheuse professionnelle (avec des dizaines d'articles à son actif) à la suite de la maladie de son enfant. « Tout peut devenir objet de science », assène-t-il.

Des rapports lui ont été commandés sur les questions d'éducation par l'Organisation de coopération et de développement économiques ou des parlementaires. Son confrère Ariel Lindner veut répliquer dans d'autres domaines le succès du jeu Fold-It, qui a permis de trouver des formes de protéines grâce à l'intelligence collective. Il a lancé pour cela la compétition Igam4er, dont la finale se tiendra à Paris en décembre. Un autre veut améliorer Wikipédia en proposant automatiquement des pages « vertes », « bleues » ou « rouges », plus ou moins faciles à comprendre, comme il y a des pistes de ces couleurs au ski. Un autre encore développe une application qui permet de faire des sciences du genre en recensant le nombre de femmes et d'hommes dans une assemblée. Ses jeunes troupes ont été primées aux États-Unis, en biologie de synthèse. D'autres, par l'Union européenne, pour un film promouvant la place des femmes dans les sciences.

« Je ne travaille qu'avec des gens qui ont envie », précise ce formidable catalyseur en rappelant que son dire favori est Portusina, le dieu des clés et des portes. Et il compte bien continuer à en ouvrir. ■

**FV** Ecole Doctorale n°474 Interdisciplinaire Européenne  
FRONTIÈRES DU VIVANT – BETTENCOURT

Bureaux de l'ED FdV :

N°2008 François Taddei, Directeur  
N°2004 Secrétariat/Administration

N°2006 Salle de conférence/Seminar room  
N° 2005 Salle de travaux dirigés/Tutorials room  
N°2007 Lounge

PARIS SORBONNE  
FONDATION BETTENCOURT SCHUELLER  
CRIV

**AIV** MASTER APPROCHES INTERDISCIPLINAIRES DU VIVANT – BETTENCOURT

Bureaux du MASTER AIV :

N°2008 Ariel Lindner, Directeur  
N°2004 Secrétariat/Administration

N°2006 Salle de conférence/Seminar room  
N° 2005 Salle de travaux dirigés/Tutorials room  
N°2007 Lounge

PARIS SORBONNE  
FONDATION BETTENCOURT SCHUELLER  
CRIV

**Inserm**  
Institut national de la santé et de la recherche médicale

Laboratoire INSERM U 1001

Equipe François Taddei  
Evolutionary Systems Biology

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**iGEM**

EQUIPE iGEM PARIS BETTENCOURT

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**PARIS SORBONNE**  
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CRIV



## 6 Education Dossier

Le Monde  
Mardi 20 septembre 2011

# « Le travail en groupe promeut une culture où l'intelligence collective peut s'épanouir »

Pour le chercheur François Taddei, le cloisonnement disciplinaire est une barrière à la créativité

### Entretien

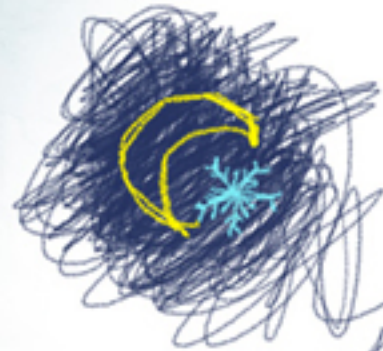
**A**vec son oeil de polytechnicien converti à la biologie, François Taddei, directeur de recherche à l'Inserm, étudie les communications des bactéries. Il aime tridimensionnellement croiser les approches. Sans travailler ensemble des scientifiques d'horizons divers, qu'il a créé le Centre de recherches interdisciplinaires et vient de réaliser, pour l'OCDE, un rapport sur l'École Institut Forme des constructeurs de savoirs collaboratifs et créatifs. **Qu'est-ce qui vous fait dire que notre école tue la créativité**

« Il y a deux composants en "gène" autour de l'école. Le premier est un système d'enseignement discipliné avec des matières distinctes. Les disciplines sont enseignées en parallèle sans être reliées les unes aux autres. C'est comme un système d'enseignement de pilotes, il existe une pédagogie scientifique sur la faisabilité de la formation à ces grandes compétences qui exigent un apprentissage... et comme l'ordinateur en France, on débat militiquement sur le sujet. « Cette rhétorique de la créativité a été très largement déstabilisée par un consensus managérial libéral. Beaucoup d'enseignants et de pédagogues ont donc peur qu'il n'agisse de manière à la culture humaniste, fondatrice de l'école de la République, au profit d'une adaptation aux emplois. Il y a une confusion idéologique. Dernière la créativité, certains voient une démission, d'autres un assourdissement aux commandes de l'entreprise privée. « Du côté des « républicains », l'école de cette créativité à l'école



# http://nightscience.org/en/

NightScience | July 12-14, x  
← → ↻ nightscience.org/en/



## NightScience

Collective creativity in scientific discovery and education



The conference

Hackathon

Partners

Media

Previous events

Contact

## After NightScience: A Summary of the Afternoon Session

POSTED ON JULY 17, 2013

English

Français

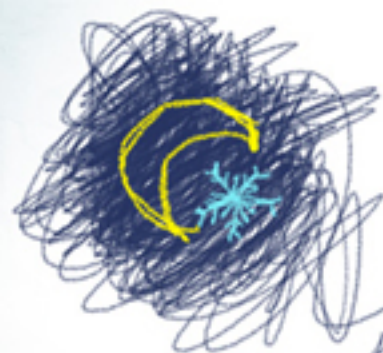
Search



# http://nightscience.org/hackathon-en/

NightScience | July 12-14, x

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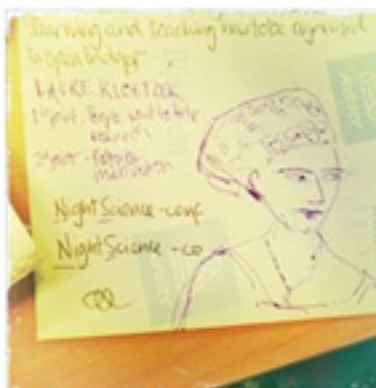
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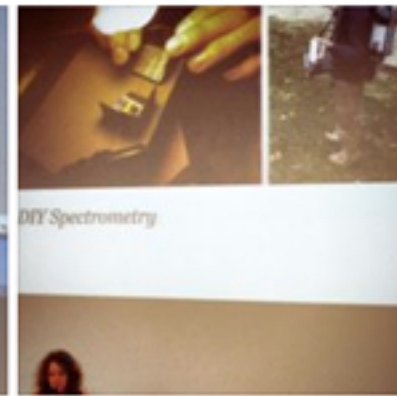








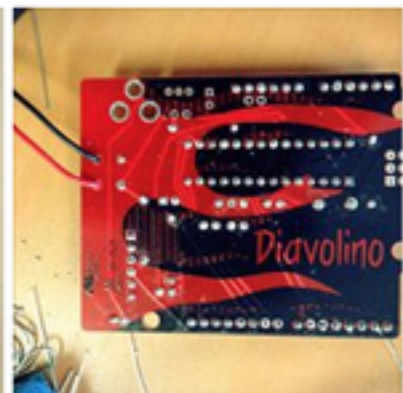
- Observing
- Questioning
- Formulating hypothesis
- Experimenting
- Making errors
- Doing over and over again
- Comparing
- Collaborating
- Analysing













2) 5, Research projects / Media Related Resources

1. Rudolph Laban/Walkins.

1. Merce Cunningham

1. Shao Lan - Learn to read Chinese

• Carolyn Carlson

William Forsythe

2. Visual Choreography - Ohio State University

1) Write research questions / project / problems  
↳ Subquestions

The trace of the Body in Action

Transform the Body in out in different Languages

How can we see movement

How can we draw body in movement

1) The Study and compare about Dynamic Space

# http://www.knownodes.com/

Find or create a resource... Login

Knownodes empowers you - to organise the web

is an example of  
*by Esta Lease*

raises the question  
*by Donn Heinecke*

is a tutorial for  
*by Ning Fen*

By putting knowledge into connections - you empower others

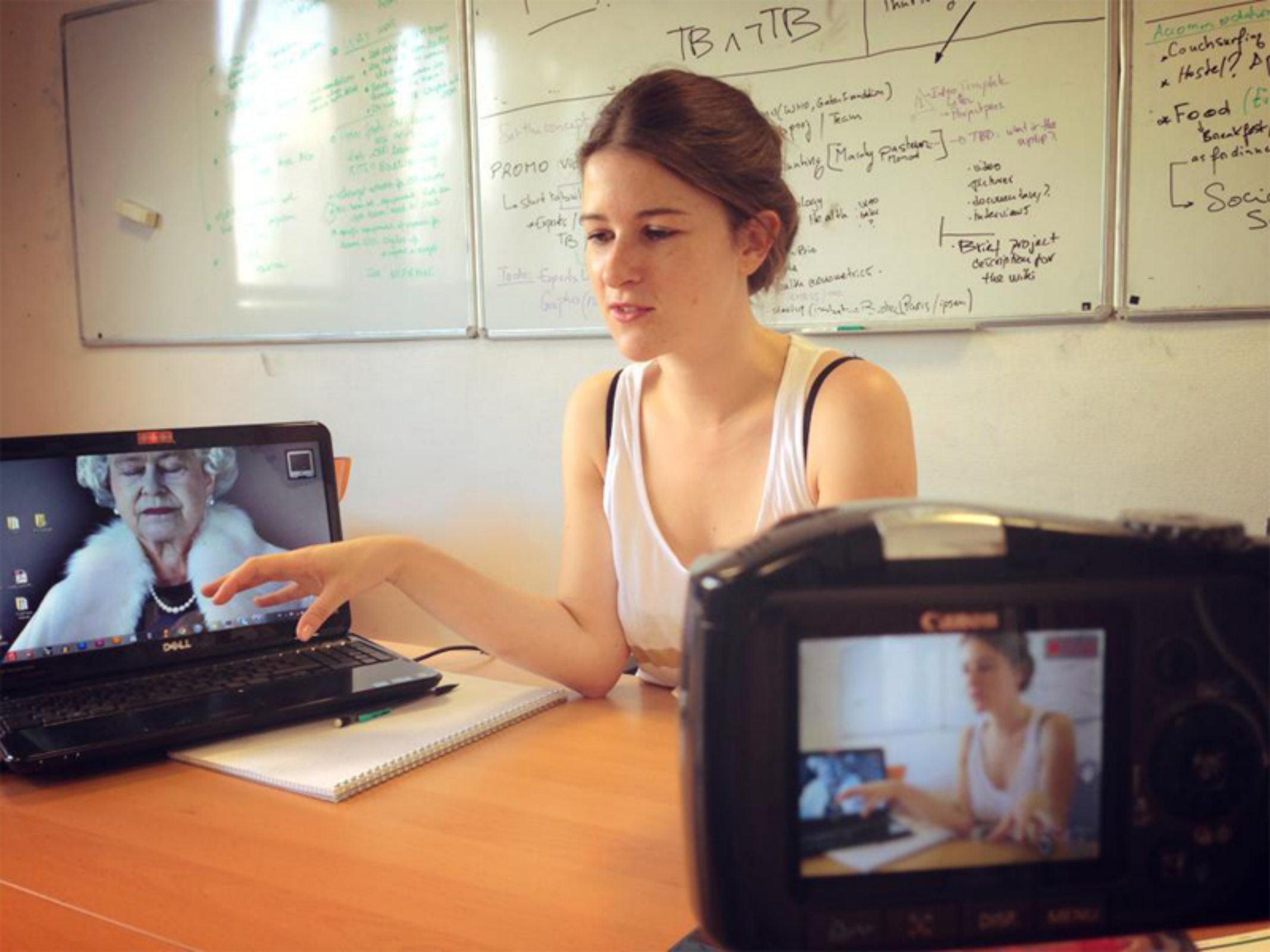
First timer? Browse the examples below, Learn about how it works, how to create your first link, and how to open your Phd!

Interesting people have started to share their knowledge on knownodes, check out some examples:





⚠ WARNING  
Geeks coding the entire week an  
awesome videogame  
We have booked this room for the  
week  
(yes! the whole room)



TB ^ TB

Get the concept  
PROMO VIDEO

La short video  
Experts / TB

Tools: Experts  
Graphics

of (WHO, Gabe, Funktion)  
support / Team

Planning [Mainly Pastors]

Technology  
to all the users

in Bio

with the anatomical  
simulator (anatomical model (Paris / Japan))

Edge complete  
later  
- the purpose

-> TED: what is the  
script?

- video  
pictures  
- documentary?  
- interviews

- Brief project  
description for  
the units

Accommodation

Couchsurfing  
& Hostel? A

Food (E)

Breakfast  
as for dining

Social  
S



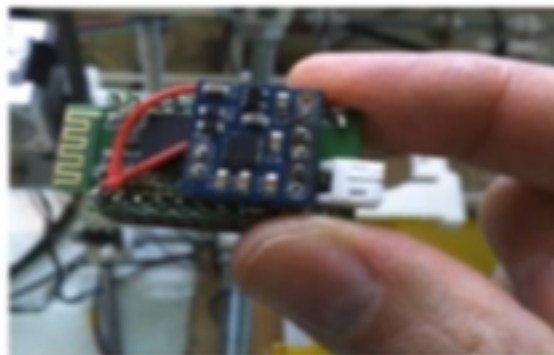






# Move.we.know = movuino

Open hardware Device to produce open data & open science



- Arduino compatible MCU (Atmega32u4)
- Advanced 6-axis motion sensor (accelerometer, gyroscope)
- Bluetooth Low Energy (BT4.0)
- Estimated retail price ~40\$

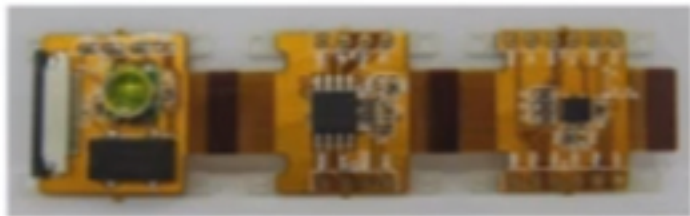


Allows to monitor in real time all moves and their variations to improve motor control learning & monitoring of health



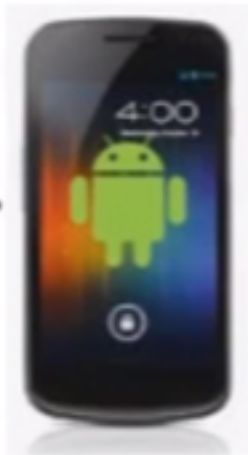
## Building a testcase: Pet project

An open crowd-sourcing platform for research on dogs allowing citizens to learn through research while sharing genomic environmental and real time phenotypic data

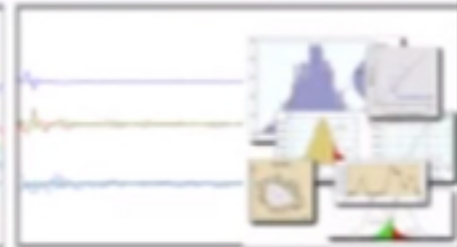
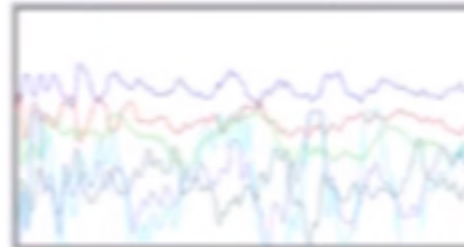


Open Hardware device: continuous record of physiological parameters

+



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Android-based mobile device: remote controller and data processing

Online platform offering open database and tools for data visualization, analysis and sharing

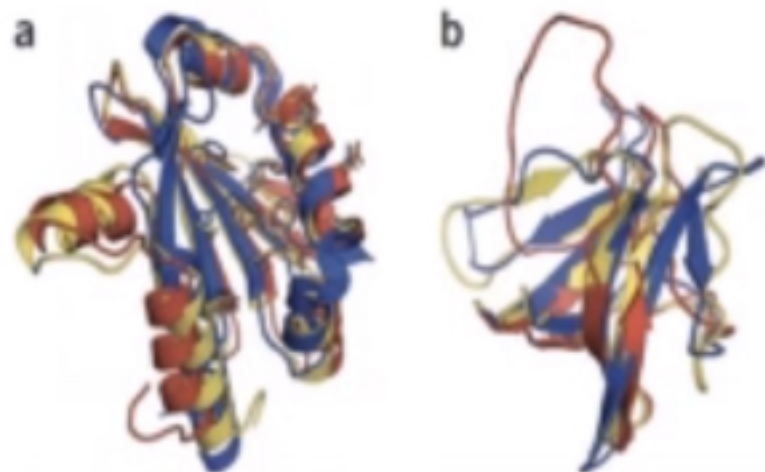


# Scientific discovery games as Frames of freedom for collective intelligence

NEWS

## Foldit Gamers Solve AIDS Puzzle That Baffled Scientists for a Decade

By [Matt Peckham](#) on September 19, 2011



Can games & open challenges change knowledge  
ecosystem & train impatient changemakers?



merci beaucoup

