

Newcomers' day

November 9th 2021



Program

- **Lab Presentation**
- **Administrative and Financial Division**
 - Financial Division
 - Communication Division
 - Human Ressources Division
 - Library Presentation
- **Technical Division (mechatronics, software and platforms)**
 - IT service
- **HEalth and Safety Presentation**
- **Research Divisions**
 - GAIA Research Division
 - PAD Research Division
 - PPC Research Division
 - PSD Research Division
- **Library and platforms guided tour**
- **Buffet**
- **Gipsa-doc event**

Presentation of GIPSA-lab

Nicolas Marchand, head of the lab



Skills



gipsa-lab

gipsa-lab conducts theoretical and applied research on

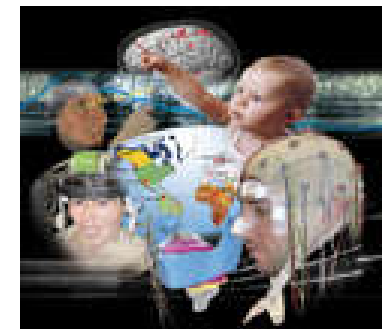
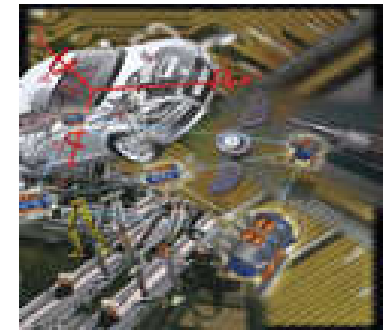
**CONTROL, SIGNAL, IMAGES, SPEECH,
COGNITION, ROBOTICS, LEARNING**

Multidisciplinary laboratory at the interface between the **physical** and **digital worlds** based on **experimentation**

3 institutional partners



Associated partner



Newcomers' day – November 9th 2021





GIPSA-lab in brief



UMR

= **Unité Mixte de Recherche**

= **Mixed research unit**

Created in 2007 :

CNRS - Grenoble-INP – UGA

1 INRIA team

1 OSUG team



From theory to experimentation

Importance of experimental platforms



Research themes

CONTROL, SIGNAL, IMAGES,
SPEECH, COGNITION, ROBOTICS,
LEARNING



400 personnes : 110 full time researchers and teachers (50% research), 240 non-permanent staff including 50% of PhD students
1/3 GINP, 1/3 CNRS, 1/3 UGA



Interdisciplinarity

4 CNRS disciplines + INRIA

7 University disciplines (CNU)

15% Humanities and Social Sciences



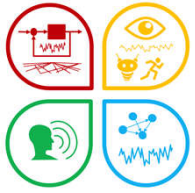
4 research divisions

15 teams/research themes

2 support divisions

Administrative and financial division

Technical division



GIPSA-lab in brief



15 M€ including salary
5 M€ on projects/contracts
including 1 M€ of direct
industrial contract



400 publications/y
50% of journal paper

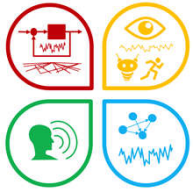


4 ERC Advanced Grant
4 Institut Universitaire de
France
30 scientific awards
5 thesis awards



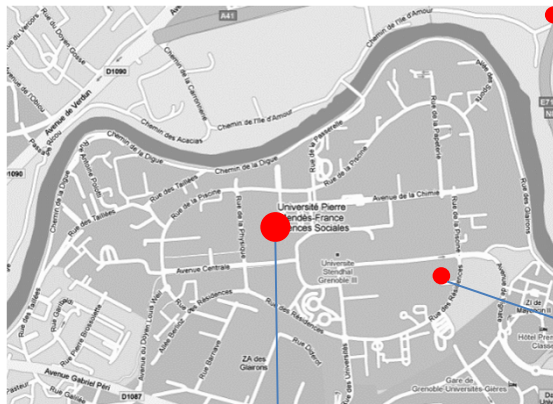
1 spin-off/year
3 incubating firm
10 patents/year

- **More than 20** PhD prizes
- **More than 30 papers** awarded as « BEST PAPER »
- **4 European Research Council Grants (ERC)**
- **11 awarded reserachers**
- **2 awards** by the French Académie des Sciences
- **4 researchers** at Institut universitaire de France
- **8 MIAI chair of Excellence**
- **1 regional finalist** at *Ma thèse en 180 secondes* (2017)



GIPSA-lab's location

Grenoble Campus



Site INRIA-Montbonnot

NECS Team
~5%.



Site Stendhal

VSLD Team
~5%.



~90%

Site Ampère Grenoble INP

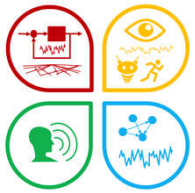


Staff



Total: ~ 340 people

- **including 150 permanent**
71 teachers,
36 researchers,
37 engineers, technicians and administrative staff
- **including 190 non permanent**
131 PhD students (~ 40 / year),
15 post-doc/ATER,
21 ITA/IAT engineers and technicians ,
Trainees et visiting people



Skills of the lab

CONTROL, SIGNAL, IMAGES, SPEECH, COGNITION, ROBOTICS, LEARNING

Scientific themes



FROM OBSERVATION TO INTERPRETATION:

images and signal processing, information and communication, perception, visual perception, remote sensing, geophysics.



FROM MODELING TO DECISION MAKING:

modeling, analysis, observation, control, fault diagnosis of complex, embedded systems and networked systems.



FROM SPEECH TO HUMAN COMMUNICATION

conversational agents, face to face communication, biomechanics, speech and languages, linguistics, dialectology, neurocognition

Usage

Energy, Geophysics,
Environment, Health

Robotics, Embedded systems,
Mechatronics, Micro and
nano systems

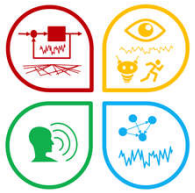
Telecommunications,
Networks, Sensors

Human-Machine interaction

Transport, Security,
Surveillance

Biomechanics, Brain, Disability,
Rehabilitation, Teaching

.....



Experimental facilities

1000 m² of experimental facilities
dedicated to measurements and observation



MOV (biomechanics)

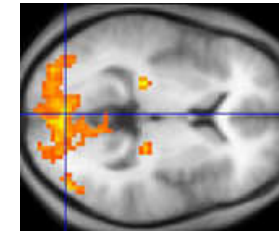


CONTROL



Linguistics Corpus

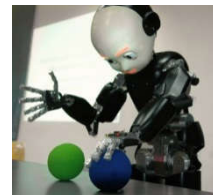
Access to others equipments



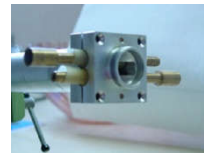
MRI/fMRI



PERSEE (Vision-EEG)



ROBOTEX



AERO (acoustic and physic)

Teaching facility



AIDA



MICAL (human-machine Interaction)



*Language facility
Stendhal*

Outdoor facility



Corner reflector for satellite images



Structure of the lab

CDL ET DIRECTOIRE

CHARGÉS DE MISSION

Doc.&Post-Doc. :
C. Commault

Europe :
J. Mars

Valorisation :
M. Alamir

DIRECTEUR
NICOLAS MARCHAND

DIRECTRICE ADJOINTE
ALICE CAPLIER

Directrice Administrative et Financière
AKILA MOKHTARI

Directeur Technique
CHRISTOPHE SAVARIAUX

**Pôle Automatique et
Diagnostic (PAD)**
FEDERICA GARIN

DANCE
PAOLO FRASCA

Infinity
EMMANUEL WITRANT

MODUS
MIRKO FIACCHINI

SAFE
JOHN MARTINEZ

**Pôle Sciences des
Données (PSD)**
BERTRAND RIVET

ACTIV
KAI WANG

COPERNIC
AHMAD HABLY

MOVE
FRANCK QUAINÉ

SIGMAPHY
GABRIEL VASILE

VIBS
MARCO CONGEDO

**Pôle Géométrie, Apprentissage,
Information et Algorithmes (GAIA)**
NICOLAS LE BIHAN

**Pôle Parole et
Cognition (PPC)**
LAURENT GIRIN

CRISSP
THOMAS HUEBER

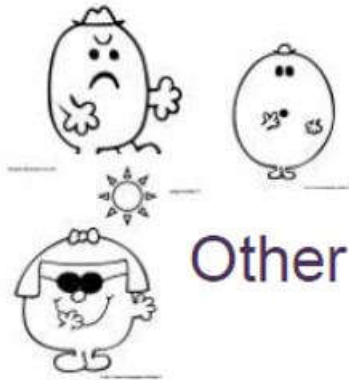
PCMD
MAEVA GARNIER
PIERRE BARADUC

SYLDO
NATHALIE VALLEE

PÔLES SCIENTIFIQUES



Being at GIPSA-lab



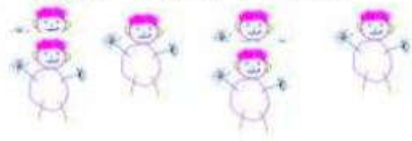
Other scientists



PhD Student

Other PhD Students

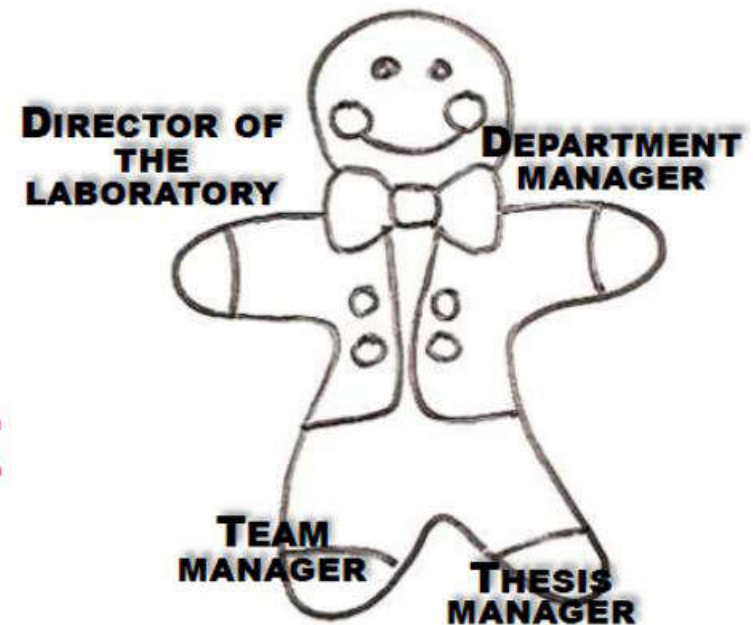
GIPSA-Doc



SERVICES

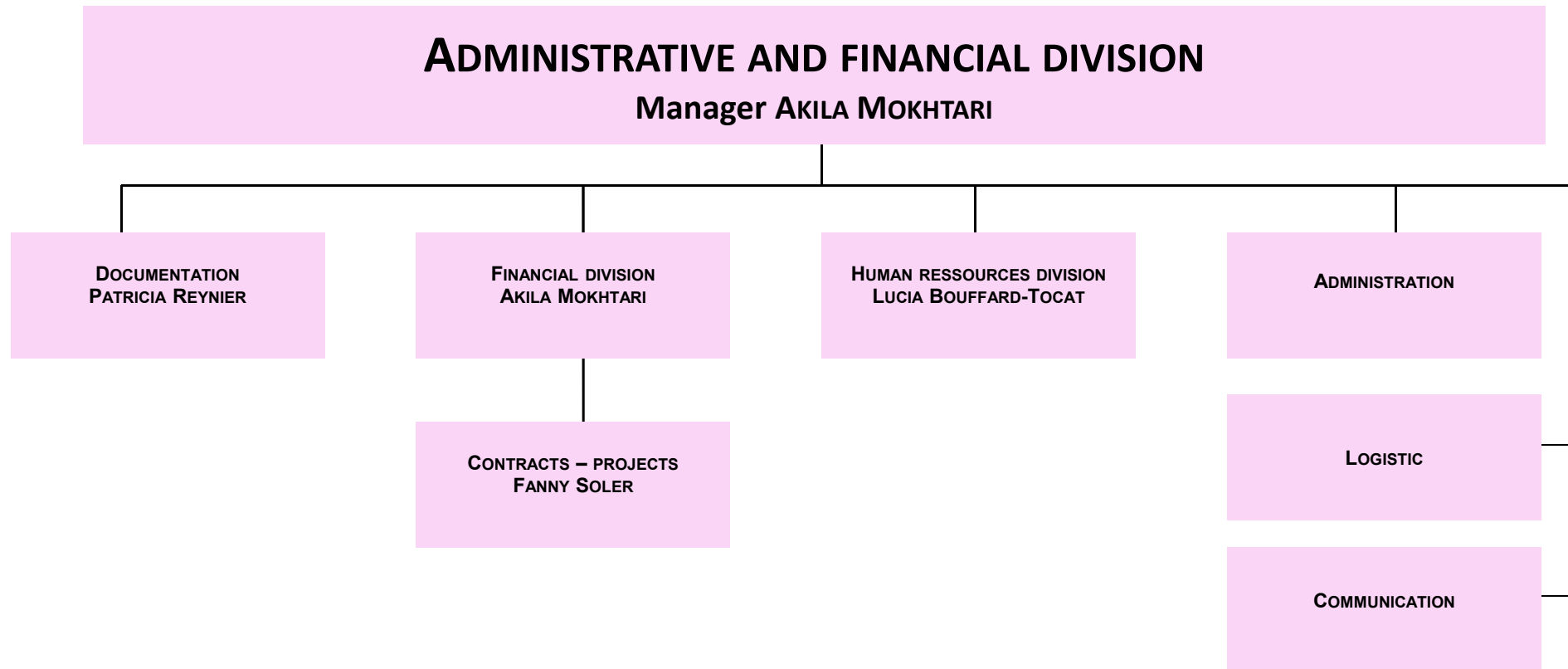


C. Commault: Relationship with the PhD and postdocs students



Administrative and Financial Division

Akila MOKHTARI





ADMINISTRATIVE AND FINANCIAL DIVISION

*Please use the
generic addresses!*

Financial division : gestion@gipsa-lab.fr

Human ressources division : rh@gipsa-lab.fr

Library : bib@gipsa-lab.fr

Communication : communication@gipsa-lab.fr

Logistic : patrimoine@gipsa-lab.fr

Financial Division

Akila MOKHTARI



Mélissa DRILLET
CRISSP
DANCE
SYLDO (CNRS, GINP)



Sophia SOUKHAL
VIBS
PCMD
MOVE
PAD, PPC, PSD div.



Fanny SOLER
Contracts/Project



Nadine BIOUD
currently not present
ACTIV
COPERNIC



Christine ROMERO
10%
SYLDO (UGA, IESA)



Marielle DI MARIA
SAFE
GAIA div.
GIPSA expenses



Sonia NOGUEIRA
Infinity
MODUS



Maëlle DI MARIA
SIGMAPHY



Caroline ROBERT
currently not present



Financial office is in charge of :

- Budget : prepare budget estimations, organize and control their execution
- Contract : assist in preparing ANR projects, regional, European and industrial contracts, prepare financial statements and analyze spending
- Purchases : make the order form and send it to supplier

computer purchases, you will have to send an e-mail to



- achat-info@gipsa-lab.grenoble-inp.fr

- Business travel :

You will not have to pay in advance for your travel tickets.

Mostly you will not have to pay in advance for your hotel in France

Often you will not have to pay in advance for registration fees



Business travel

1) No travel without agreement of your tutor ! No travel without « ordre de mission »

- Respect the deadline for establishing « ordre de mission »:

★ 1 weeks **before** for travel in France

★ 4 weeks **before** for travel abroad

- **Travel abroad**: rules depends of your destination !

Precautions must be taken with some high-risk countries

=> check information from Financial contact persons



- **Mode of transport** : public transport is favoured.

2) After the business travel

Return without delay all the tickets and receipts (train, plane, public transport tickets, hotel invoice, ...) ; otherwise you cannot be refunded.

Communication Division

Cléo BARAS

Team in charge :

Akila Mokhtari
Lucia Bouffard-Tocat
Martine Brossier
Gabriel Vasile
Frédéric Elisei
Cléo Baras

Missions



- Disseminate news / informations / scientific results (popularization, awards, ...) of the lab
 - both for outside public and internally
 - by creating and updating the lab's communication media
- Help to create documents, events, ...

communication@gipsa-lab.fr



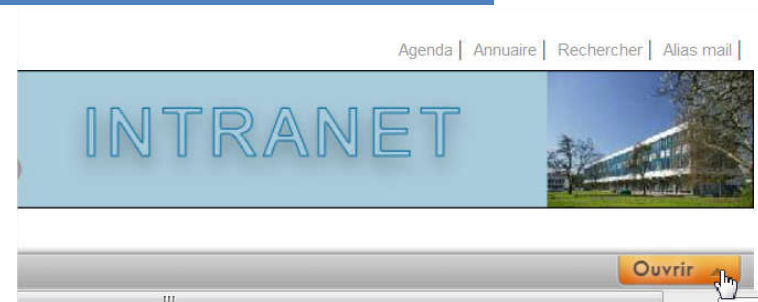
2 web media

[Public Web Site : www.gipsa-lab.fr](http://www.gipsa-lab.fr)

- scientific news, presentation of Gipsa, presentation of the teams...

[Intranet : intranet.gipsa-lab.grenoble-inp.fr](http://intranet.gipsa-lab.grenoble-inp.fr)

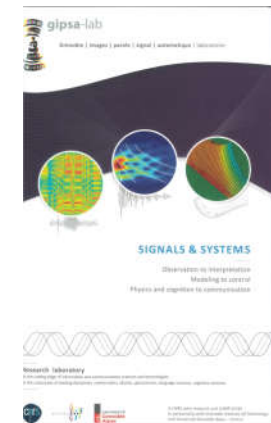
- Internal information, services presentation , updated by each service
- Access to many tools (banner at the bottom of the screen)



Web sites will be modernized soon

1 paper documentation

Gipsa-lab's documentation





Practical tools

- **Business Cards**
- **Template** for slides and poster
- **Library** of Logos
- **Presentations** about Gipsa-lab

Materials for events

- The **leaflet** of Gipsa-lab
(*conference, meeting, visitors...*)
- Goodies for conferences or meetings : **Notepads, Pens, USB keys, ...**

Home pages

Professional Home page = Page PRO

Automatic data, coming from central databases (human ressources + HAL publications)

⚠ Modifications => ask to RH@gipsa-lab.fr



Personal Home page(s) = Page PERSO

- Template available and free to use for everyone
- Customization possible for your personal folder
- Generic URL :

<http://www.gipsa-lab.fr/~firstname.name/>

Opportunity to link Page PRO and Page PERSO

« GIPSA Forum » discussion list

Forum Gipsa : ads, great ideas, cultural events, political information, etc.

To subscribe : send an email to
gipsa-lab.forum@grenoble-inp.fr

With subject (only) : **Sub gipsa-lab.forum <your email>**

Social Networks



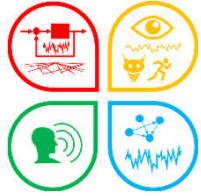
LinkedIn



@GipsaLab

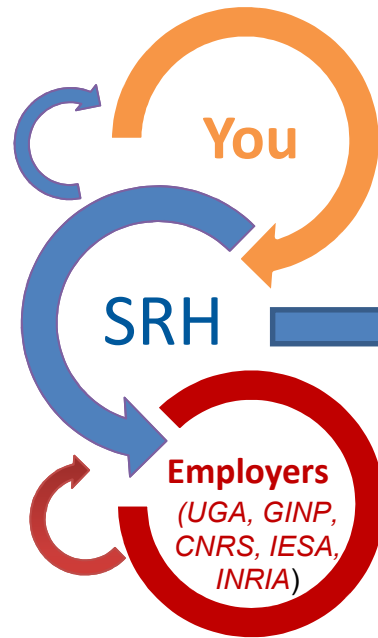
Human Ressources Division

Lucia BOUFFARD-TOCAT

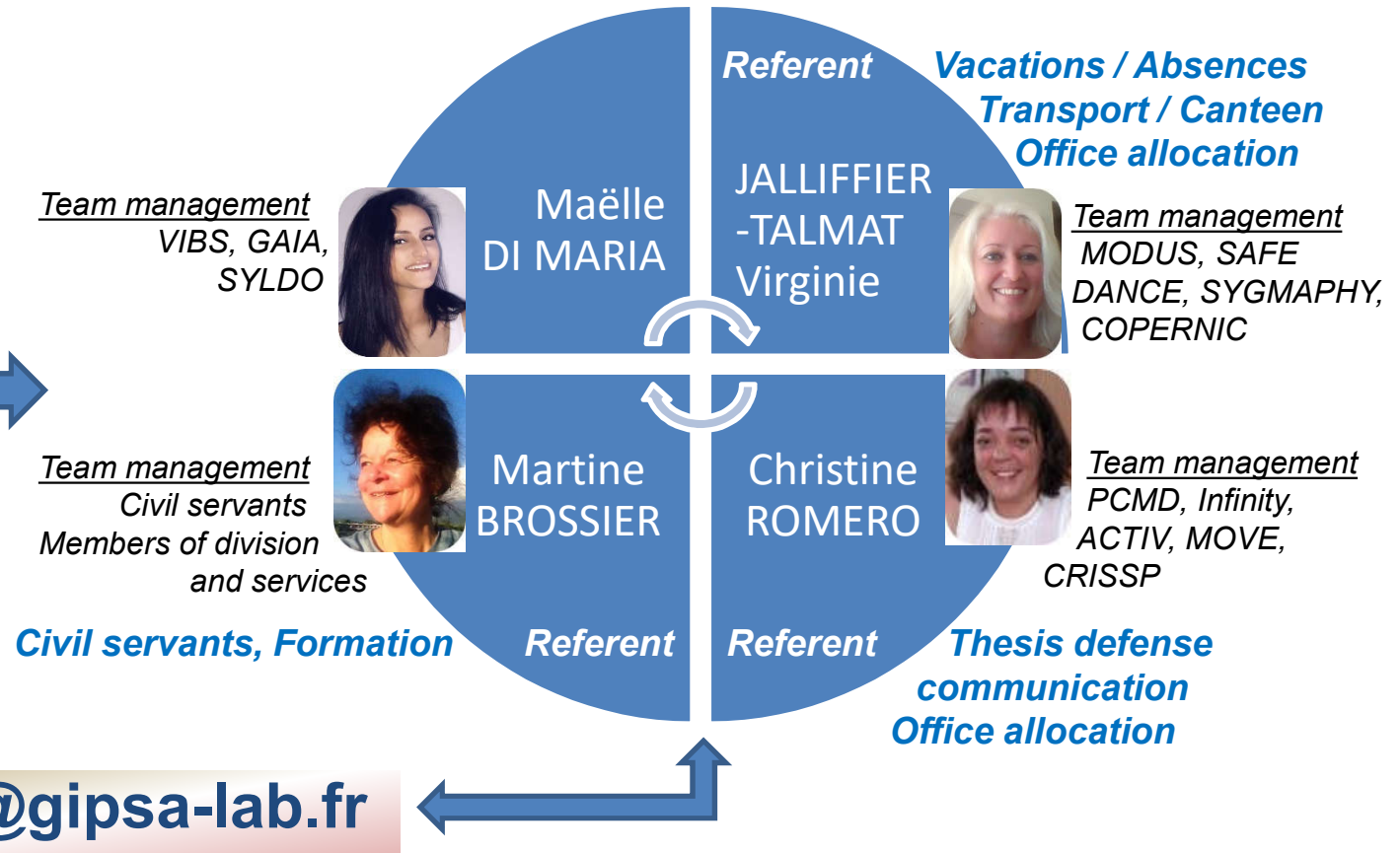


Human Resources Service- SRH

Records management
Employment contract,
PhD, visitors, trainees,
Tracking career...



Lucia BOUFFARD-TOCAT
Human Resources Manager





rh@gipsa-lab.fr



You must communicate to us

Updated address, civil status, insurance ☞

New receipt of permit, residence permit ☞

« Convention de formation » registration thesis, CSI ☞

Notice of thesis defense ☞

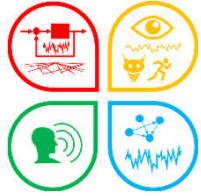
In case of absence

☞ Medical leave ➤ to declare within 48 hours

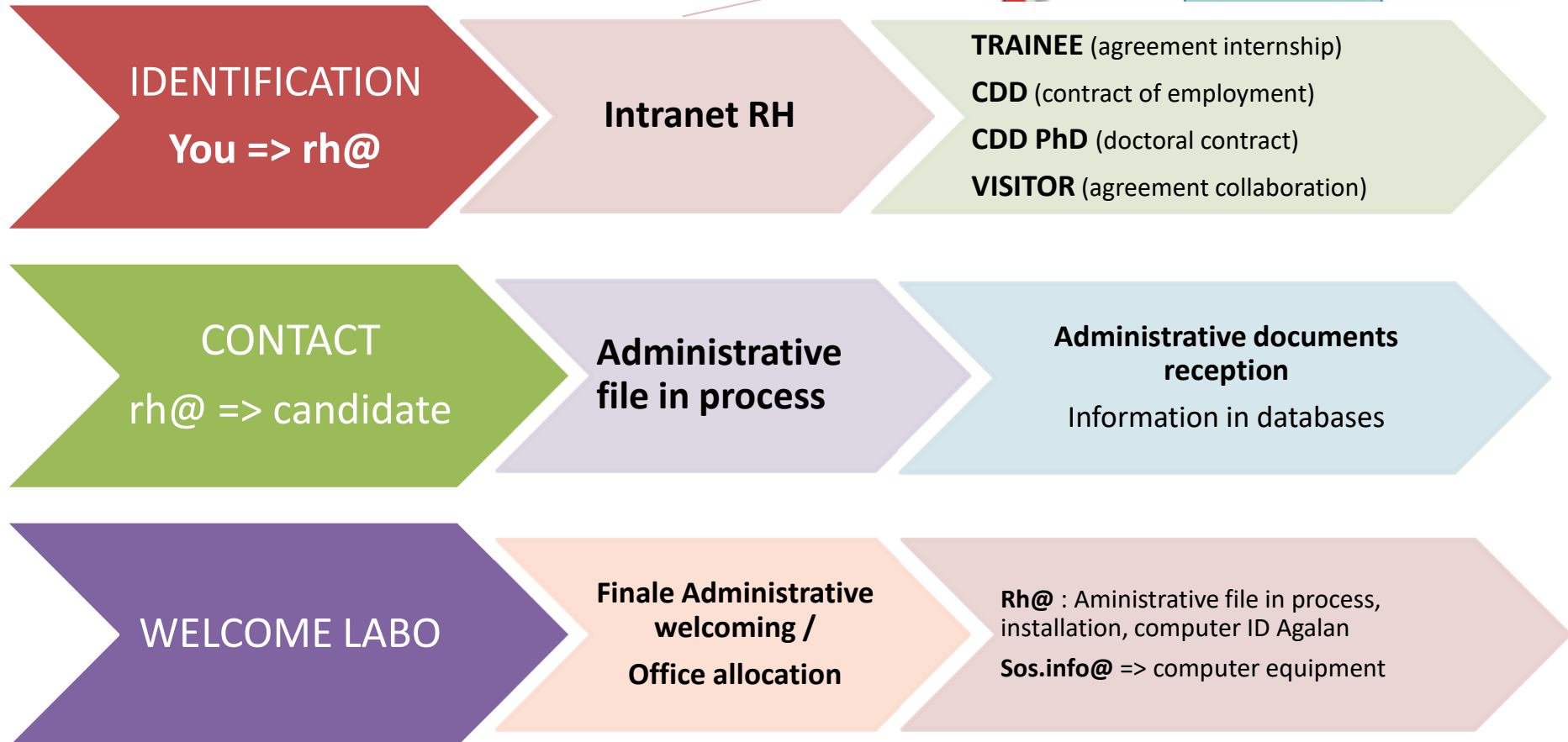
☞ Sick kid ➤ medical certificate

☞ Vacation period ➤ Use Agate app'





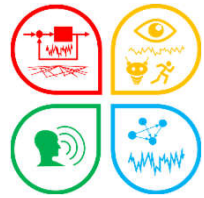
WELCOME EXTERNAL PEOPLE IN THE LABORATORY



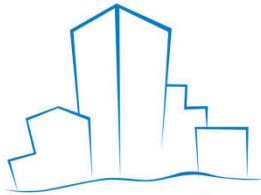
Library presentation

Patricia REYNIER

- Access to the documentary
- Collect, spread/broadcast and value the scientific production

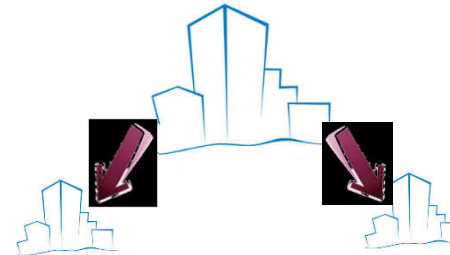


Documentation / Bibliothèques / Library



GIPSA-lab ENSE3 Ampère
« Bibliothèque mutualisée »

Bulles / Stendhal



GIPSA-Lab (Stendhal)
Dialectologie

GIPSA-lab / Stendhal
Documentation

Horaire, Contact, Localisation

Schedule, Contact, location(localization)



Intranet / Documentation/ les bibliothèques



<https://bibliotheques.univ-grenoble-alpes.fr/bibliotheques/>



Documentation / Service

Recherche	Support	Disciplines	Outils Tools	Astuces Tips
article				UGA
	électronique	Science- Medecine	SID UGA Grenoble INP BibCnrs / INS2I	Collections numériques - Info. Pratiques - tutoriels Beluga Initiez-vous ! Get familiar with Beluga
		Sciences humaines et sociales	SID UGA Grenoble INP BibCnrs / INSHS	
	Papier /print	Science- Medecine	SID UGA Grenoble INP (catalogue Beluga)	
		Sciences humaines et sociales		
Ouvrage/book	électronique		SID UGA Bibcnrs	CNRS https://bib.cnrs.fr/
	Papier /print		Beluga	
Actes/ Proceedings	électronique		CDthèque	Les plus de BibCnrs Découvrir Bibcnrs Outils
	Papier /print		Beluga	More of Bibcnrs Discover Bibcnrs Tools



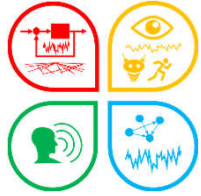
Documentation / Service

IMPORTANT

Tout service payant est centralisé par le service documentation de Gipsa-lab.

Le non-respect de ce point entrainera la prise en charge des frais par la personne qui aura effectué la demande de PEB ou d'achat.

All paid services are centralized to Gipsa-lab's Documentation service (Patricia Reynier). Users are liable to any cost occurred in interlibrary loan request is not made through the centralized service.



Documentation / Publications

PUBLISHING

As a member of Gipsa, you must file your publications in HAL:

you can file : - an article (full text)

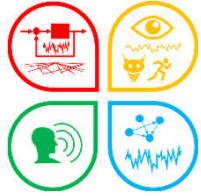
- Bibliographical details (references without text)



To file	http://hal.archives-ouvertes.fr
How to file	An online help guide is available on the laboratory's intranet : Intranet > «Documentation» > «Publier dans HAL»
and after?	After internal validation, the publication is present in HAL (Gipsa's collection). Your deposit will be visible after 24 hours on your professional page.

- All deposits can be changed !
- Don't create duplicates:
When you enter the 8th character, a dropdown box will inform you if an article already exists.
- Thinking about having the article under your eyes to have the exact references.
- To produce a list of your publications, you can create your own page in HAL.
[HAL > services > créer sa pages](#)

HAL is used to collect and share scientific production on a national level.



Documentation / Publications

• **HAL** (collections GIPSA) <https://hal.univ-grenoble-alpes.fr/GIPSA>

👁 Intranet



[HAL UGA](#)



PUBLIER DANS HAL

- Qu'est ce que HAL ?
- Comment publier dans HAL?
- Comment gérer ses publications dans HAL?

Comment déposer :

un document non publié
reference of a unpublished document
une publication de la soumission à la parution
recording of a publication : from the submission to the publication

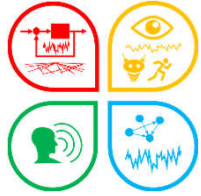
Consignes

les affiliations de GIPSA-lab
l'affiliation de l'équipe NECS
l'affiliation GIPSA-Services
projets européens ERC



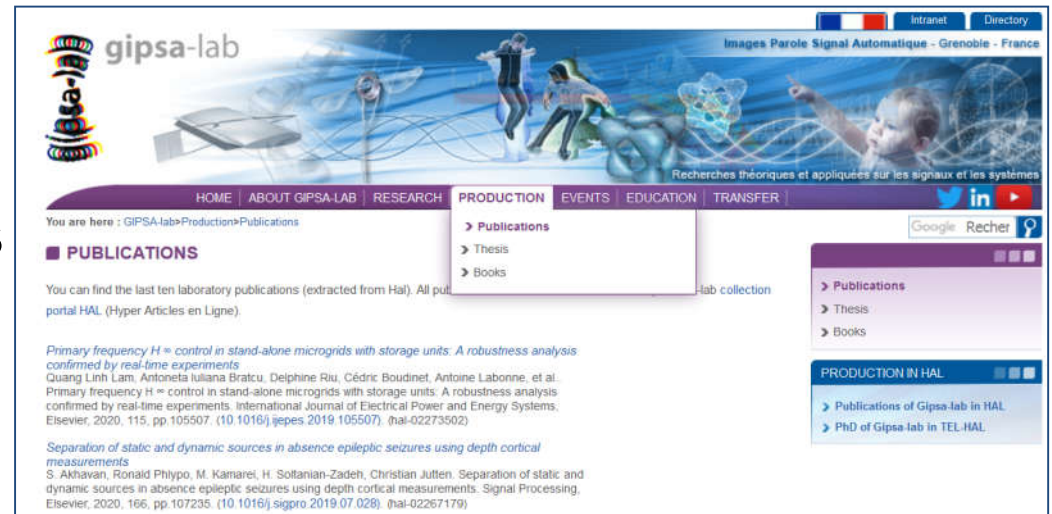
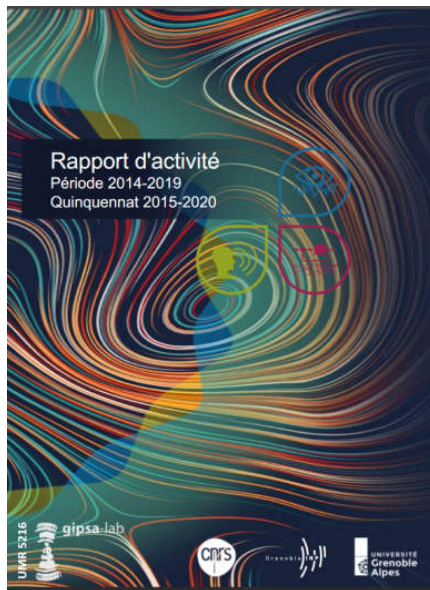
Newcomers' day – November 9th 2021





Documentation / Publications

- Why ? Where ?
- Website/Publications
- Documentation
- Professionnal page



Newcomers' day – November 9th 2021



- « GIPSA-laBIB » bulletin mensuel

Patricia.reynier@gipsa-lab.grenoble-inp.fr

- Site Ampère – B229

Mardi, Mercredi et Jeudi : 8h30 à 17h

Lundi et vendredi en télétravail

Technical Division

Christophe SAVARIAUX



Composition of the Technical Pole

Divided in 4 services:

- Mechatronics (Rémy Jaccaz) mecatronique@gipsa-lab.grenoble-inp.fr
 - Management of electronic and mechanical workshops
- Software (Guillaume Becq) logiciels@gipsa-lab.grenoble-inp.fr
 - Software development for research projects and laboratory management
- Platforms (Coriandre Vilain) plateformes@gipsa-lab.grenoble-inp.fr
 - Support for research & education platforms
- IT (Christian Bulfone) sos-info@gipsa-lab.grenoble-inp.fr
 - Installation and support to every users (linux, MacOS, Windows)
 - Servers, storage, network and IS logistic



The technical pole provides

- **Human resources:**
 - ✓ More than 30 technical people (CNRS, G-INP or UGA)
- Participation in laboratory multiple research projects (more than 10 per year) and in 3 teaching platforms (ENSE3)
- **Global expertise in:**
 - ✓ Electronics
 - ✓ Mechanics
 - ✓ Control & command in instrumentation
 - ✓ Software: design, development and applications deployment
 - ✓ Tutorials for *Matlab* & *Python* language for beginners



Expertise of the services:

➤ Platforms

- ✓ Training on the existing research platforms
- ✓ Design and device development
- ✓ Purchase and maintenance of scientific instrumentation
- ✓ Participation in the experiment implementation and data analysis

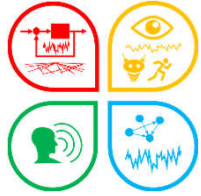
➤ Mechatronics

- ✓ Consulting, design and manufacture of electronic boards or mechanical assemblies
- ✓ Loaning scientific instrumentation
- ✓ Rapid prototyping, machining, SMD soldering, 3D printing,...

➤ Software

- ✓ Participation in research and development projects
- ✓ Software Engineering advice
- ✓ Capitalization of software developments and results

➤ IT (cf. C. Bulfone's presentation)



What the pole expects from you

➤ Platforms:

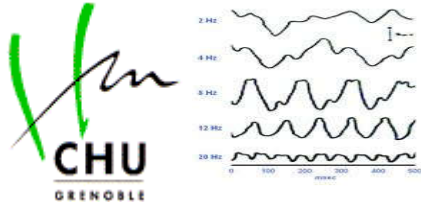
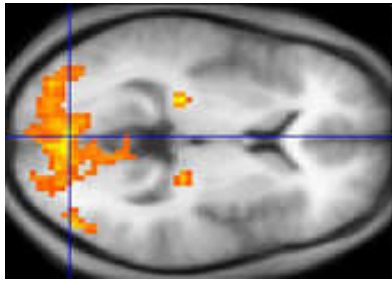
- Strict compliance with the rules of use of technical facilities (platforms, workshops)
- Cleanliness and proper storage

➤ Equipment:

- Training in use, precautions in use, return on malfunctions or identified breakdowns
- Extensive knowledge of platforms and their working environment
- Prompt return of borrowed materials

➤ Work conditions:

- Knowledge of health and safety rules (see the intranet)
- Knowledge of internal rules for workshops (self-use and requirements)



IRMF/EEG



MONT-BLANC



NINA



MOCA

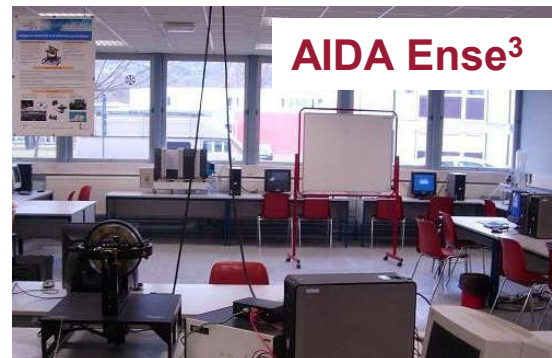


Robotique aérienne

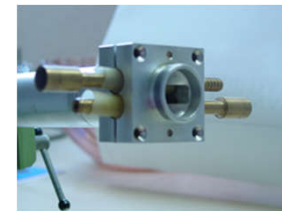


PERSEE

Platforms ~700 m²



AIDA Ense³



AERO



INOVE / SUSPENSION



BEDEI



MICAL



NANO



NEUROSPEECH

<http://www.gipsa-lab.fr/recherche/poles-de-plates-formes.php>

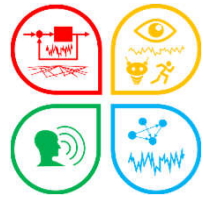
IT support

Christian BULFONE



The IT team

- 6 people
 - C. Bulfone
 - B. Cauchard
 - O. Chabert
 - G. Quincieux
 - JM. Rousvoal
 - M. Urankar
- Office B212 to B215 and B239, building B, 2nd floor



« GIPSA account »



- **ID** based on academic directory (Triode account)
 - Used for shared services (messagerie, VPN, extranet...) and computer login
- **Password** may be different from Triode account
 - Change password
<https://boa.ampere.grenoble-inp.fr>
- Paid attention to the strength of your password !!!

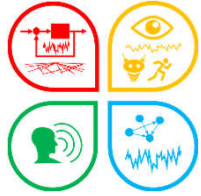


Multifunction Printers/Copiers

- 7 multifunction Printers/Copiers Xerox are located in the laboratory
 - Granted access with the ID of your « GIPSA account » and a 4-digit pin code
 - copy
 - « scan to email »
 - Set / change pin code



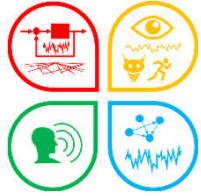
<https://intranet.gipsa-lab.grenoble-inp.fr/userprefs>



Mail



- Email address of the form
 - **firstname.lastname@gipsa-lab.grenoble-inp.fr**
 - **firstname.lastname@gipsa-lab.fr**
- Shared service (Zimbra) managed by **Grenoble-INP**
- Mailboxes
 - Quota of 5 Gb
 - Available anywhere in POPS/IMAPS
 - **pop.grenoble-inp.fr**
 - **imap.grenoble-inp.fr**



Mail



- Outgoing email server (SMTP)
 - Available anywhere in SMTPS
 - smtp.grenoble-inp.fr
- **Webmail (Zimbra)**
 - <https://webmail.grenoble-inp.fr>
- Mailing lists
 - Lists and members available on the intranet (« alias mail » item)



Support



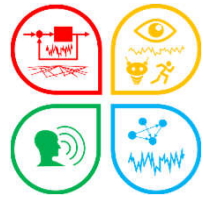
- One email address
sos-info@gipsa-lab.grenoble-inp.fr
- With online ticketing system (helpdesk)
- Tied to the directory of GIPSA
- For best answer, please provide
 - **The name of your computer**
 - **The operating system you are using**
 - **Your physical location** (office number, building, phone number)



Documentation



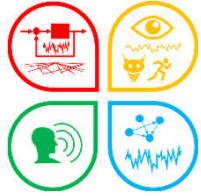
- **OUI** : *Outils pour les Usages Informatiques*
- Available on the intranet
- Factsheets
- Search by keywords



Remote access



- Intranet
 - Web
 - <https://extranet.gipsa-lab.grenoble-inp.fr>
- Files /calculation servers through
 - GIPSA SSH gateway (in tunnel mode)
 - <ssh.gipsa-lab.grenoble-inp.fr>
 - Ampère VPN gateway (OpenVPN) with certificate and password
 - <https://gest-cert.ampere.grenoble-inp.fr>



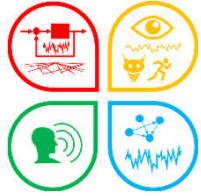
Guest network



- Available on any outlet wired network
 - For computers outside the lab
- Authentication by filtering proxy
 - Proxy IP address **147.171.64.131**, port **3128**
 - GIPSA ID/password
- HTTP and HTTPS only

Health and Safety Regulations at GIPSA-lab

Gabriel BUCHE



Practical Informations

- **Conditions of access:** 2 different sites (Ampère and Stendhal Building)
- Opening hours during the working week :
7h00 – 19h00 (Ampère)
7h00 – 19h00 (Stendhal + badge)
- Opening hours during the night time, weekends and holidays: **none (buildings are closed)**
- **Lone worker:** It is **formally forbidden** to work alone on a process (except special cases and with agreement of your supervisor).



Whom to contact if...

- You have questions about your work environment
- You have detected a malfunction
- You want to know more about the security in your laboratory and at Grenoble-INP

Contact:

- Health and Safety Agents (AP : Assistant de Prévention)
- First Aiders (SST : Sauveteur Secouriste du Travail)
- Health and Safety Engineer (CP : Conseiller de Prévention)
- Occupational Physicians
- CHSCT members
- Intranet security websites :

<https://intranet.grenoble-inp.fr/personnels/hygiene-et-securite>

<http://intranet.gipsa-lab.inpg.fr/index.php?id=543>



Health and Safety Agents

4 Agents at GIPSA-lab :

- Laurent OTT, office B131A, phone 04 76 82 64 96 (Building B 1st floor)
- Gabriel BUCHE, office B240, phone 04 76 82 71 63 (Building B 2nd floor and ground floor)
- Christophe SAVARIAUX, office B238, phone 04 76 82 63 06 (Building B 3rd floor)
- Carole CHAUVIN-PAYAN, office E001 (Stendhal), phone 04 76 82 80 09 (Stendhal site)





Health and Safety Agent

Their role:

- **Sensitize** the institution personnel **to respect** health and safety regulations.
- **Inform** the new arrivals about the institution regulations, possible risks and working methods to prevent the risks.
- Establish Health and Safety **Log Book** and **the internal Guide Book** (see intranet).
- Ensure the availability of **first aid assistance in the event of an accident**.
- Analyse and **learn lessons from work accidents** that took place at the institution.
- Suggest the **prevention methods** (DUERP) and apply those selected by the director.

Consignes de sécurité safety rules

Accident / Accident		Incendie / Fire	
Prévenez un secouriste (Liste des secouristes ci-dessous)	Warn first-aiders (List of first-aiders below)	Tentez d'éteindre le feu avec un extincteur	Try to put out the fire with an extinguisher
Appelez les urgences	Call emergency services	En cas d'échec, déclenchez l'alarme et appelez les pompiers	In case of failure, set off fire alarm and call fire department
 15 ou 112 Téléphone fixe Landline ou Téléphone portable Mobile		 18 ou 112 Téléphone fixe Landline ou Téléphone portable Mobile	

Consignes téléphoniques / Instructions when you phone	
- Précisez la nature du problème / Describe the incident - Précisez le lieu du sinistre / adresse ci-dessous / Specify accident area / address below	
ENSE3, Bâtiment B, 3e étage 510 Avenue de la passerelle (Parking attenant au Bâtiment B) Domaine universitaire de St Martin d'Hères.	
Ne raccrochez pas tant que votre interlocuteur ne vous y a pas invité / Don't hang up, wait interlocutor says you can	
Puis appelez le / then call: Jean-Claude Fils (27175) ou Nadine Bioud (74533)	

En cas d'Evacuation / In case of evacuation	
 Gardez votre calme Bougez sans précipitation. Fermez les portes et fenêtres derrière vous	Keep calm Bouge sans précipitation. Fermez les portes et fenêtres derrière vous
 En cas de fumée, baissez-vous, l'air frais est près du sol	If there is smoke, bend downwards, fresh air is down
 Ne revenez jamais en arrière	Don't turn back
 N'utilisez pas les ascenseurs	Don't use lifts
 Regroupez-vous au point de rassemblement : Parking devant le Bât B	Go to gathering: Parking in front of Bât B
 Attendez l'agent responsable(s) d'évacuation : Nadine Bioud, Pierre Badin, Denis Beutemps, Marie-Rose Alfara, Frédéric Elisei, Caroline Robert	Wait responsible for evacuation: Nadine Bioud, Pierre Badin, Denis Beutemps, Marie-Rose Alfara, Frédéric Elisei, Caroline Robert

Secouristes / First-aiders	
Liste de l'agent responsable(s) à contacter List of first-aiders to contact	
Pierre Badin (74826, bureau B354) Frédéric Elisei (74539, B365) Denis Beutemps (74715, B327) Audrey Acher (75063, B351) Lucia Bouffard-Tocat (74507, B370)	
 Défibrillateur le plus proche : Accueil de l'école, Rez de chaussée Bât. A	
Dernière mise à jour / Last update: 17/09/2012	

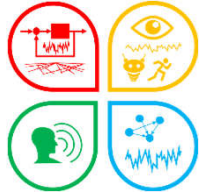
What to do in case of an accident ?

In the event of an accident:

- 1) Inform the nearest first aiders
- 2) Call emergency services **15 or 112**
- 3) Send someone to the building entry

First aiders are competent to ensure emergency first aid in the event of an accident before arrival of emergency medical services.

Sending someone to the building entry will accelerate the arrival of emergency services.



Fixed Equipment

First aid kit

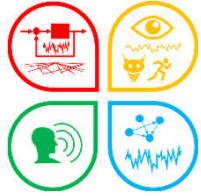


- In each First aiders office
- At Postbox level

Automated External Defibrillator (AED)



- Ground floor, near central stairs
- Maison de Grenoble INP



First aiders

- How can you find them? They have stickers on their office door:



or



- Number of First Aiders in GIPSA-lab: 24 on october, 2021
- Full list on Intranet: <http://intranet.gipsa-lab.grenoble-inp.fr/index.php?id=698>



Occupational Health Physicians and Social Assistants

- **Grenoble INP – UGA Staff**
 - Occupational physician:
Dr Sylvie Belle-Méry – 04 76 82 76 80
 - Social assistants:
Stéphanie GIMENEZ / Marlène Glénat – 04 76 82 76 82
- **CNRS Staff**
 - Occupational physicians:
Dr Nathalie APPRIOU – 04 76 88 10 74
Dr Patrick BONNET – 04 56 38 70 02

You can contact them if you encounter professional, personal difficulties or if you feel unwell at your workplace



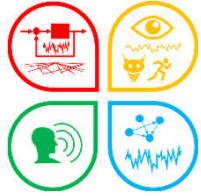
Health and Safety Log Book

Is used to record:

- observed or incurred **risks and incidents**,
- **dysfunction** of safety features of an equipment ,
- **accidents** that have not led to sick leave medical certificate delivery
- **any suggestions** related to :
 - prevention of risks
 - improvement of working conditions

To download on Intranet (<http://intranet.gipsa-lab.inpg.fr>): Ressources Humaines/Hygiène et Sécurité

- Location at the Management Assistant Office (Martine Brossier – B346)
- Talk to one of the four Health and Safety Agents



After an Accident: Accident Reporting

1. Inform your employer as soon as possible
2. Complete the accident report form available at the Human Resources or administrative services
3. Fill in the Health and Safety Log Book on Intranet
4. Inform the Health and Safety Agent

Consignes de sécurité safety rules

Accident / Accident

Prévenez un secouriste
(Liste des secouristes ci-dessous)

Appellez les **urgences**

Call **emergency services**

15 ou **112**
Téléphone fixe Landline / Téléphone portable Mobile

Incendie / Fire

Tentez d'éteindre le feu avec un extincteur

En cas d'échec, déclenchez l'alarme et appelez les **pompiers**

Try to put out the fire with an extinguisher

In case of failure, set off fire alarm and call **fire department**

18 ou **112**
Téléphone fixe Landline / Téléphone portable Mobile

Consignes téléphoniques / Instructions when you phone

- Précisez la nature du problème / Describe the incident
- Précisez le lieu du sinistre / adresse ci-dessous / Specify accident area / address below

ENSE3, Bâtiment B, 3e étage
510 Avenue de la passerelle (Parking attenant au Bâtiment B)
Domaine universitaire de St Martin d'Hères.

- Ne raccrochez pas tant que votre interlocuteur ne vous y a pas invité / Don't hang up, wait interlocutor says you can

Puis appeler le / then call: **Jean-Claude Fils (27175) ou Nadine Bioud (74533)**

En cas d'Evacuation / In case of evacuation

- Gardez votre calme / Stay calm
- Evacuez sans précipitation. Fermez les portes et fenêtres derrière vous / Evacuate without rushness. Close doors and windows
- En cas de fumée, baissez-vous, l'air frais est près du sol / If there is smoke, bend downwards, fresh air is down
- Ne revenez jamais en arrière / Don't turn back
- N'utilisez pas les ascenseurs / Don't use lifts
- Rassemblez-vous au point de rassemblement / Go to gathering point
- Parking devant le Bât B
- Attendez les responsables d'évacuation / Wait responsible for evacuation
- Nadine Bioud, Pierre Badin, Denis Beutemps, Marie-Rose Alfara, Frédéric Elisei, Caroline Robert

Secouristes / First-aiders

- Liste des (des) secouristes à contacter / List of first-aiders to contact
- Pierre Badin (74826, bureau B354)
- Frédéric Elisei (74539, B365)
- Denis Beutemps (74715, B327)
- Audrey Acher (75063, B351)
- Lucia Bouffard-Tocat (74507, B370)
- Défibrillateur le plus proche : Accueil de l'école, Rez de chaussée Bât. A

Dernière mise à jour / Last update: **17/09/2012**

What to do in the event of fire?

1. Alert your colleagues before any actions
2. Try to put out the fire with an extinguisher
3. In unsuccessful:

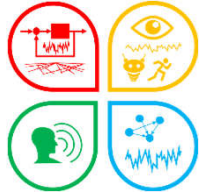
a) Activate a fire alarm:



a) Call fire department **18 or 112** and evacuate the premises while following the instructions of those in charge of evacuation

Here is the noise of a fire alarm:



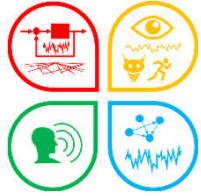


People in charge of evacuation

- Some colleagues are specially trained to help people **to evacuate buildings safely**
- They wear an armband:



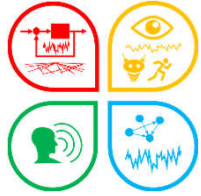
- You have to strictly respect their instructions for maximum of safety



Evacuation in case of fire (Fire alarm)

- Respect the orders of those in charge of the evacuation
- If possible, take hand held personal belongings when leaving (never go back for anything)
- Close the door without locking
- Walk to the designated assembly area for your building (Parking Area along the B Building)
- Do not use the elevators
- Remain at the assembly area (in groups) until instructed to leave



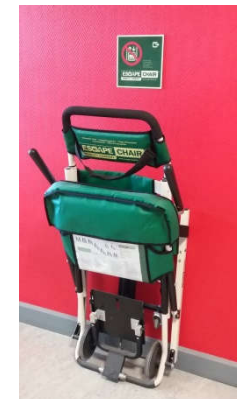


Evacuation in case of fire (Persons with reduced mobility)

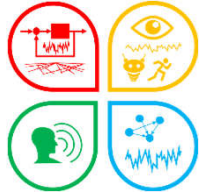
- Persons with reduced mobility have special areas to wait for evacuation and/or rescue



- Agents in charge of evacuation or anybody can use escape chair in emergency if necessary



- **Never use elevators**



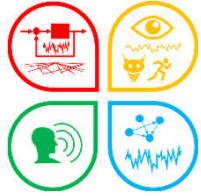
What are these devices for?



Circuit-breakers



**Manual release
« Fire alarm» located near the exits**



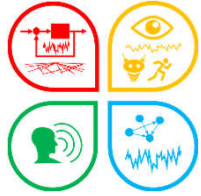
Fixed Equipment

Fire Safety



Extinguisher





Risk situations at GIPSA

- Fire risk +
- Electrical risk ++
- Mechanical risk ++
- Chemical risk +-
- Manual handling +
- Working at screen ++

If you need more information:

- Please ask your Health & Safety Agent

NEO: Ma page

ADMINISTRATION NÉO

- [Modifier mon profil](#)
- [Sessions](#)
- [Documents](#)

VUE D'ENSEMBLE DES COURS



LA PRÉVENTION



LE RISQUE INCENDIE



LE RISQUE CHIMIQUE



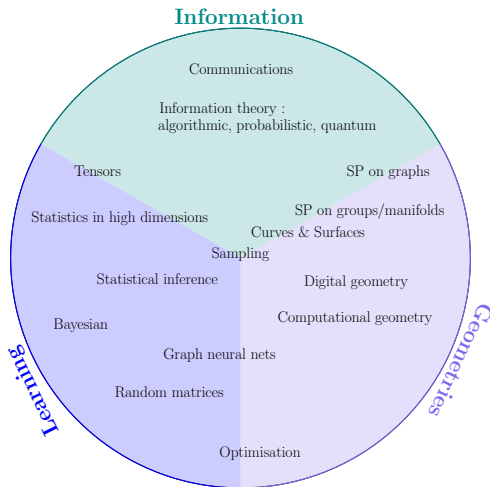
LE RISQUE BIOLOGIQUE

1.7.7

GAIA

Geometries, leArning, Information & Algorithms

Nicolas LE BIHAN



"Methodological tools for modelization, analysis and interpretation of structured, high dimensional and large datasets. Conception of efficient algorithms for inference, supervised and accurate processing."



► Leadership

- *Head* : Nicolas Le Bihan
- *Deputy* : Isabelle Sivignon

► Research topics

- *Geometries* : Isabelle Sivignon
- *Information* : Pierre-Olivier Amblard
- *Learning* : Florent Chatelain

► People

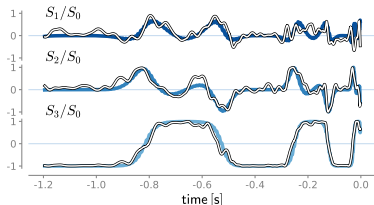
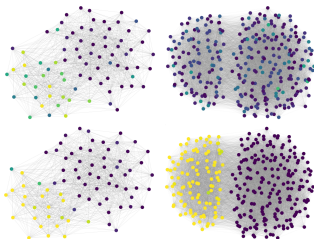
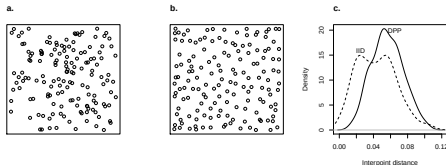
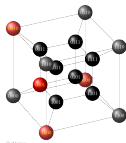
- 23 academics (CNRS/UGA/INP)
- 25 PhD students & 2 post-doc researchers

► Animation

- Almost-weekly meetings (Guillaume Becq)
- GAIA seminars ~6/year (Nicolas Tremblay & Nicolas Keriven)
- Funds : Animation GAIA

Research at GAIA

Less is more



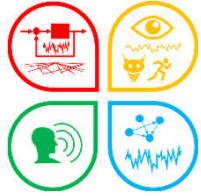
- **Applications** : Physics at large (astrophysics, geophysics, biophysics, quantum physics), communications, etc.
- ***Sustainable/responsible* research and impacts** : publication, missions, AI and digital, society.



PAD

Pôle Automatique et Diagnostic

Federica GARIN

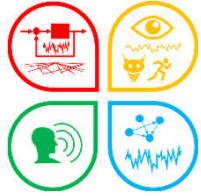


PÔLE AUTOMATIQUE ET DIAGNOSTIC (PAD)



PAD is one
of the four
scientific divisions
of GIPSA-Lab

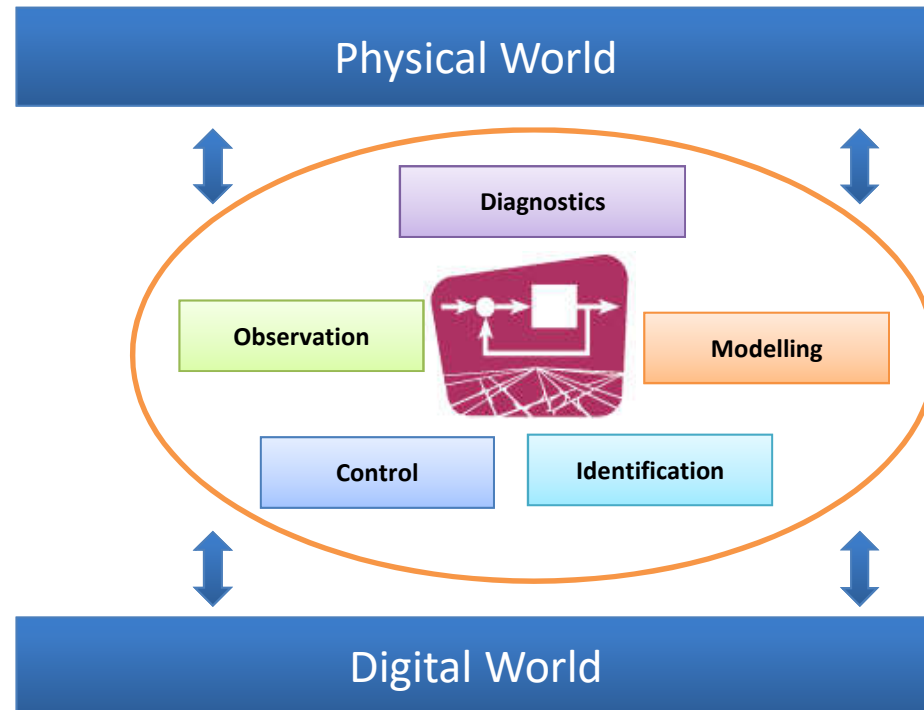
Contact:
Federica GARIN
Office B 257
federica.garin@gipsa-lab.fr

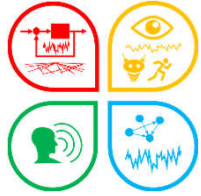


AUTOMATIC CONTROL & DIAGNOSTICS

Modelling, identification, observation, control, and diagnostics/prognostics of **DYNAMICAL SYSTEMS**

4 teams,
each addressing a
scientific challenge





DANCE TEAM

DYNAMICS AND CONTROL OF NETWORKS



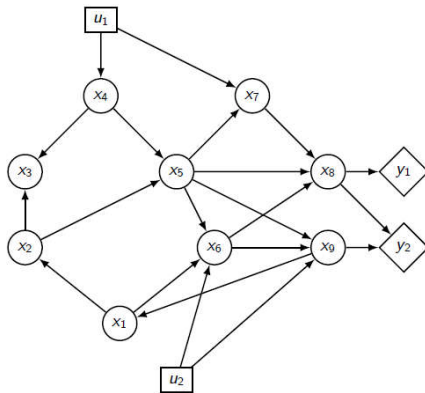
Contact:

Paolo FRASCA

Network dynamical systems: analysis, estimation, and control

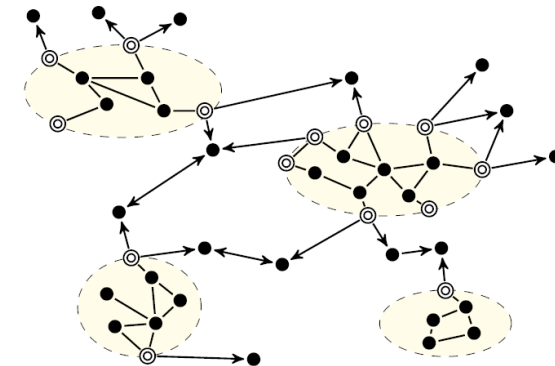
*Exact methods
(medium-scale networks):*

- Network identification
- Structural properties
- Distributed estimation and sensor fusion

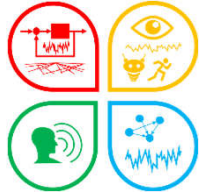


*Approximation methods
(large-scale networks):*

- Node aggregations, reduced models



- Continuous limits (graphons, continuation...)

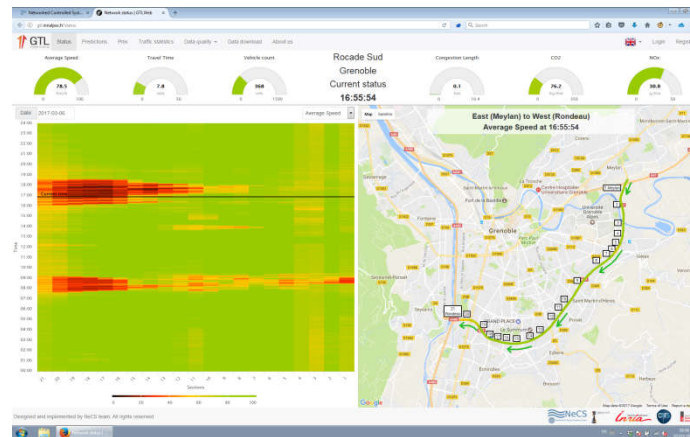


DANCE TEAM

DYNAMICS AND CONTROL OF NETWORKS

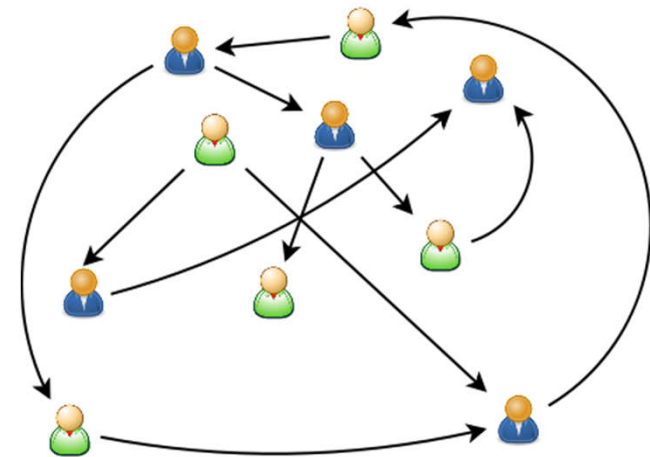
Mobility and road networks:

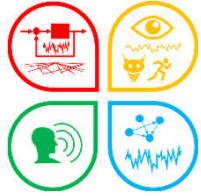
- Urban traffic
- Multi-modal mobility
- Navigation and localisation



Cyber-social systems

- Interaction of social and technological components
- toxic news diffusion and filter bubbles in social media





INFINITY TEAM

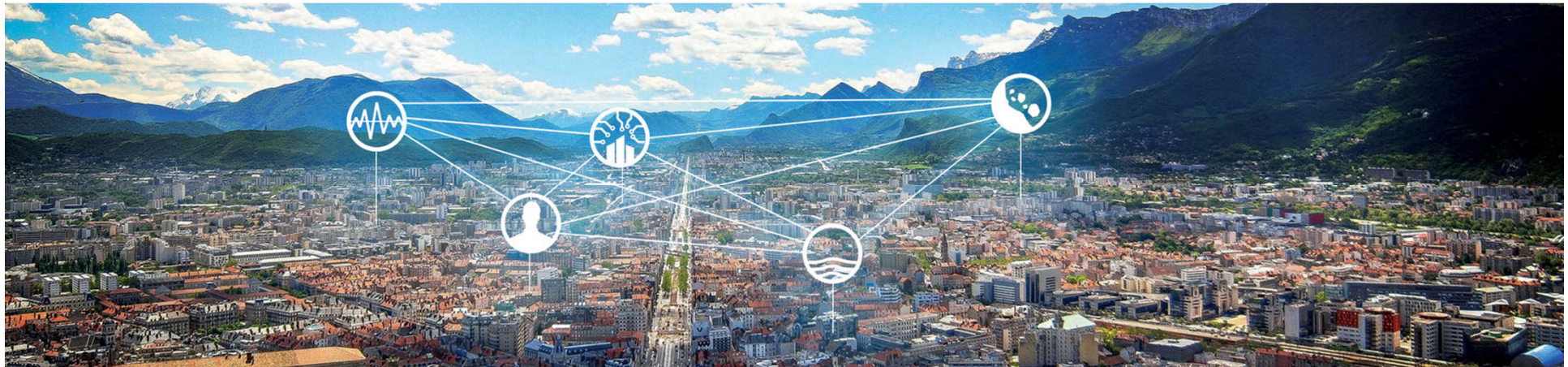
INFINITE DIMENSIONAL DYNAMICS

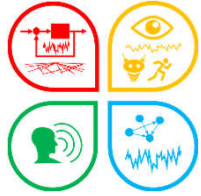


Contact:
Emmanuel WITRANT

Infinite-dimensional systems

- Data assimilation and inverse problems for PDEs
- Estimation and observers for infinite-dimensional systems, from sparse discrete measurements
- Heterogeneous infinite-dimensional systems
(mixed ODEs-PDEs, mixed parabolic/hyperbolic PDEs),
with non-linearities and uncertainties
- Networks of infinite-dimensional systems





INFINITY TEAM

INFINITE DIMENSIONAL DYNAMICS

New tools for physics problems, such as:

- **Catastrophy response**

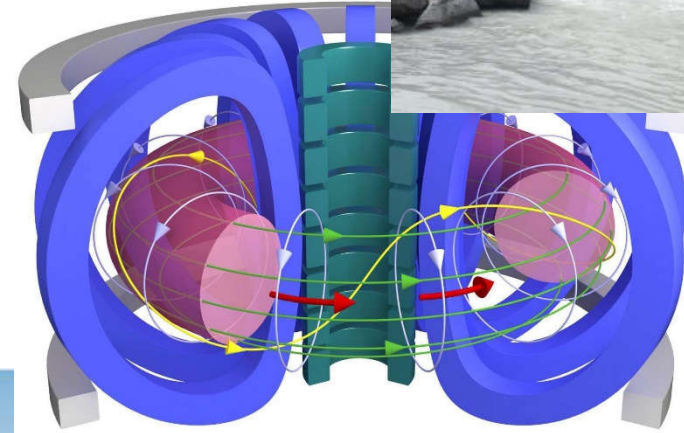
- **Networks of fluids:**

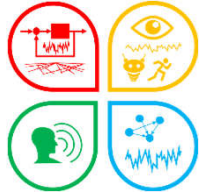
irrigation channels, air ventilation, cryogeny, exhaust gas in motors...

- **Climate change**

- **Energy:**

Thermonuclear fusion (tokamak), smart grids





MODUS TEAM

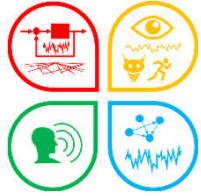
MODELLING AND OPTIMAL DECISION FOR UNCERTAIN SYSTEMS



Contact:
Mirko FIACCHINI

Filling the gap between advanced control theory and applications

- Dealing with uncertainties and perturbations
- Techniques based on real data and learning
- Heterogeneous, distributed or fractional systems
- Optimal and predictive control (or decision) with theoretical guarantees and efficient optimization algorithms



MODUS TEAM

MODELLING AND OPTIMAL DECISION FOR UNCERTAIN SYSTEMS

Energy and mecatronics

Electrical networks, micro grids,
nanoscopic systems

Environment and industrial processes

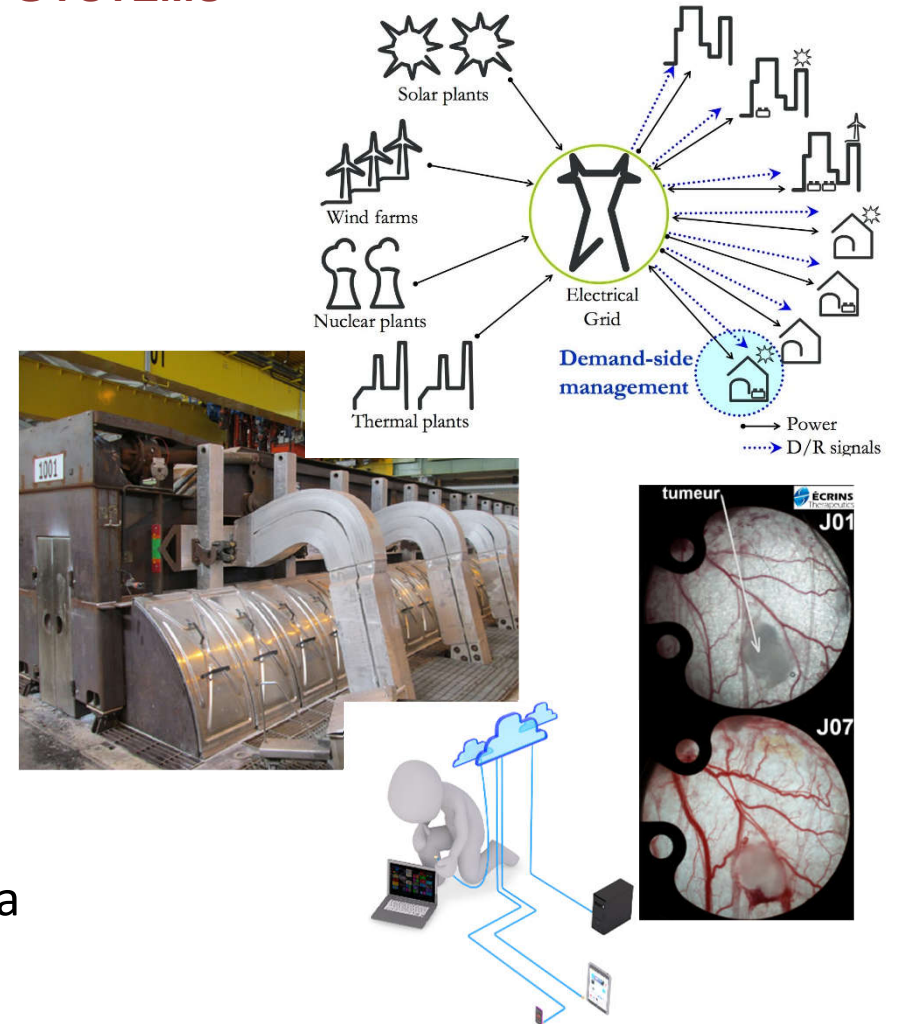
Aluminium production,
water management, cryogeny

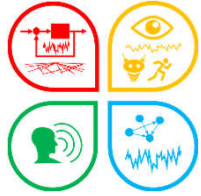
Computer science and data centers

Data centers and cloud

Health and body

Cancer, electroencephalogram, anesthesia





SAFE TEAM

SAFE, CONTROLLED AND MONITORED SYSTEMS



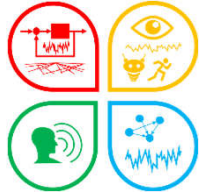
Contact:
John J. MARTINEZ M.

Optimizing safety and security of cyber-physical systems
(for economical, environmental, and personal safety reasons)

Multi-disciplinary tools (signal, data & model based methods)
Full cycle of system health and performance management,
from surveillance to actions.

Goals :

- 1) **Monitoring** : finding faults and degradation clues
- 2) **Post-prognostic decisions** : health management, predictive maintenance, choice of operating conditions
- 3) **Fault-tolerant control** : keeping the system alive under faults and degradations
- 4) **Cyber-physical security** : joint study of system vulnerabilities (communication & control)

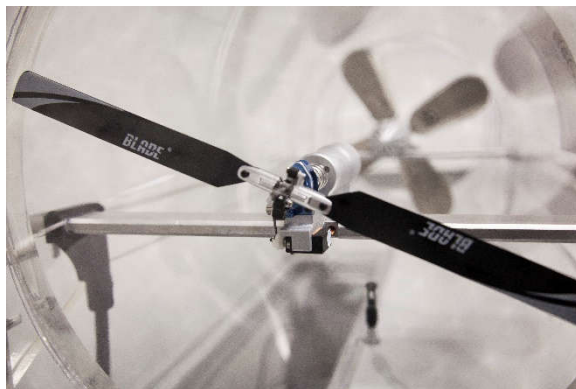
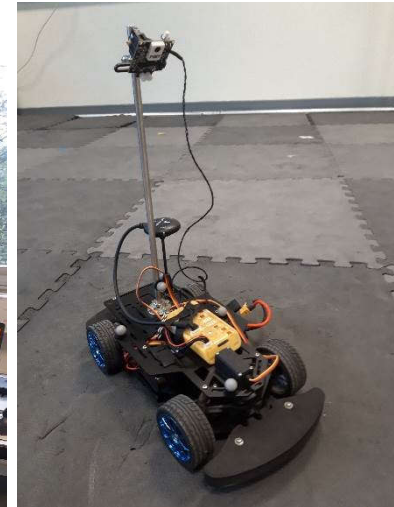
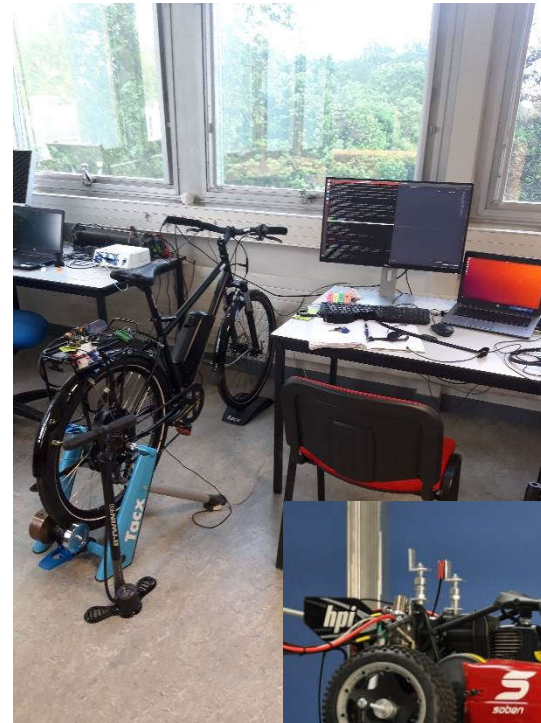


SAFE TEAM

SAFE, CONTROLLED AND MONITORED SYSTEMS

Main applications:

- Cars and autonomus cars,
- Eolic turbines,
- Rotating machines,
- Fuel cells and lithium batteries,
- Physiologic systems and signals



PPC
**Speech and Cognition
Department**

Laurent GIRIN

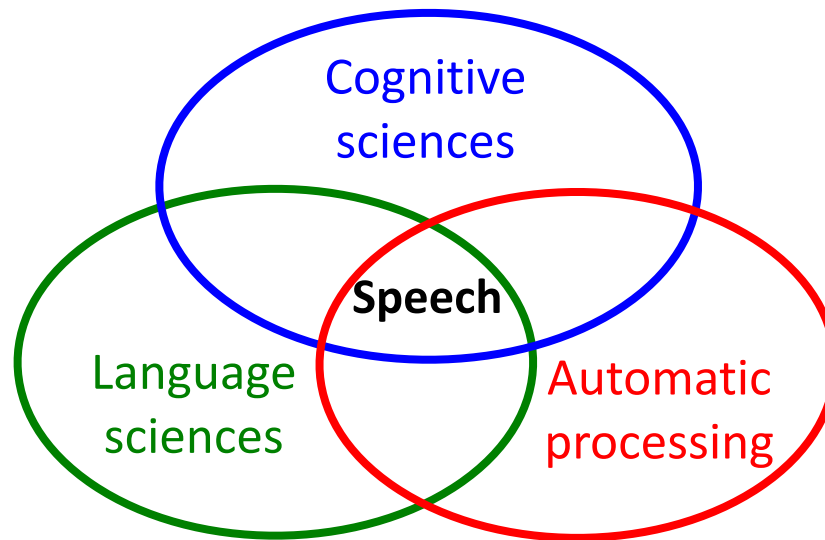


SCIENTIFIC OBJECTIVE

To study and model

- Speech signals
- The physical and cognitive systems that produce and perceive them
- The linguistic systems that organize them

Develop new vocal technologies



General approach: Observation, data collection with in-lab and on-site experimentation, analysis, modeling and evaluation





ORGANIZATION

Permanent researchers	22 + 1 emeritus + 3 IR / 2 IE
CNRS researchers	13 (7 in Section 07, 5 in 34, 1 in 26)
University academics	9 (4 CNU 07, 4 CNU 61, 1 CNU 16)
PhD supervisors	12
Support staff	2
PhD students	18 (12 at Gipsa + 6 external)
Post-docs + non-permanent res.	5

Balance
between
IT research
and
humanities

2 sites: Ampère (PCMD, CRISSP) and Stendhal (SYLDO, PCMD)

1 head of division, 1 board, 1 seminar team

5 experimental platforms: MICAL + Nina (robot iCub), BEDEI, Neurospeech, Anecho and Atlas linguistiques





ORGANIZATION

- PCMD (Perception, Control, Multimodality & speech Dynamics): Speech production and perception, underlying physical and cognitive systems – The ‘Cognitive Science team’ (head: M. Garnier – P. Baraduc)
- SYLDO (Systèmes Linguistiques, Dialectologie & Oralité): Phonological systems, diversity and universality of phonological features, variations, constraints, changes, uses – The ‘Language Science team’ (head: N. Vallée)
- CRISSP (Cognitive Robotics, Interactive Systems & Speech Processing): Automatic speech processing, vocal technologies, social robotics – The ‘Information Science and Technology team’ (head: T. Hueber)

Multiples cross-team collaborations on **cross-cutting topics**, e.g.,

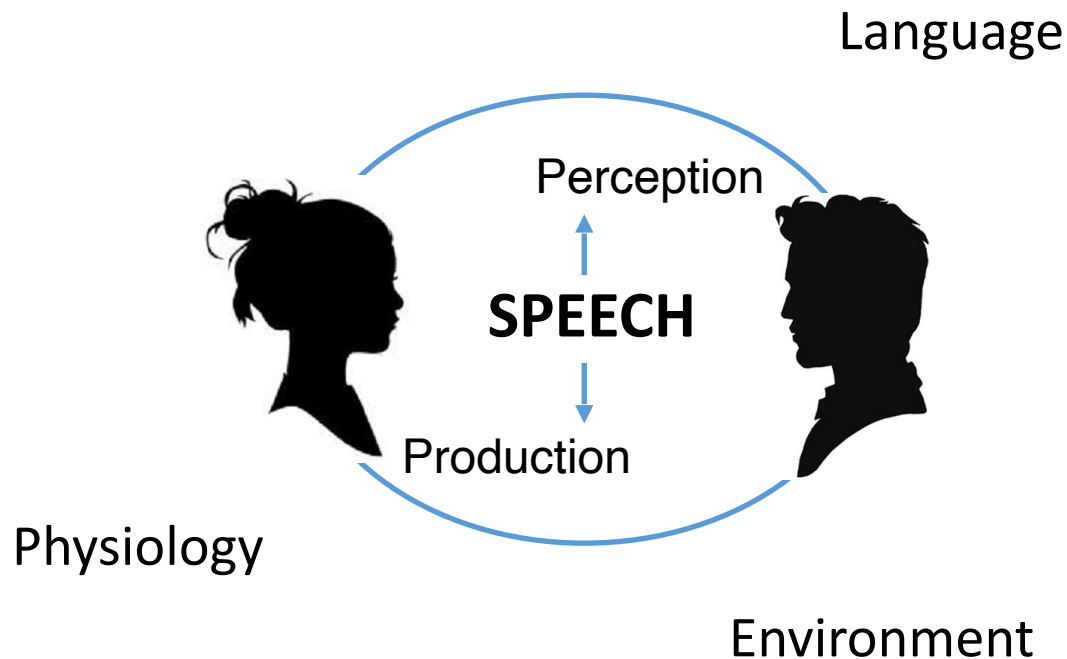
- Speech and communication disorders
- Emergence, structuration and functioning of linguistic systems
- Face-to-face communication and interaction (human-human, human-robot)...





PCMD

To study how the **cognitive processes of speech production and perception** are jointly structured by the human anatomy/neurophysiology and by the interaction with the environment



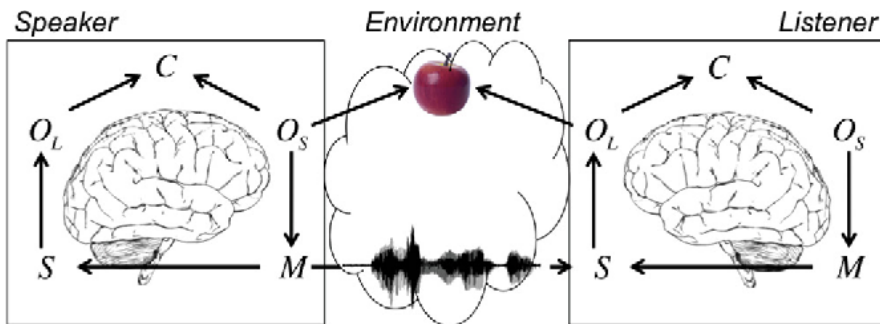


PCMD

To study how the **cognitive processes of speech production and perception** are jointly structured by the human anatomy/neurophysiology and by the interaction with the environment

- Speech representations and speech units

- Relations between perception, production, and phonological structure
- Multimodality: Interaction between auditory, visual, and somatosensory systems
- Bayesian model of the relationship between units, articulation, and perception, for two agents in a teacher-learner scenario (PhD work of R. Laurent and M-L. Barnaud)
- Influence of a facial somatosensory stimulation on the segmentation of the speech stream (Post-Doc R. Ogane)



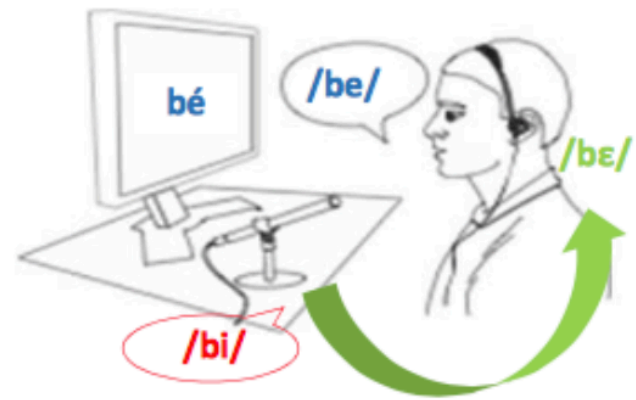
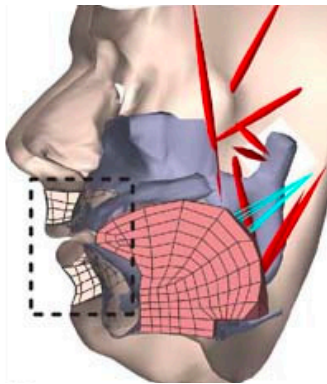
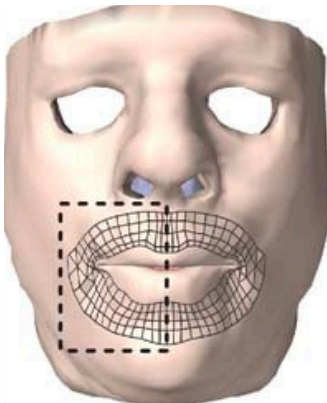


PCMD

To study how the **cognitive processes of speech production and perception** are jointly structured by the human anatomy/neurophysiology and by the interaction with the environment

- Motor control during speech production

- To understand and model the influence of physical constraints
- To study the perturbation adaptation mechanisms
- Biomechanical model of the orofacial sphere (Collab. w/ TIMC, PhD work of A. Bijar)
- Adaptation and learning during a modified auditory feedback (PhD work of T. Caudrelier)



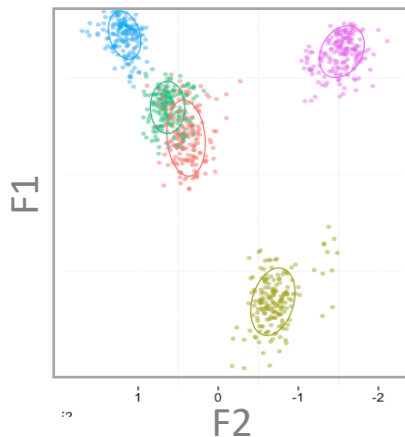


PCMD

To study how the **cognitive processes of speech production and perception** are jointly structured by the human anatomy/neurophysiology and by the interaction with the environment

- Speech dynamics

- Speech emergence and development (ontogenesis and phylogenesis)
- Speech, voice, and communication disorders (speech therapy, handicap)
- Speech production by 5-11 y.o. children with cochlear implants (PhD work B. Grandon)
- Multimodal perception of French cued speech by hearing-impaired adults (PostDoc C. Bayard)



Audio only



Audiovisual



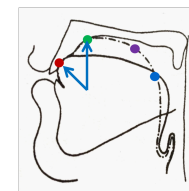
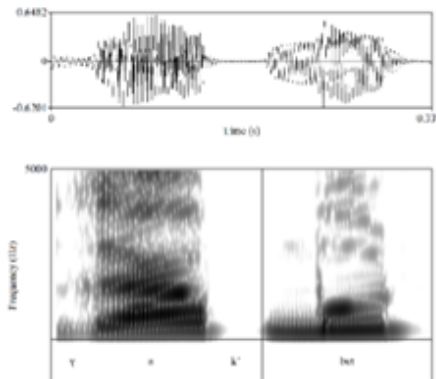
Audiovisual + Cued Speech



SYLDO

To observe, understand, describe, model, and explain the diversity, variation, and uses of **linguistic systems and associated sounds**, in different communication modes

- Study the relations between phonetics and phonology, and the role played by
 - physical, anatomical, and physiological mechanisms
 - cognitive and psychological mechanisms
 - sociological mechanisms





SYLDO

To observe, understand, describe, model, and explain the diversity, variation, and uses of **linguistic systems and associated sounds**, in different communication modes

Variability of articulatory and acoustic production and of motor coordination

- Complex articulatory gestures, e.g., linguo-palatal gesture
- Syllables and characteristics of the mandibular oscillation cycle
- Plosives consonants in the Asian languages
- Adaptation of the production in different communication modes

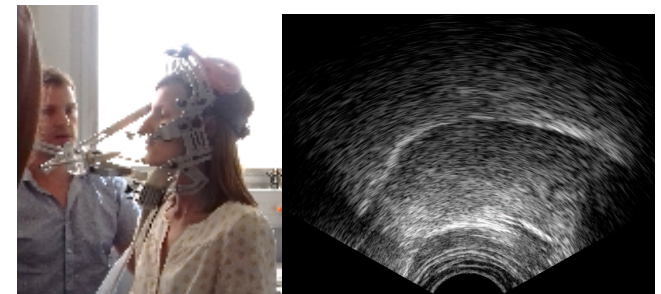
ElectroMagnetic Articulatograph



Anatomical MRI



Ultrasound images



Collab. w/ CRISSP and Lomonosov Moscow State University

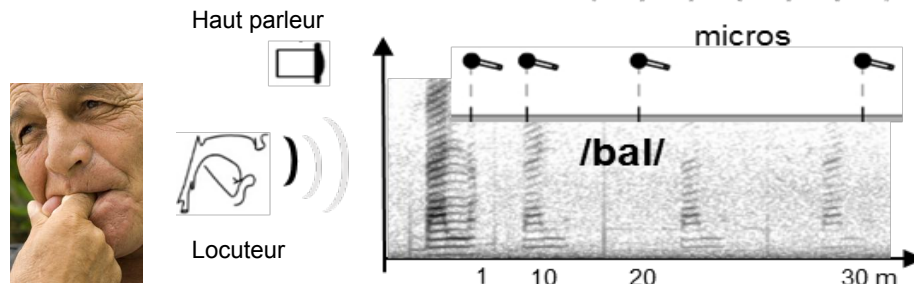
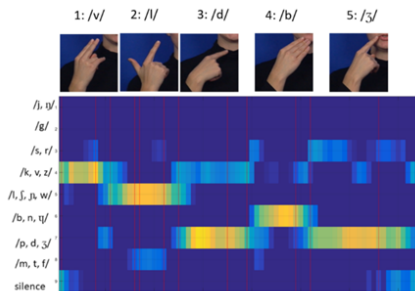


SYLDO

To observe, understand, describe, model, and explain the diversity, variation, and uses of **linguistic systems and associated sounds**, in different communication modes

Morphogenesis, adaptation, situation and environment effects

- Acquisition and development in multilingual environment
- Acquisition/learning of foreign languages, interphonology
- Cued speech production and hand-lips coordination
- Influence of the communication distance in a natural environment and adapted communication modes



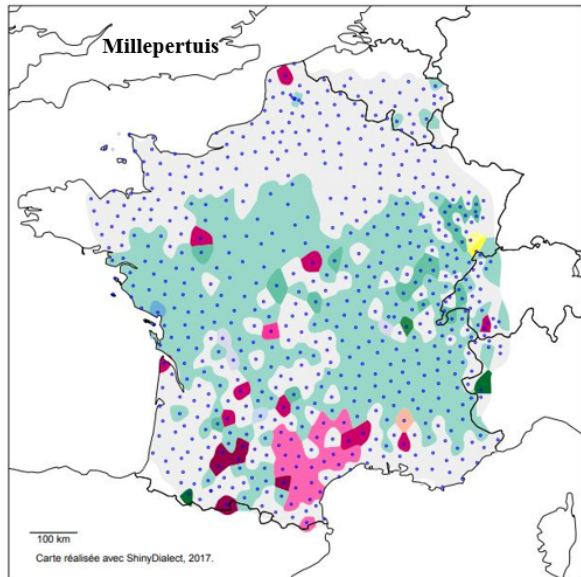


SYLDO

To observe, understand, describe, model, and explain the diversity, variation, and uses of **linguistic systems and associated sounds**, in different communication modes

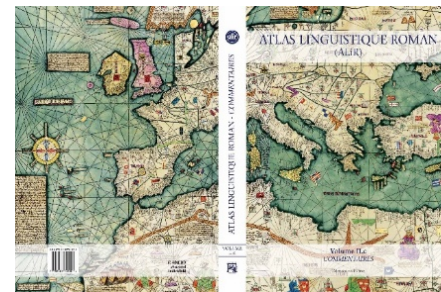
Dialectal studies and Geolinguistics

- Multilingual linguistic atlas
- Automatic data extraction and processing, geo-visualization of linguistic data



- Aboutissants du latin PĒRTŪSIARE 'percer trouer' > *pertuis, millepertuis, herbe de millepertuis*
- Aboutissants de *traucum 'trou' > *milletrous, erbe a mil trous, fleu de miltrous*
- Aboutissants du latin GŪLA 'gueule' > *milgole*
- Aboutissants du latin FORARE 'percer de part en part' > *traforella*
- Aboutissants de l'ancien francique *threscan 'danser sauter' > *trescalan, erbo dé trescalan*
- Aboutissants du latin DIABOLUS 'diable' > *chasso diablé*
- Aboutissants de la forme Johannes 'Jean' > *erbe de saint Jean, tra jian*
- Aboutissants du latin PĒRĪCŪLUM 'péril' > *périkun*
- Aboutissants du latin FLŌS 'fleur' > *milfleurin*
- Aboutissants de la forme ptarmiké 'arnica' > *arnica*
- Aboutissants du latin MYRTUS 'myrte' > *mitr*
- Aboutissants du latin ŌLEUM 'huile' + RŪBEUS 'rouge' > *oli roudgi*
- Origine étymologique inconnue

- Promotion of oral heritage



Musée
Dauphinois
Grenoble

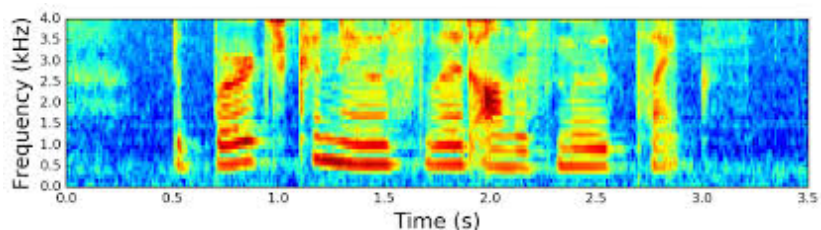




CRISSP

To capture and model the verbal and co-verbal signals of **human-human and human-robot interaction**; To develop **assisting vocal technologies** for impaired people or for language learning

Signal processing



Machine learning / Deep learning

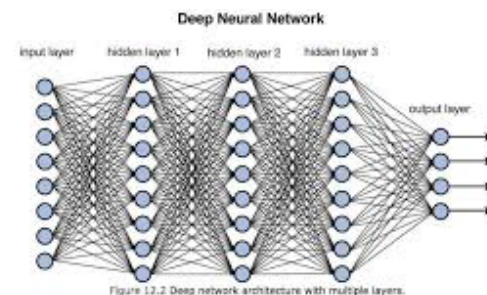
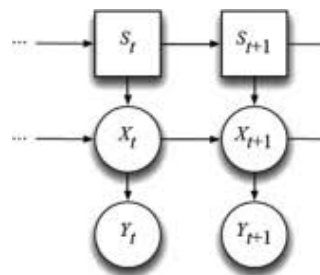
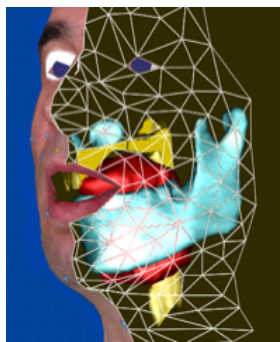


Image analysis and synthesis



Experimental phonetics





CRISSP

To capture and model the verbal and co-verbal signals of **human-human and human-robot interaction**; To develop **assisting vocal technologies** for impaired people or for language learning

- Human-robot interaction and social robotics

- Low-level aspects: Automatic analysis of multimodal multiparticipant scenes (detection, localization, tracking, separation of speakers)
- High-level aspects: Development of sociocommunicative skills for companion humanoid robots



Nina = iCub robot augmented with jaw and lips

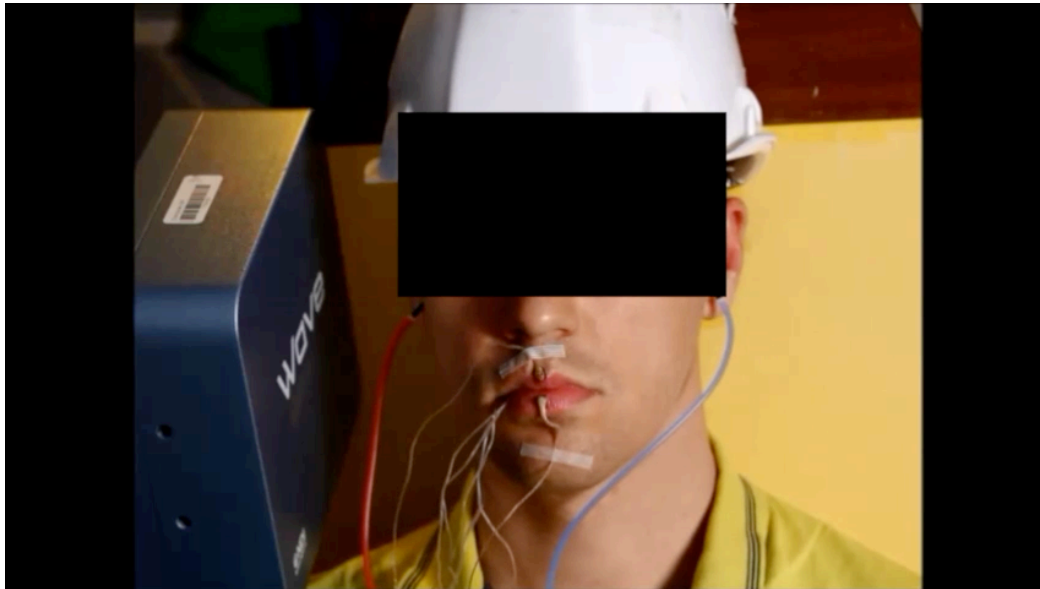
Platform for immersive robot control and acquisition and evaluation of HRI models



CRISSP

To capture and model the verbal and co-verbal signals of **human-human and human-robot interaction**; To develop **assisting vocal technologies** for impaired people or for language learning

- **Automatic speech processing, augmented communication, interactive systems**
 - Interactive/incremental text-to-speech synthesis (TTS)
 - Articulatory models, articulatory synthesis, acoustico-articulatory inversion



Articulatory synthesizer
(Bocquelet et al., PLoS
Comput. Biology, 2016;
collaboration with INSERM)

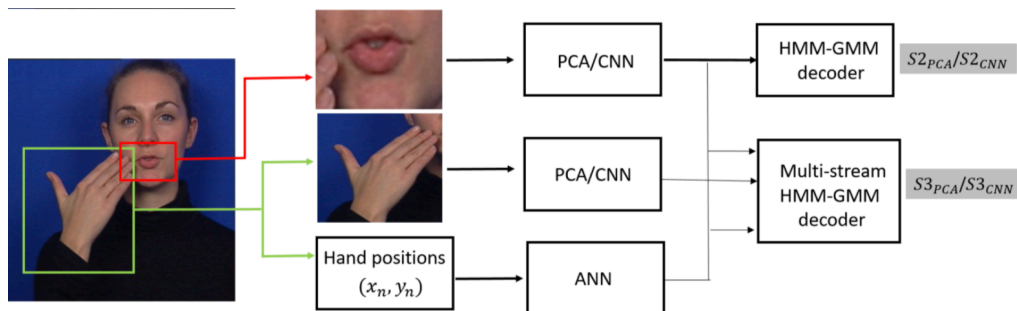


CRISSP

To capture and model the verbal and co-verbal signals of **human-human and human-robot interaction**; To develop **assisting vocal technologies** for impaired people or for language learning

- Application to assistive vocal technologies

- Silent speech interfaces
- Automatic visual recognition of hand and lips movements in cued speech
- Visual feedback for speech therapy



French Cued speech automatic recognition
(Liu et al., ICASSP 2018)





LOCAL, NATIONAL, AND INTERNATIONAL COLLABORATIONS AND CONTACTS

- Inter-division collaboration with the Data Science division at Gipsa (MOVE team)
- 2 MIAI Chairs, Labex Persyval-2, CDP Idex UGA Grenoble Data Institute, CDP Idex UGA NeuroCog, Pôle Grenoble Cognition, Institut Cerveau et Cognition project, Carnot LSI
- Teaching inst.: Master Sciences Cognitives, Phelma (SICOM), Master Sigma, UFR LLASIC (dept SdL/FLE), License MIASHS,
- Labs: LPNC, LIG, LJK, Inria, CHU Grenoble, TIMC, LIDILEM, 3SR, INSERM IRMaGe, CSTR
- Companies: ATOS, Arturia, IvèS, ProBayes
- Others: AGECSA, INJS Chambéry, Musée Dauphinois, Centre Médical Rocheplane, ARIST
- National plan Digital Humanities, Carnot Cognition, GDR TAL, CA AFCP
- Labs: Centre du Glossaire des Patois de la Suisse Romande Neuchâtel, BCL Nice, LISA Corse, UC Lyon, IKER Bayonne, LPSCO Clermont-Ferrand, LPL Aix-Marseille, U. Lyon 1, CerCo Toulouse, DDL Lyon, IJLRA Paris, LPP Paris, IMS Marseille, LIMSI Paris, EMC Lyon, HNHP Paris, Centre Georges Chevrier Sociétés et sensibilités, Obs. Homme Milieu Oyapock Guyane,
- Companies: Orange Labs Rennes, ANSYS France, SBT Human(s) Matter, Pertimm
- Others: Parc Amazonien de Guyane, Institut Médico-Educatif du Plovier, Asso. Franç. du Syndrome d'Angelman, Fondation des maladies rares, Handeo, Filière Nationale de Santé Déficiences
- ISCA, European Projects ITN (1 accepted + 1 in preparation), H2020-FETOPEN 'VirtOS' submitted, IEA CNRS Brésil, collaboration dans H2020 ICT 'SPRING' (Inria)
- Labs: KTH, IDIAP, U. Montreal, U. Alberta, U. Libre Bruxelles, Memorial U. Newfoundland Canada, U. Liège, U. Giessen, U. College London, McGill U., Haskins Labs, UQAM Montréal, U. Washington, Sapporo U. of Health Sciences, U. Turin, U. Genoa, U. Milan, U. Madrid, U. Barcelona, U. Sevilla, U. Santiago de Compostela, U. Lisboa, U. Aveiro Portugal, UF Rio de Janeiro, PUC San Paolo, UF Amazonia Manaus, UF Ouro Preto Brasil, U. Amapa Brasil, U. Bucarest, U. Cluj-Napoca Romania, U. Chisinau Moldavia, U. Bamako, U. Hanoï, Lomonosov Moscow State U., La Trobe U. Melbourne, U. Toronto, Uniklinik RWTH Aachen, U. Edinburgh, U. Tehran, UBC Vancouver, U. Tianjin Chine, National Cancer Institute Amsterdam, Leibniz-Centre General Linguistics Berlin, KU Leuven, Medizinische Hochschule Hannover, U. Leeds, Linköping U.
- Companies: Sinclair Pharma London



PSD
Pôle Science des données

Bertrand RIVET



Data Science Dep. in a few words

Gathering

- several scientific communities
- common data science issues for/from observations

Strengthen skills and interactions

- signal and image processing
- machine learning, AI
- robotics
- cognition & physiological signals

Tackling scientific challenges and societal issues

- *topics*: environment, living, health, biomedical, robotics, perception, ...
- *methodological and theoretical*: physical and cognitive modeling, multimodal data, information extraction, statistical and non-statistical machine learning, algorithms and architecture, ...



Data Science Dep. in a few words

Methodology & Theory

physical & cognitive modeling
theoretical developments
performance analysis
specific/efficient algorithms

Societal issues

health, environment,
ecological transition,
intelligent mobility

Data Science From Acquisition to Interpretation and Decision

Experimental platforms

- environment (ISEE, HYDRO SIGNAL, MONT-BLANC,...)
- living (BIOMECA, LARYNX, AERO, KINOVIS, PERSEE,...)
- robotics (ATTENTIVE, ARCHI, ROBOTIQUE AERIENNE,...)



Robotics

Moving an "agent" in a complex environment efficiently and safely

- Determination of adapted and flexible **control laws** to make complex movements in a constrained and uncertain environment
- Embedded **multimodal perception system** to position the agent in his environment, analyze the situation, detect people, obstacles...
- Reactivity in **real time**: adapted hardware and software architectures

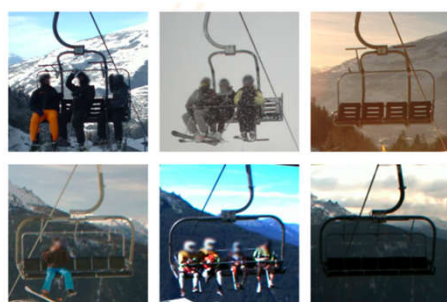




Image processing

Low-level analysis and high-level interpretation of image and video content

- **Study of human behavior:** detection, segmentation, tracking, modeling, classification of gestures and activity (individual, crowd), face analysis.
- **Scene modeling:** object model analysis, 3D analysis and perception of objects and scene.
- **Image integrity control:** detection of falsified images, identification of the origin and history of applied treatments.



Variabilité des images

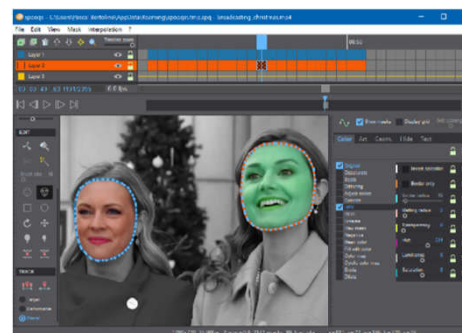
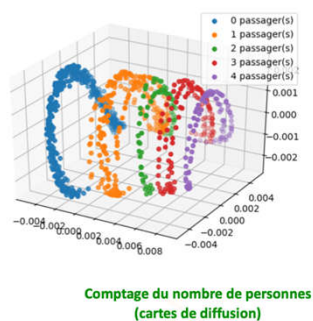
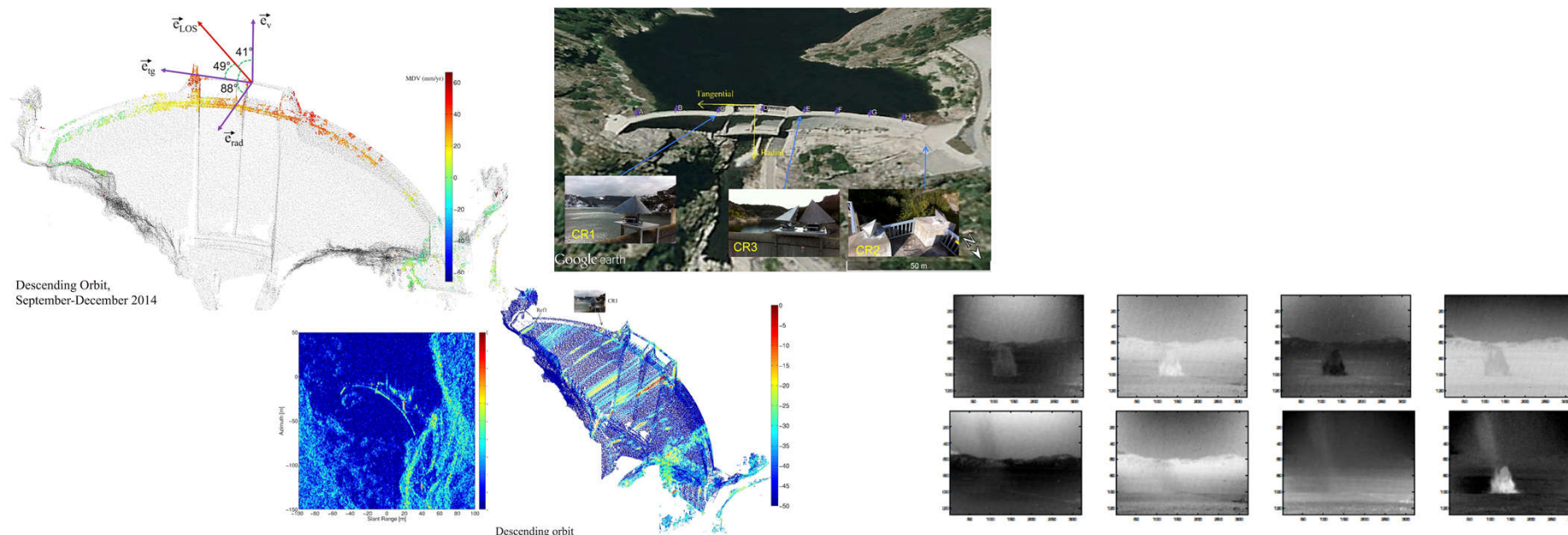




Image processing

Image processing and analysis for massive remote sensing data

- **Hyperspectral unmixing:** source separation, variability of endmembers and of model derived from a physical model
- **Multimodality, multi-scale and multi-temporal series:** fusion of heterogeneous data acquired by different sensors

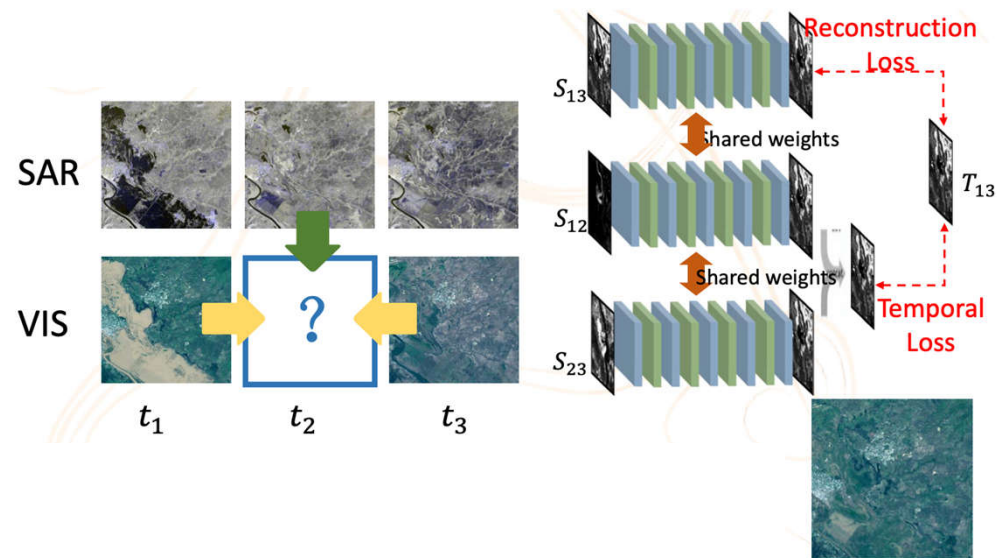
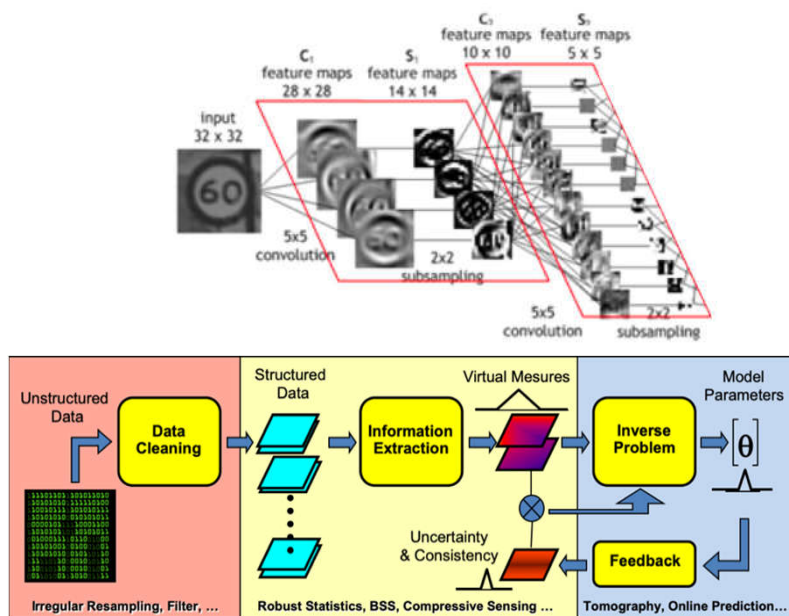


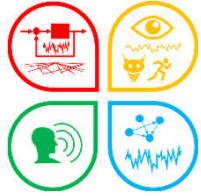


Machine learning

Extraction of relevant information

- **Reconstruction of missing data** by multimodal and multitemporal fusion: structured representation of the spatial information of images (hierarchical/graphical approaches)
- **Interpretation** of extracted features by CNN, RNN, ...

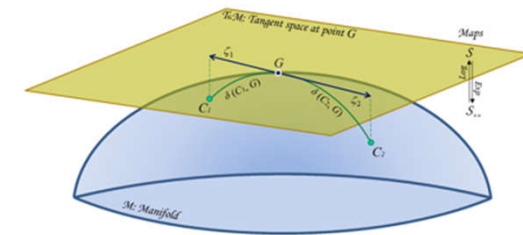
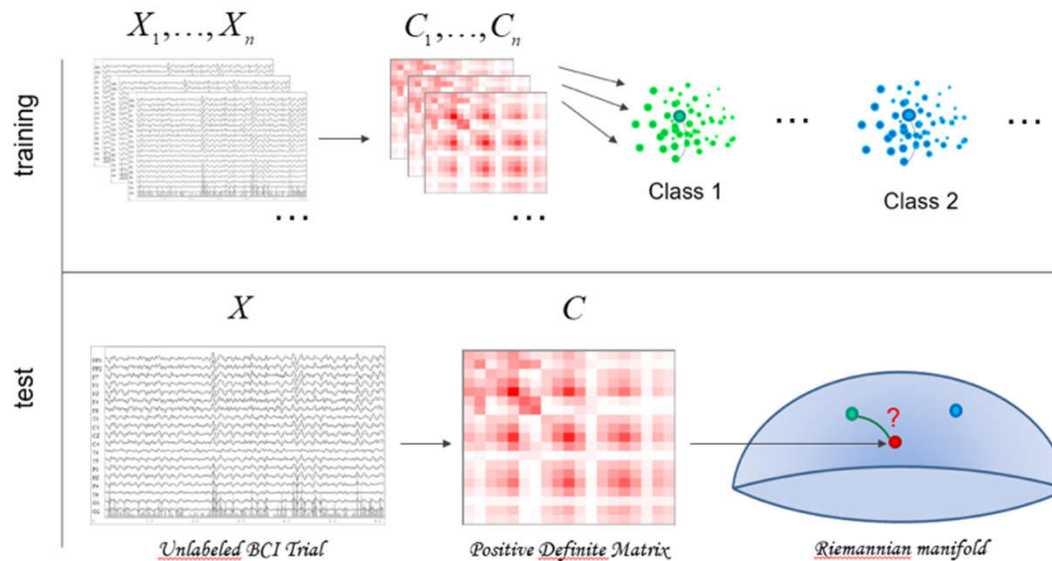




Machine learning

Riemannian geometry

- **Procrustes analysis:** alignment of independent databases
- **Transfer learning:** avoid calibration for BCI (brain-invaders, ...)

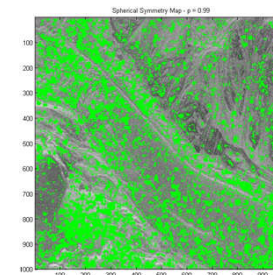
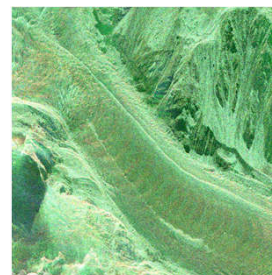
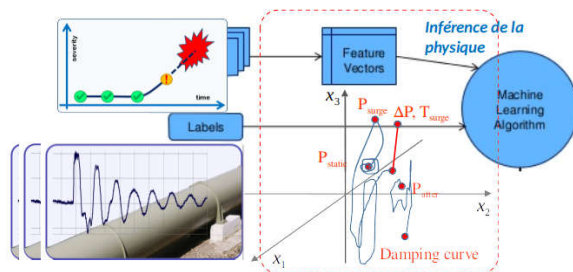




Signal processing

Physical models at the heart of signal processing algorithms

- **Fine characterization of deterministic and stochastic non-stationarity:** transient signal analysis (time-frequency, recurrence plot), multivariate statistical tests of conformity (gaussianity, sphericity, spherical symmetry, circularity), multivariate robust and adaptive filtering
- **Dynamical systems:** modeling the evolution of dynamic systems, follow continuous evolutions
- **Imaging by acoustics:** provide relevant images for the characterization of phenomena in complex and varying environments, solid structures in motion and immersed in fluids, monitoring of the underwater environment

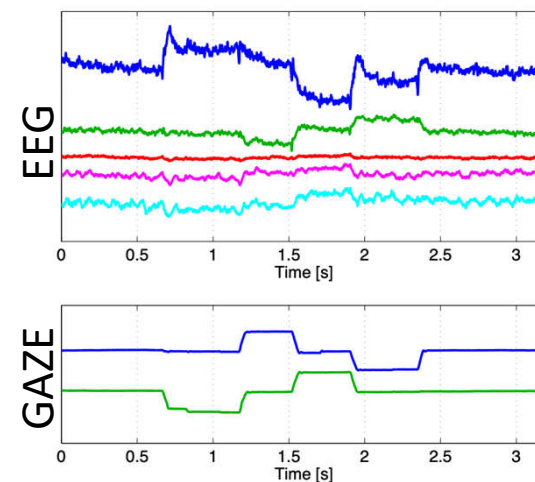
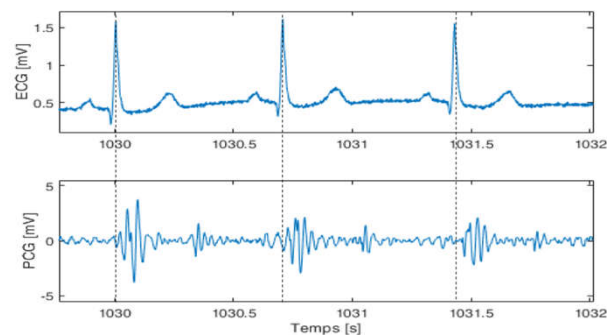
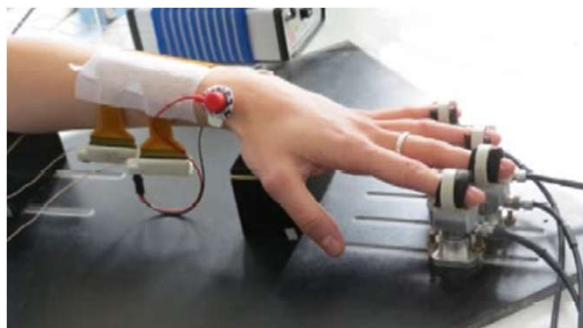




Signal processing

Sensor arrays and source separation

- **Multimodal source separation:** modeling multimodality, consideration of imperfections (jitters, missing/corrupted data, ...), localization/characterization of sources (volcanic, ...)
- **Dynamic sensor arrays:** prediction of best sensor locations, change-point detection
- **Repetitive signals:** evoked related-potentials, modeling quasi-periodicity/seasonality, reproducibility, ...

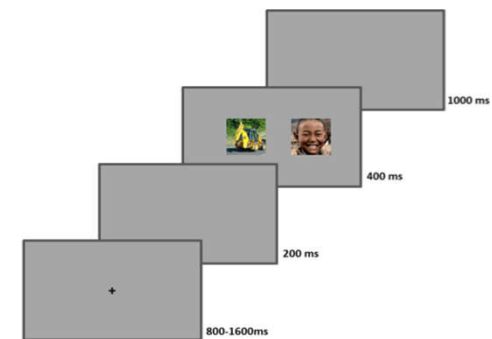
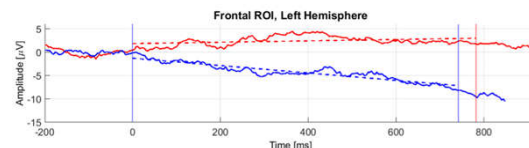
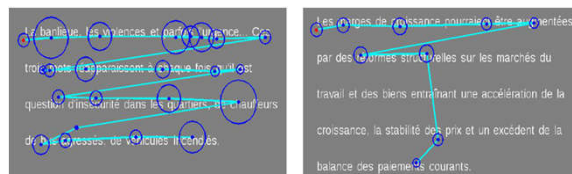




Cognition & living

Brain, vision and cognition

- **Eye movement analysis as markers of brain and cognitive functioning:** extract signatures, reflecting normal cognitive functioning, and to search for deviant signatures characteristic of different pathologies
- **Multistable perception:** analogies between optimal samplers (informed or uninformed) and ocular exploration of a micro-scale stimulus
- **Active process of visual perception by saccades analysis:** programming of the saccade (towards where and when to move the gaze) & perception during the saccade (intra-saccadic perception), EEG-IRM

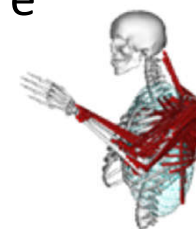
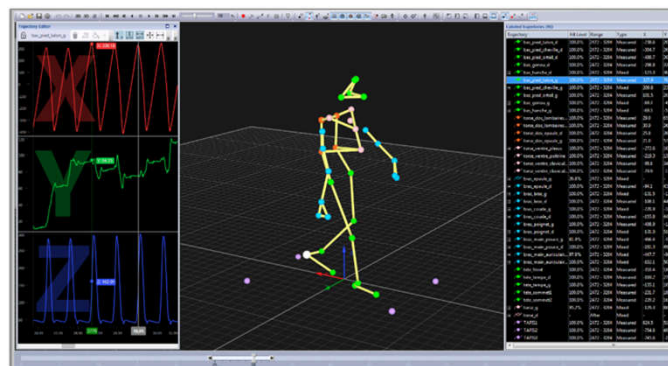




Cognition & living

Analysis, modeling and study of the cognitive control of gestures in the field of biomechanics and expressivity

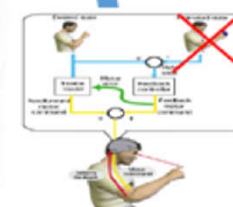
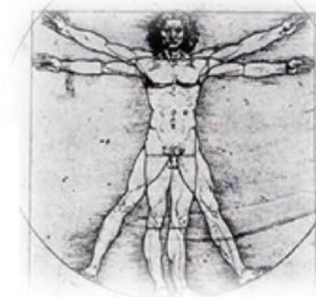
- **Kinematics:** from the capture to the analysis of the gesture
- **Kinetics:** modeling of muscle action
- **Control:** Neuromuscular control laws



Défi 2 : Cinétique



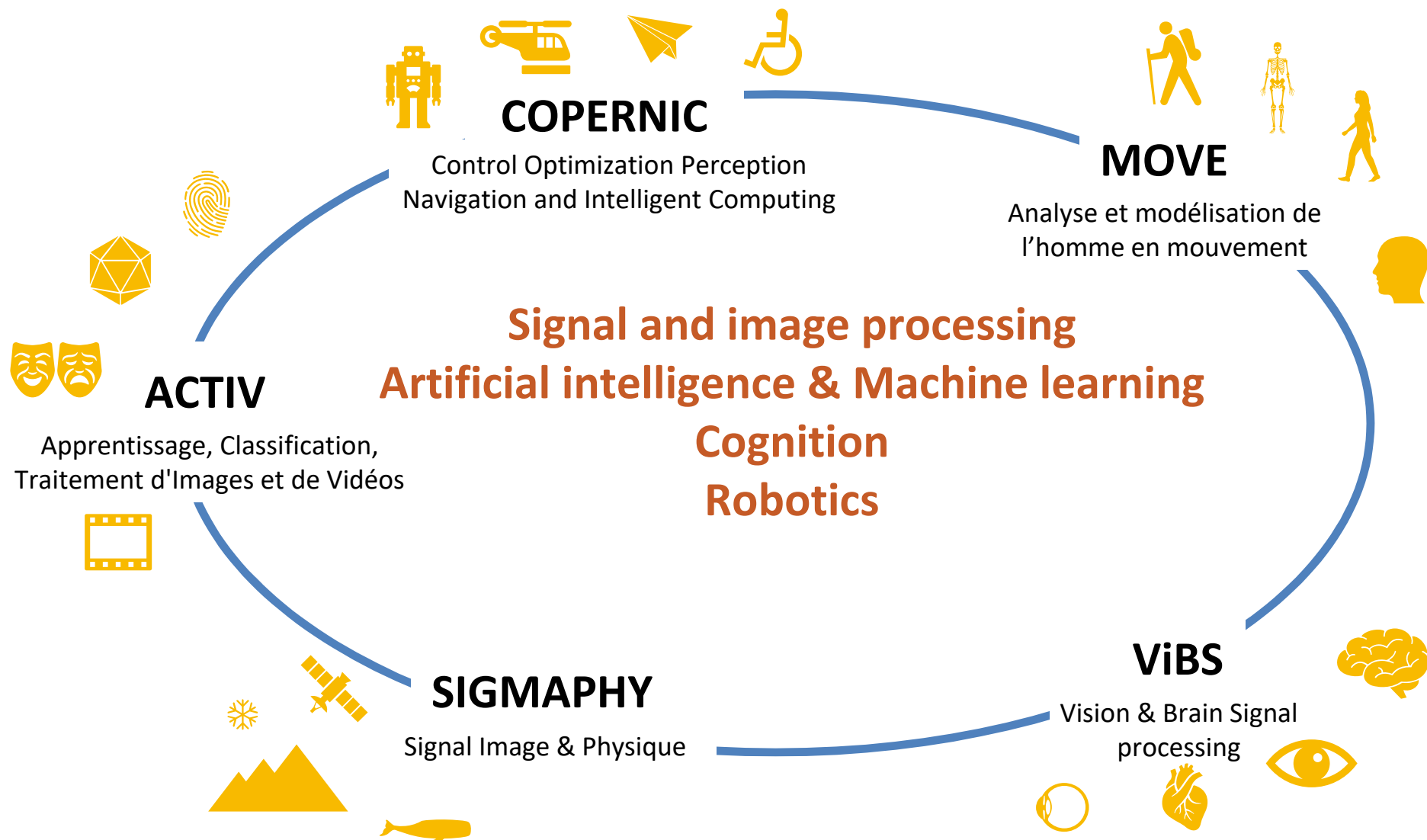
Défi 1 : Cinématique



Défi 3 : Contrôle



Teams





Experimental platforms

