

# FRANCESCA TERNULLO



- Law, University of Bologna
- Humanities & Econ, University of Bologna School of Advanced Studies
- Info, University of California, Berkeley
- Polsci, Dickinson College



- Infosys - Bangalore, IN
- Google - Mexico City, MX

## Other "cool" stuff



- European AI Alliance, Member & Contributor
- Design Thinking Course - Golinelli Foundation
- University of Bologna Law Review
- UNESCO Italian Youth Forum 2020, Organizer

## More about me:

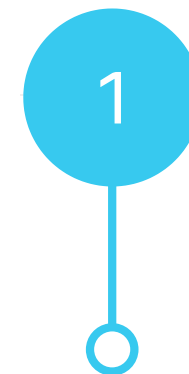
- > Fav AI Principle: Contestability
- > Areas of Interest: AI Development, Data Ethics, Public Policy & Sustainable AI
- > Languages I am fluent: English, Italian, Spanish [Latin & Ancient Greek]

# Clàudia Figueras

 @ClawiFig

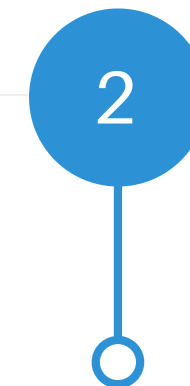
## PHD ON SOCIAL IMPACT OF AI

- Responsible Design of AI
- Bias and discrimination by AI
- AI Ethics and regulations



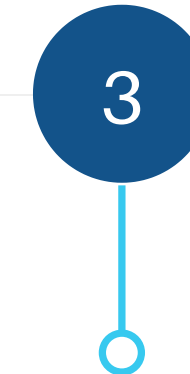
**2012-2016**

BSc in Human  
Biology, Universitat  
Pompeu Fabra  
(Barcelona)



**2016-2018**

MSc in Health  
Informatics,  
Karolinska Institutet  
and Stockholm  
University



**2018/2019**

- Research Analyst  
(Folkhälsomyndigheten)  
- Data Analyst (Greensway)  
- Data Collector/Annotator  
(Tobii)

## Department of Social Sciences, University of Düsseldorf

### ■ Personal Background

- Master of Arts in Communication Science
- PhD candidate

### ■ Research Interests

- Human fairness perceptions of AI systems
- Subsequent effects of fairness perceptions
- Threat perceptions regarding AI
- Public opinion on AI

### ■ Projects

- MeMo:KI (Opinion Monitor: Artificial Intelligence)
- FAIR (Fair Artificial Intelligence Reasoning)
- PhD project on the 'limits of fairness' regarding politically relevant AI applications

*Thao Ngo*

UNIVERSITÄT  
DUISBURG  
ESSEN

*Open-Minded*



**Background** Psychology & Human Factors

**Topic** How do users understand algorithmic decision-making threatening their online privacy? How can we make this more transparent?

**empirical** **qualitative** **end-user** **interdisciplinary**

**Interests** Societal & ethical impacts of AI, fairness



**ENSTA** Autonomous Systems and Robotics  
Computer Science and System Engineering Laboratory



**Flowers Laboratory**  
FLOWING Epigenetic Robots and Systems



[www.robotsthatdream.eu](http://www.robotsthatdream.eu)

HOME RESEARCH TOPICS + PUBLICATIONS + TEAM ROBOTS + SOFTWARE MEDIA + BLOG JOBS

## LIFELONG LEARNING AND DEVELOPMENT IN ROBOTS AND HUMANS



The [Flowers project-team](#), at Inria and Ensta ParisTech, studies mechanisms that can allow robots and humans to acquire autonomously and cumulatively repertoires of novel skills over extended periods of time.

This includes mechanisms for learning by self-exploration, as well as learning through interaction with peers, for the acquisition of both sensorimotor and social skills. Sensorimotor skills include locomotion, affordance learning, active manipulation. Interactive skills include grounded language use and understanding, adaptive interaction protocols, and human-robot collaboration.

Our approach is organized along two strands of research:

**Artificial intelligence:** constructing machines and robots, inspired by animal cognitive development, and capable of lifelong development, adaptation and interaction with the physical and social world.

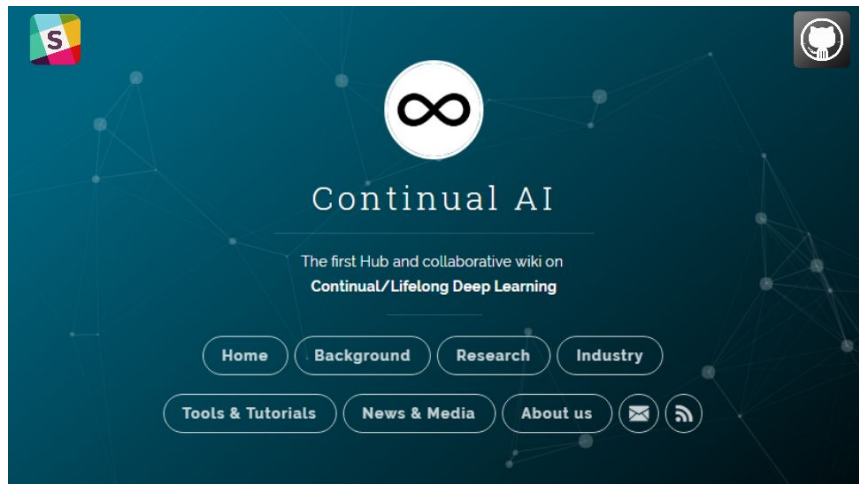
**Cognitive Science:** Elaborating computer and robotic models as tools for understanding developmental processes in humans.

Our project-team, headed by [Pierre-Yves Oudeyer](#) (Inria) and co-started with [David Filliat](#) (Ensta ParisTech [Cognitive Robotics Group](#)), focuses in particular on the study of developmental mechanisms that guide efficient open-ended learning of novel skills in large real world environments. In particular, we study:

- **Intrinsically motivated multitask learning and exploration, information seeking and active learning, including artificial curiosity;**
- **Social learning.** e.g. learning by imitation or demonstration, which implies both issues related to machine learning and human-robot interaction;
- Mechanisms for learning to **sequence and compose actions to reach goals**, especially within the framework of reinforcement learning;
- The role of **embodiment**, in particular through the concept of morphological computation, as well as the structure of motor primitives/muscle synergies that can leverage the properties of morphology and physics;
- **Maturational constraints** which can allow the progressive release of novel sensorimotor degrees of freedom to be explored;

The FLOWERS project-team is located on two sites: [Inria Bordeaux Sud-Ouest](#) and [ENSTA-Paristech](#) in Paris.

About me: Natalia Díaz Rodríguez, PhD



**Continual (Lifelong)  
Learning,  
Robotics (DL, RL),  
eXplainable AI (XAI)**  
[NataliaDiaz.github.io](https://NataliaDiaz.github.io)

# Yannic Blaschke, European Commission, Joint Research Centre

Enlightenment 2.0:  
Multi-annual  
research program

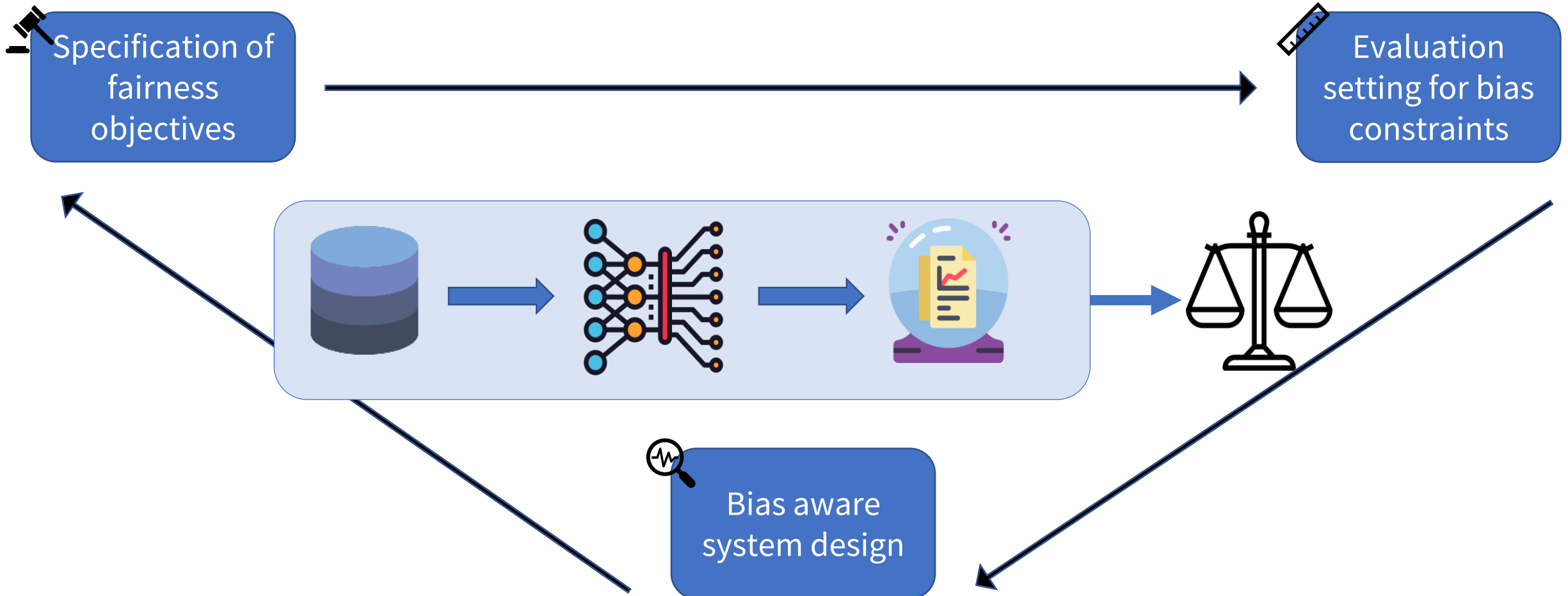
Political decision  
making in the  
digital age



*Contact Point:*  
*Laura Smillie*  
*[laura.smillie@ec.europa.eu](mailto:laura.smillie@ec.europa.eu)*

Agathe Balayn, PhD student

## Data-Centric Treatment of Bias for Designing Fair Decision Support Systems



# Gabriel Lima

Senior Undergraduate, School of Computing, KAIST  
Research Intern, Data Science Group, Institute for Basic Science



## How to embed the public opinion into policymaking and development of AI? How to deal with public misperceptions and contradictions?

- 1) Liability, Accountability, Retribution Gaps → How would people assign responsibility and punishment for damages caused by AI/robots?

### Punishment Gap

People want to punish AI/robots, but they are not willing to grant them liability requirements nor believe their punishment is satisfactory

Under Review

- 2) AI and Robot Rights → EU Parliament Recommendation, philosophical/moral question

### Cruelty Against AI and Robots

People are against cruelty towards AI and robots, and somewhat neutral towards their IP rights and freedom of speech

Under Review



- Manel Slokom, PhD Student at MMC group, TU Delft.
- Purpose-aware Privacy-Preserving Data Publishing for Recommender Systems: P3DP-Rec



Threat model



Adversary

- \* Risk
- \* Objectives
- \* Resources

Data protection step



P3DP-Rec



Recommendation step

Rating prediction

Ranking prediction

Values

- \* Fairness
- \* Diversity
- \* Bias

Disclosure control step

Identity Disclosure


Attribute Disclosure

Sensitive information Disclosure

# MAYRA RUSSO BOTERO

 Valencia, Spain

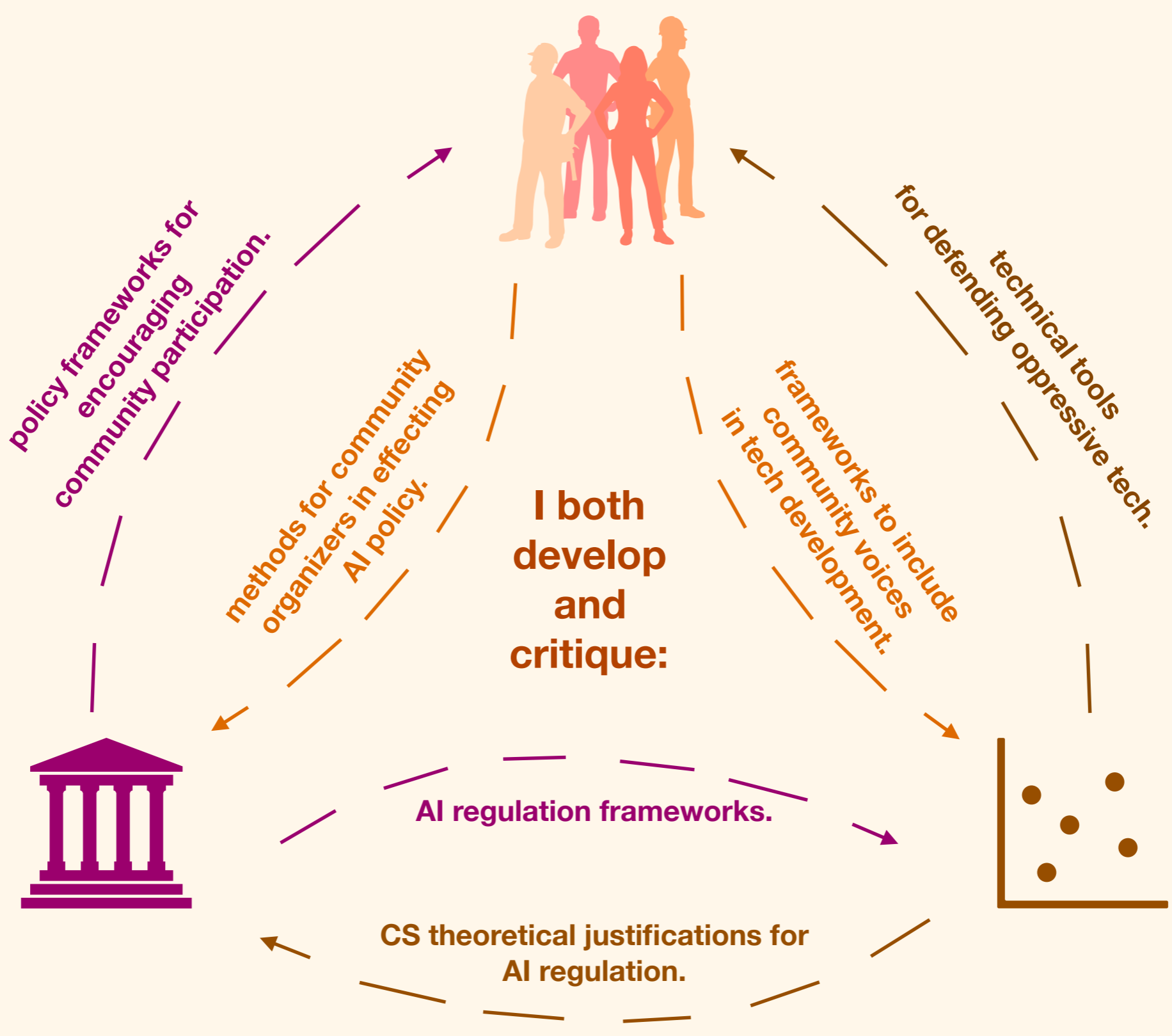
 University Of Valencia

 MSc. Data Science (on-going)  
BSc.Accounting and Finance (2010-2014)

 Project management (on hold!)

Currently completing Master's Thesis

 Research Topic: Algorithmic Bias;What is it and how to develop a sense of accountability in Data Scientists through FairML and Ethical decision making



# Language as a tool: A rational and Symbolic Approach

Sylvie Saget

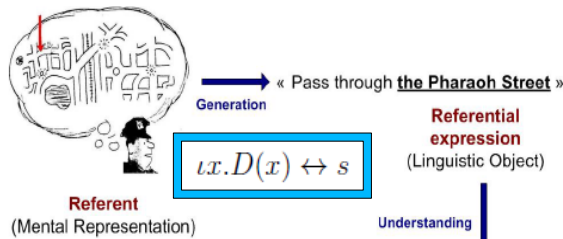
Centre for Linguistic Theory and Studies in Probability, Department of Philosophy, Linguistics and Theory of Science, University of Gothenburg.



## Language as a Tool

<b>Belief</b> $B_i(\phi)$	vs	<b>Acceptance</b> $Acc_i(\phi)$
truth-oriented $\phi$ is true	vs	goal-oriented $\phi$ is suitable for the success of a certain goal
↓		↓
involuntary gradual context-free	vs	voluntary all-or-nothing context-dependant

### Problem



Language as a tool:  
 $Acc(ix.D(x))$

BACKGROUND-2	PROCESS	BACKGROUND-1
$B_{Spkr}(D(s))$ $B_{Spkr}B_{Addr}(D(s))$ $CB_{Spkr,Addr}$ $ShB_{Spkr,Addr}$	Cooking up a tool	$Acc_{Spkr}(D(s))$
$Acc_{Spkr}(ix.D(x), s)$ $Acc_{Addr}(ix.D(x), s)$ $CollAcc_{Spkr,Addr}(ix.D(x), s)$	Reusing a tool	

BACKGROUND	THEORY
$B_{Spkr}(D(s))$ $B_{Spkr}B_{Addr}(D(s))$ $CG_{Spkr,Addr}$	Grice (Maxim of Quality) Audience Design Initial Design (Clark)
Pre-existing agreement $ReferBy(ix.D(x), s)$	Conceptual Pact Alignment

RATIONAL PROFILE
Type of Information : {FACTS}
Epistemic State : B,CG with $B_i(F)$ : $i$ believes that F is true and $CG = f(B)$ (shared/not shared) → evidence-based (perception, reasoning) → coherent epistemic state
Rational speaker : $Say_i(F) \Rightarrow B_i(F) + Accommodation$

#### Limitations:

- × Moore's Paradox
- × Mixing backgrounds
- × Reuse
- × Nature of alignment
- × Alignment properties

RATIONAL PROFILE
Type of Information : {FACTS, TOOLS}
Epistemic State : {B,Acc,CB,ShB,CollAcc} with $B_i(F)$ : $i$ believes that F is true with $Acc_i(T)$ : $i$ accepts to use T and $CG = \{CB,ShB,CollAcc\}$ → Acc is usage-based → One may accept something she believes to be false
Rational speaker : $Say_i(F) \Rightarrow Acc_i(F)$ as a linguistic tool

## Towards a cognitive architecture

- Epistemic state is information meta-container
- Explicit properties, cognitive balance and use-cases
- We have refashioned the distinction in term of kind of content

### Cognitive architecture: Starting point

- 2 basic types of memory

#### Belief Memory Box

- Type of content : Fact
- Data structure :  $\phi$ , concepts
- Shape by evidence
- Context-free / absolute

#### Acceptance Memory Box

- Type of Content : Tool
- Data structure : Type of Tool
  - Function
  - Manipulation
- Shape by action
- Context-dependant / embodied

- Involved differently at all level of a cognitive architecture

	Bel-Memory-Box	Acc-Memory-Box
Long-Term Memory	Declarative Memory	Procedural Memory
Working Memory	Theoretical reasoning	Practical Reasoning
Perception	Event and facts Perception	Movement Control
Verbalisation	Easy	Hard

## References

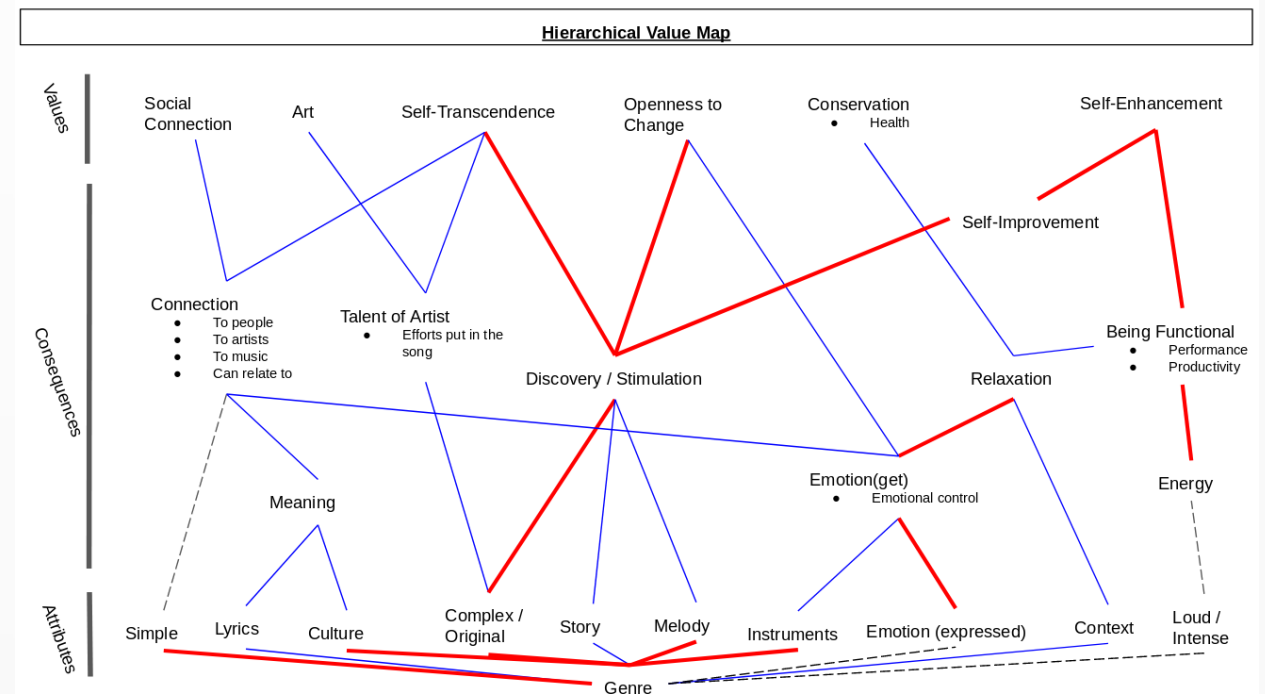
- Cohen, L. J. (1989). Belief and acceptance. *Mind*, 98(391), 367-389
- Paglieri, F. (2006). Belief dynamics: From formal models to cognitive architectures, and back again. PhD Thesis, University of Siena.
- Saget, S. and Guyomard, M. (2006). Goal-oriented dialog as a collaborative subordinated activity involving collective acceptance. In *Proceedings Brandial 2006*, p. 131-138, Potsdam, Germany.

# Sandy Manolios



## Personal value-aware music recommendations

- Understanding the connection between music taste and personal values
- Music recommendations that :
  - Support users' personal values





Lola Sarria

Filologist and Executive Master in Big Data & Analytics. Secretary at the County Council of Sevilla during the last 14 years.

"I see ICTs as critical tools to improve public policies"

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Linked to the public sector since the end of 2005, I have performed various administrative and communication tasks. During my last stage in local administration, my concern for new technologies and the potential impact of their application in public policies, has led me to train in disciplines such as Big Data & Analytics and digital transformation. In June 2019, I presented a draft for creating an Open Data County Agency. Last november I started a project to create a platform for controlling and monitorizing electrical consumption in middle sized/little municipalities.

# Avital Shulner Tal

Ph.D. student and research fellow,

Information Systems Department,  
University of Haifa, Israel.

**Contact:**

AvitalShulner@gmail.com

Affiliate Member at:



המרכז לחקר סייבר משפט ומדיניות  
THE CENTER FOR CYBER LAW & POLICY



DS-RC@UoH

**Research interests:**

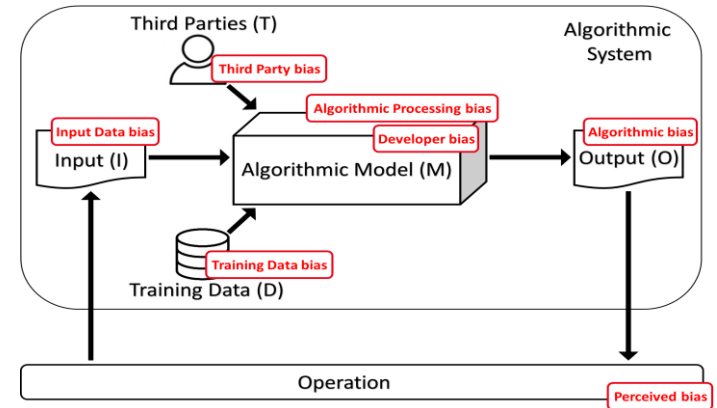
Algorithmic Transparency and Fairness.

## Algorithmic system components and potential biases

It is well known that users' perception plays an important role in technology acceptance. Recent research focusses mainly on formal verification of fairness and absence of biases. The perceived bias is related to the perception of the correlation between the input and the output of the system. Hence, objective ("formal") fairness is not enough. Systems should also be perceived to be fair by their users.

**Perceived fairness is a cornerstone of the overall fairness of a system.**

Systems that are considered to be fair should combine "formal" fairness verification methods with methods for enhancing the perception of their fairness by their users.



**RQ: How to integrate the concept of perceived fairness into an overall fairness and transparency verification framework of algorithmic systems?**

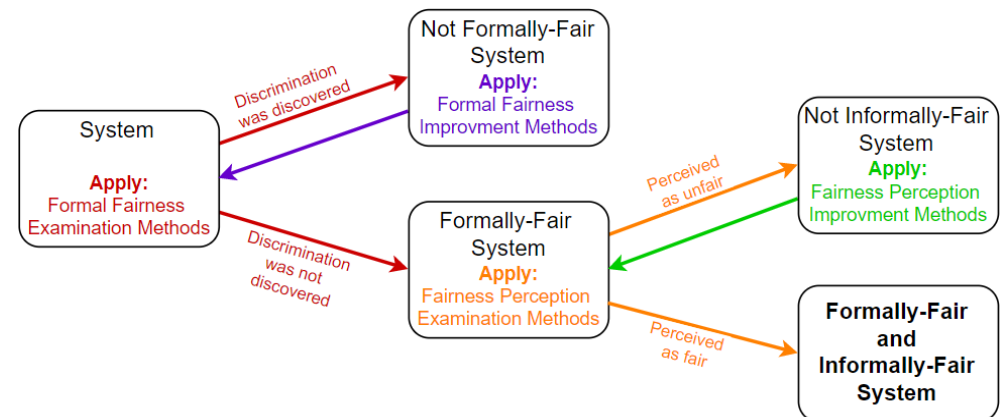
- Goal 1.** Examination of the fairness perception of (formally fair) algorithmic systems (e.g. what factors, from both system and human perspective, affect the fairness perception of the users and how it can be measured).
- Goal 2.** Creation and demonstration of a holistic framework for ensuring the overall fairness of an algorithmic system.
- Goal 3.** Providing practical guidelines for ensuring the creation of fair systems and fixing them.

## Fairness Verification Pipeline

Our goal is to produce formally fair systems that are also perceived to be fair. A fair system that is not perceived as fair, is unlikely to be widely adopted (unjustly). Formal fairness is a pre-requisite to avoid deceptive practices.

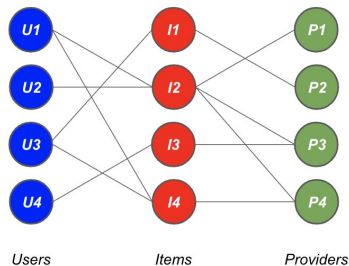
The research will apply a design based research (DBR) approach. Prototypes will be developed and evaluated in users studies and surveys.

Ongoing user study questionnaire: [https://haifasocialsciences.eu.qualtrics.com/jfe/form/SV\\_OdodXlwT7pNf8wZ](https://haifasocialsciences.eu.qualtrics.com/jfe/form/SV_OdodXlwT7pNf8wZ)



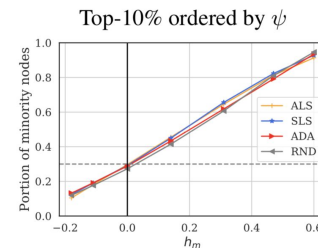
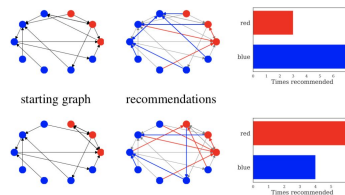
## Motivation

“in recommender systems we are dealing with unequals who should be treated unequally and the real question is how and in what ways is it appropriate to treat them unequally.”



## The Effect of Homophily on Disparate Visibility of Minorities in People RecSys [under review]

In graphs with homophilic minority, there is a disparate visibility in favor of the minority class.

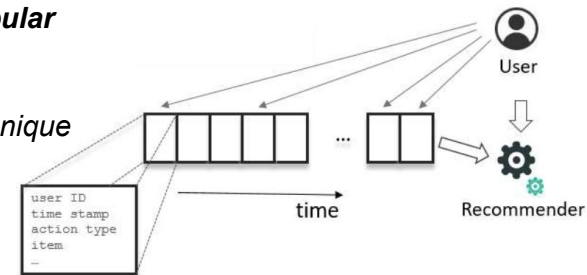


## Research Gap

- **Fairness & Recsys** contributions mainly focus on **user-item** interaction.
- No contributions around discrimination consequences stimulated by recommendations in social network.
- Really little work in sequence-aware recsys, considering providers unfairness.

## Bias Analysis in Session-based RecSys [ongoing work]

- *State-of-the-art algorithms proved to discriminate **small-sized popular providers***
- *Design of new mitigation technique able to account for providers unfairness.*





# Natural Language Processing

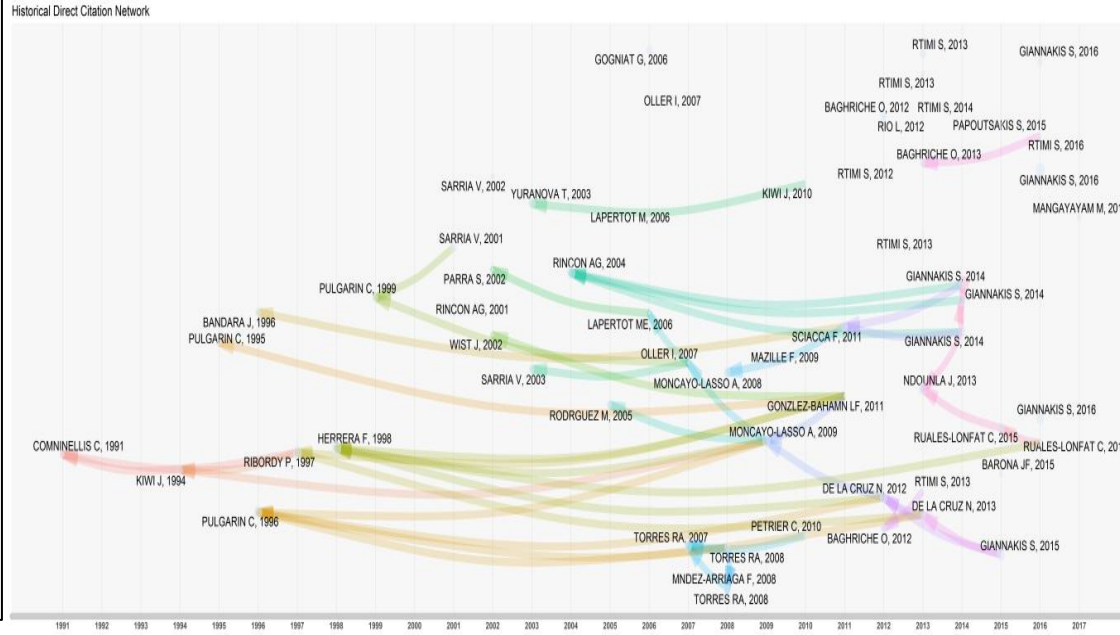
- keyword extraction
- topic modelling
- networks

# Stochastic modelling & Optimisation

# Connected & Automated Vehicles



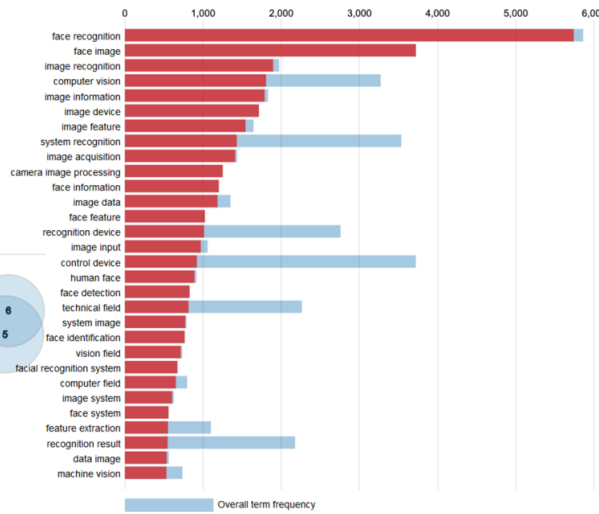
# Sofia Samoili, Research Fellow JRC



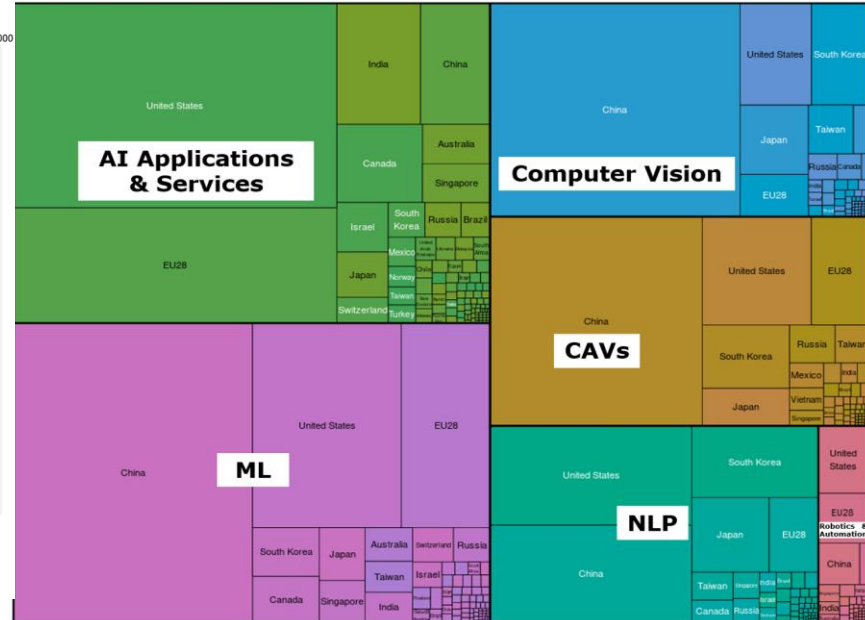
Intertopic Distance Map (via multidimensional scaling)



Top-30 Most Relevant Terms for Topic 2 (19.3% of tokens)



1. saliency(term w) = frequency(w) \* [sum\_t p(t | w) \* log(p(t | w)/p(t))] for topics t, see Chuang et. al (2012)  
 2. relevance(term w | topic t) = λ \* p(w | t) + (1 - λ) \* p(w | T)p(w), see Sievert & Shirley (2014)



**What  
interesting me?**

**Personal data**

**Data**

**Cybersecurity**

**Technical  
aspects**

**ANNA  
WYSZECKA**

**Data  
Protection  
Officer Office**

**Financial  
Institution**

**Phd  
Candidate**

**[linkedin.com/in/anna-  
wyszecka-16b91318a](https://www.linkedin.com/in/anna-wyszecka-16b91318a)**

**E-MAIL:**

**ANNAWYSZECKA@GMAIL.COM**



# Roman Bieda

**MARUTA** \

Attorney-at-law and patent attorney



Centre for Legal Issues in Technology and New Technologies

Digital Chair of Ethics and Law



Supervisor and lecturer

Postgraduate program IT Law

KOZMINSKI UNIVERSITY



Ministry  
of Digital Affairs

Artificial Intelligence Working Group

'Assumptions behind AI strategy in

## PhD Candidate

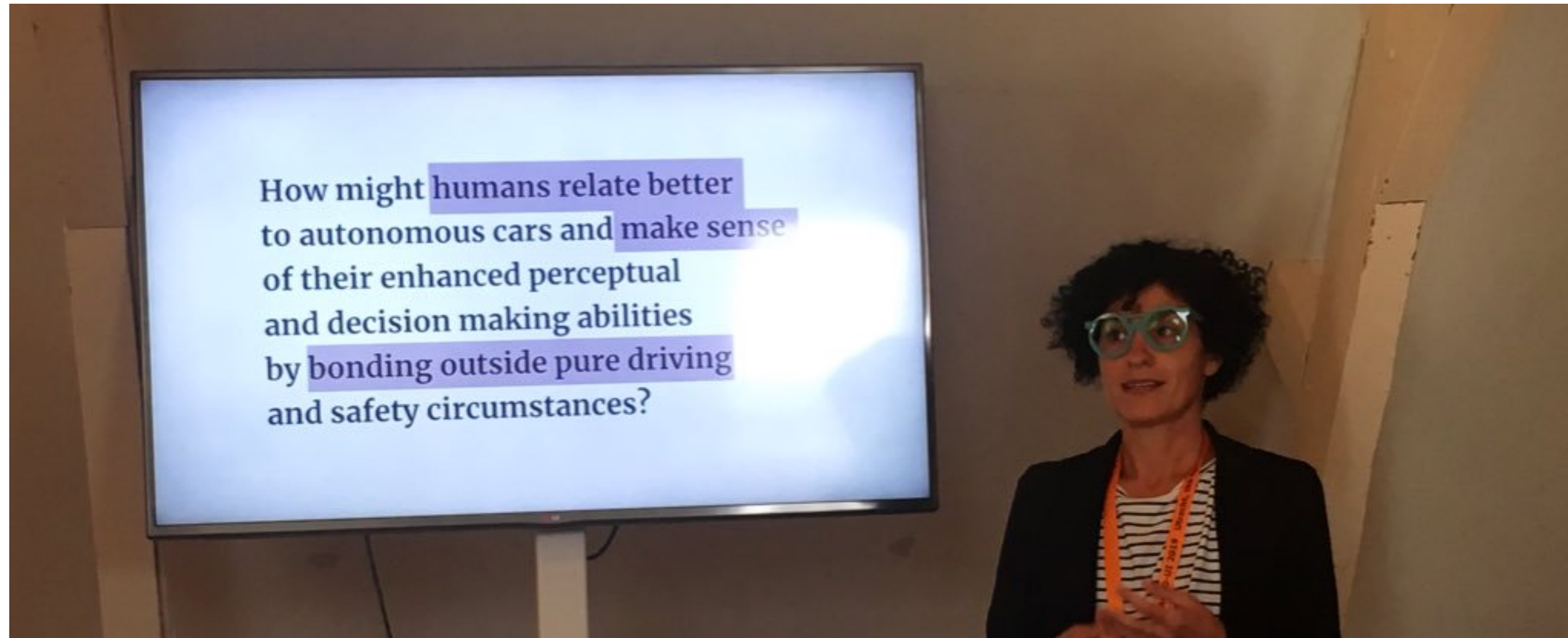
The Institute of Law Studies of the  
Polish Academy of Sciences

AGREEMENTS FOR THE PURPOSES  
OF USING A DATABASE

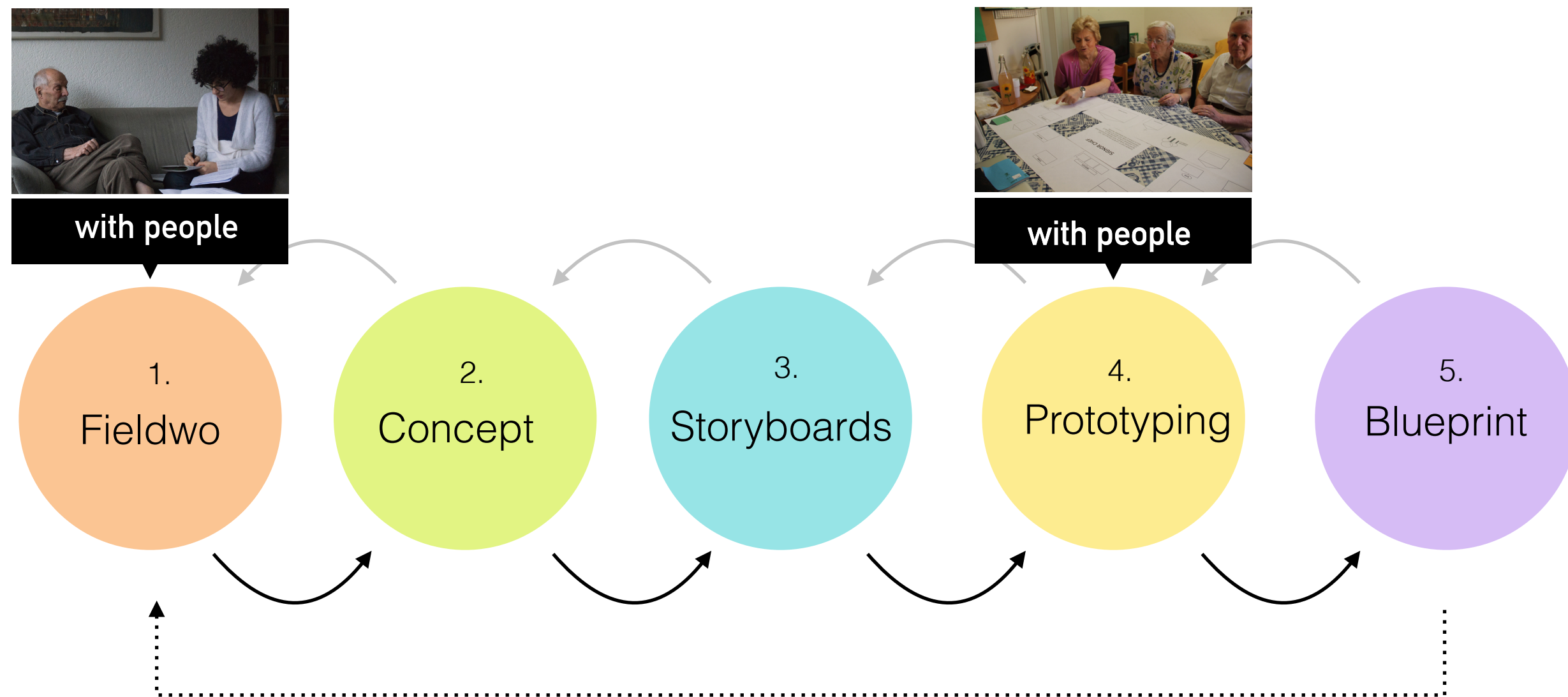


[www.linkedin.com/in/roman-bieda-219a79/](https://www.linkedin.com/in/roman-bieda-219a79/)

# Hi! I am Laura Boffi, interaction & service designer from Italy



## People centred design process



## Co-Drive / PhD research



Elderly participants



Iterative concept



Quick & dirty / Low fidelity prototyping

MIGUEL MOLINA-SOLANA

PhD in Computer Science



[miguelmolina.me](http://miguelmolina.me)



[miguelmolina@ugr.es](mailto:miguelmolina@ugr.es)

**Currently:** Marie Curie Fellow @ Universidad de Granada (Spain)

**Before:** Marie Curie Fellow @ Imperial College London (UK)

**Working on**

Smart automation of energy control in buildings with Deep Learning techniques

**Interested in**

- Reliable AI results
- Trust in AI algorithms
- Human Centric ML



UNIVERSIDAD  
DE GRANADA



# Hello, I am Chiara Casser!

- **CONTACT:** chiara.casser@bmas.bund.de
- **STUDIES:** Law @ Humboldt University Berlin with focus on (Int.) Criminal Law and Anti-discrimination law
- **PREVIOUS WORK:** Research Services of the German Parliament, Berlin Data Protection Authority, European Center for Constitutional and Human Rights
- **CURRENT WORK:** German Federal Ministry of Work and Social Affairs
  - Policy Lab Digital Working Society in Berlin
  - „AI Observatory“ and employee data protection

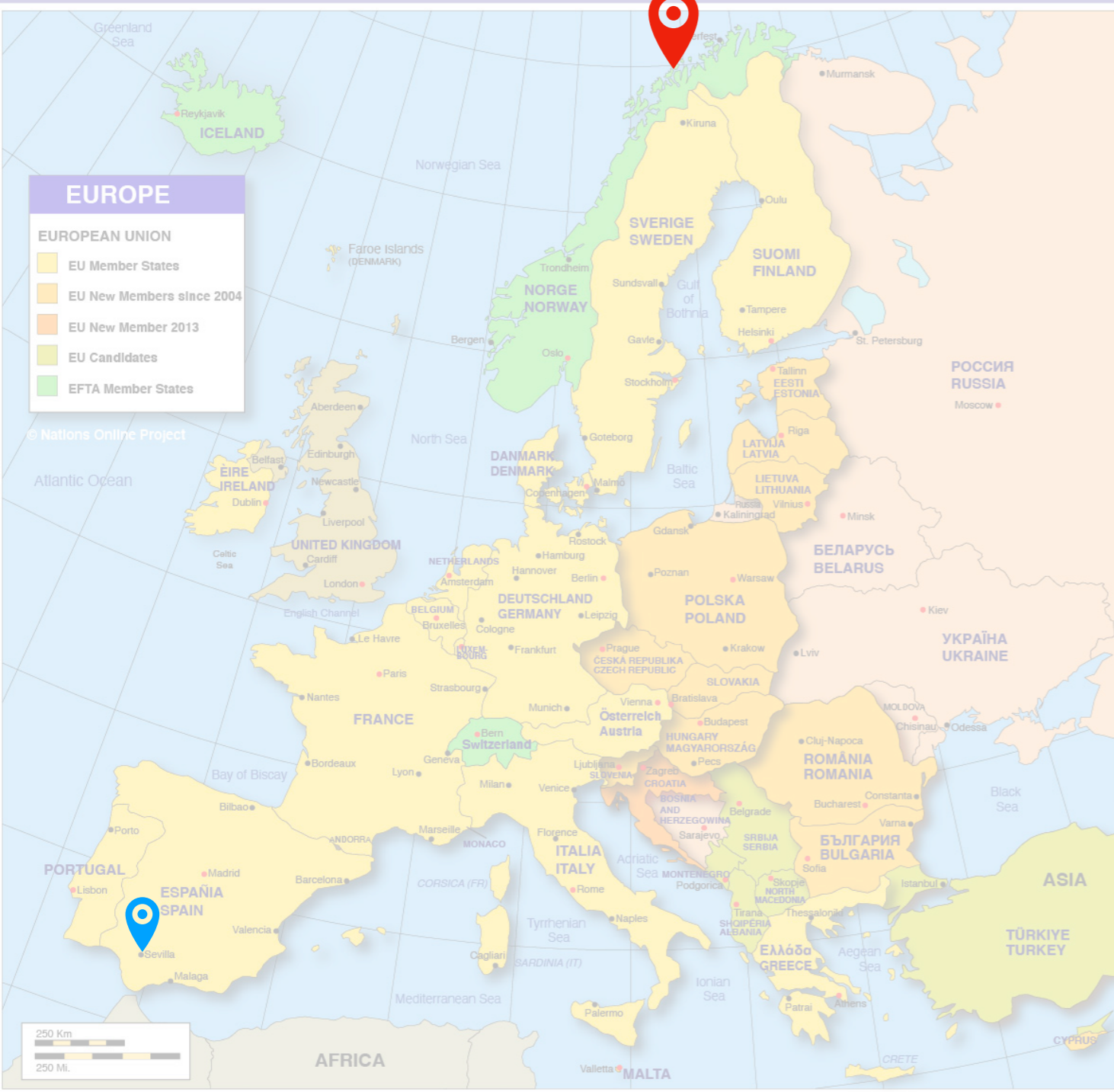
Jessica

De Jesus de Pinho Pinhal

PhD Student & Research Associate  
Technische Universität Berlin

THE BERLIN ETHICS LAB

for Responsible AI and Human Machine Interaction  
(PhD & Post-Doc Club of the Berlin Ethics Lab)



# Goal: Privacy-preserving Analytics

- Nutrition
- Sports
- Healthcare

## Ongoing work examples

1. Privacy perception in Dietary Assessment
2. Secondary (privacy) leaks in social media using Machine Learning (ML)
3. Assessing privacy leaks in studies

**Aakash Sharma**

**Ph.D. (UiT - The Arctic University of Norway)**

**M.S. (TU Darmstadt, Germany)**



**VICKY CHARISI**



**Child Development  
Human-Robot Interaction**

**Developmental  
Psychology**

**Interaction  
Design**

**Robot Design  
Cognitive  
Architectures**

**User-centred  
Evaluation**

**Real-life Future  
Scenarios**



Joint Research Centre  
HUMAINT



<https://vickycharisi.wordpress.com>

# Songül Tolan



Background: Public/Labour/Empirical Economics

Research areas:

- The impact of AI on the labour market
  - Which occupations are, in what way, affected by AI?
- Labour supply of AI skills on online labour markets (OLMs)
  - How much bargaining power do workers with AI skills have on OLMs?
- Fairness in automated decision making
  - How and where does discrimination creep into automated decision making systems?
- Data-driven policy making
  - Can AI improve targeted policy making?

# Marius Miron

## Joint Research Centre

[mariusmiron.com](http://mariusmiron.com)

PhD in Computer Science, 2018

Audio signal processing

Deep learning

Fairness in machine learning

Explainable machine learning

Recidivism prediction



SAVRY sum



Expert



Final expert evaluation



Outcome



Features



Machine learning model



Prediction



Outcome

