



Universitat Oberta
de Catalunya

Some successful and unsuccessful stories

uoc.edu

Analytics for Teachers, Students and University Staff

Jordi Conesa i Caralt

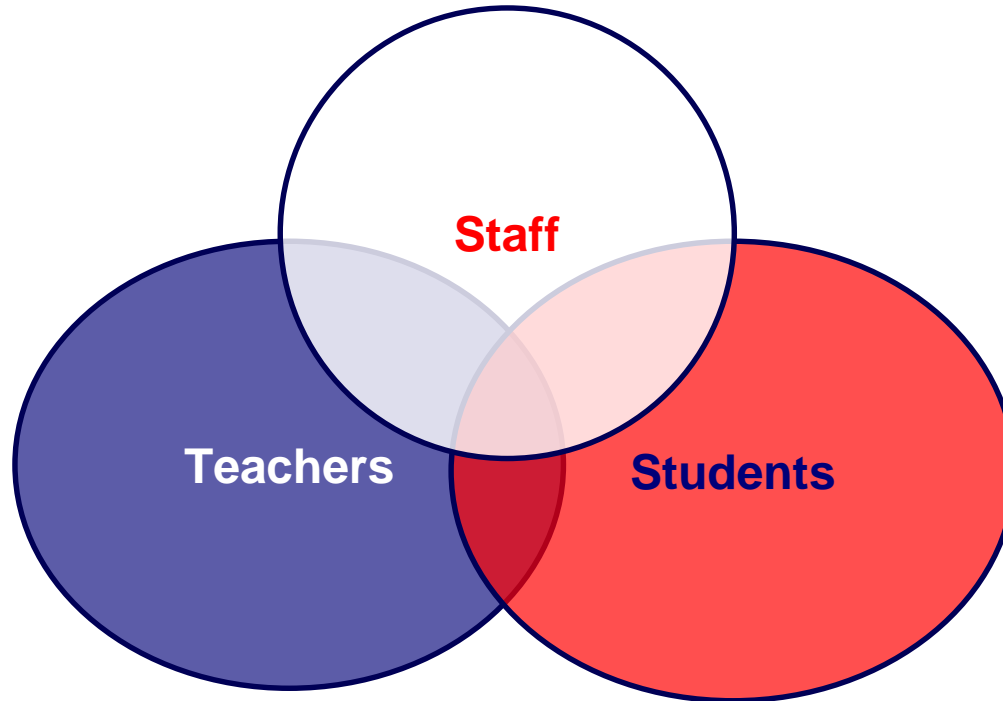
The UOC: A paradise for data scientists ...



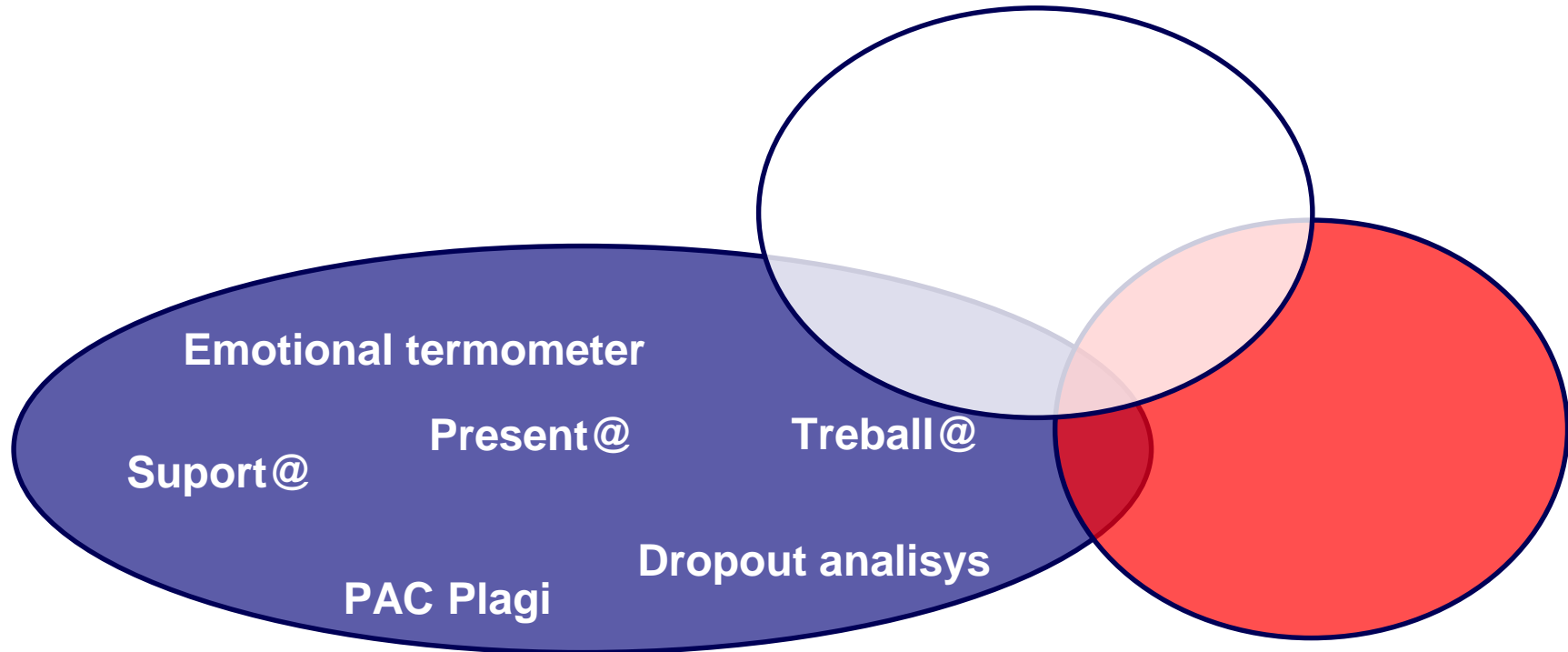
... but also a hell for data scientists



00.1 What are the main agents affected by Analytics?



00.1 Some analytic systems focused on Teachers



00.1 Emotional Thermometer

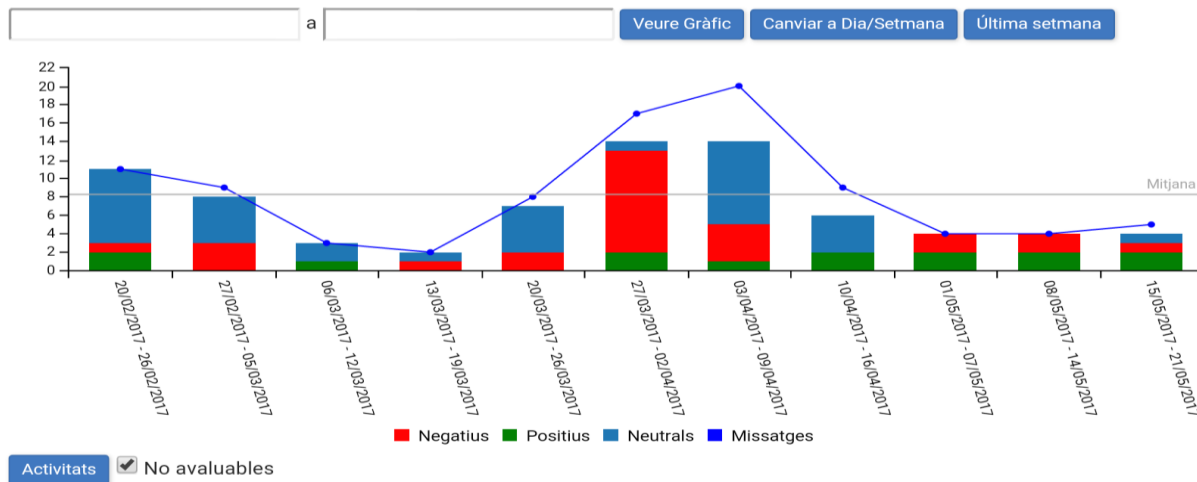


mpousada@uoc.edu

Goal: To determine the emotional climate of the classroom from the students messages.

Developed at 2016. Now testing

- Using machine learning techniques to find out polarity of messages
- Learning continuously



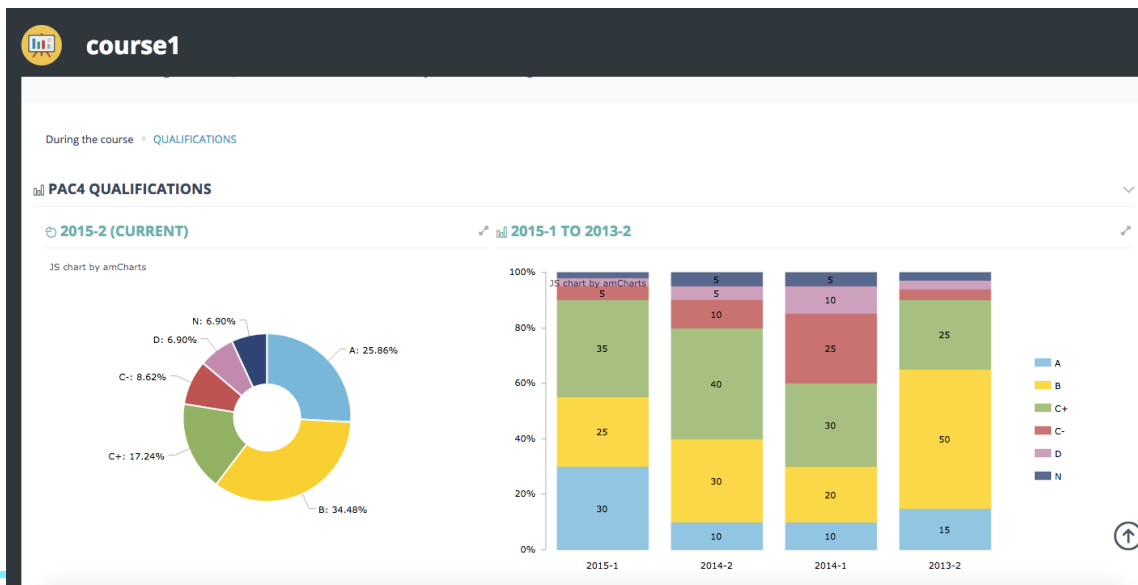
00.1 Suport@

Goal: To provide a dashboard to monitor how teaching is going

Testing in October



iconesac@uoc.edu



<http://goo.gl/VE93xF>

00.1 Treball@

Goal: Are our academic programs providing useful and updated professional knowledge?

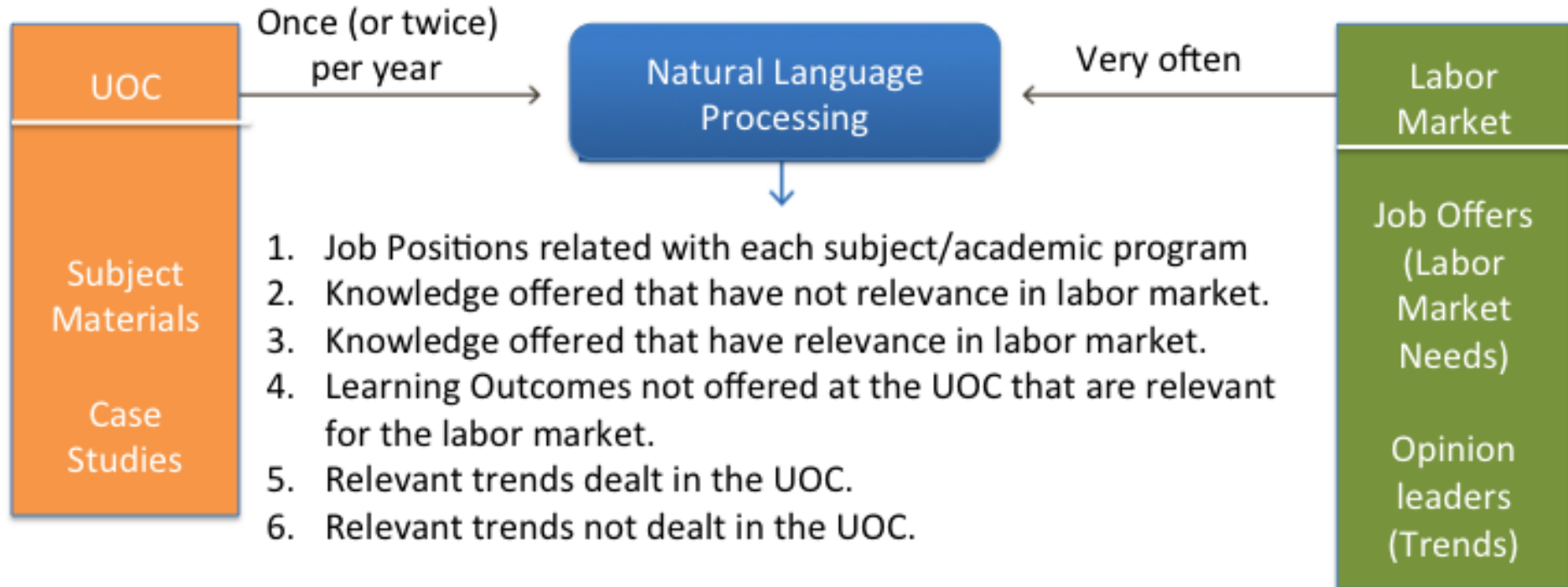
2014 – still testing

Analytical tool addressed to the academic staff of the UOC to evaluate the alignment between their academic offer (subjects, degrees, masters, etc) with the new trends and labor market needs.



jconesac@uoc.edu

00.1 Treball@

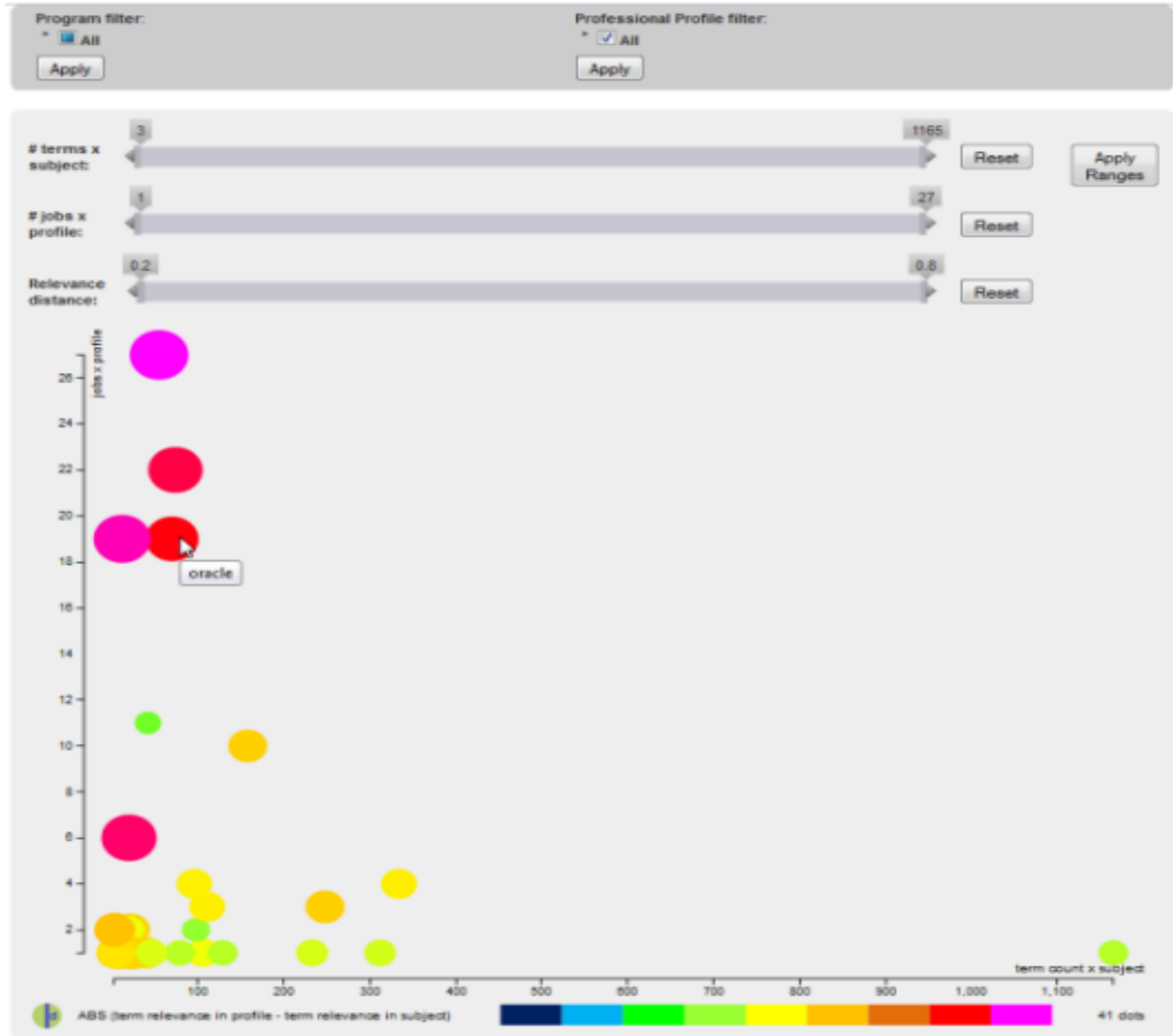


00.1 Treball@

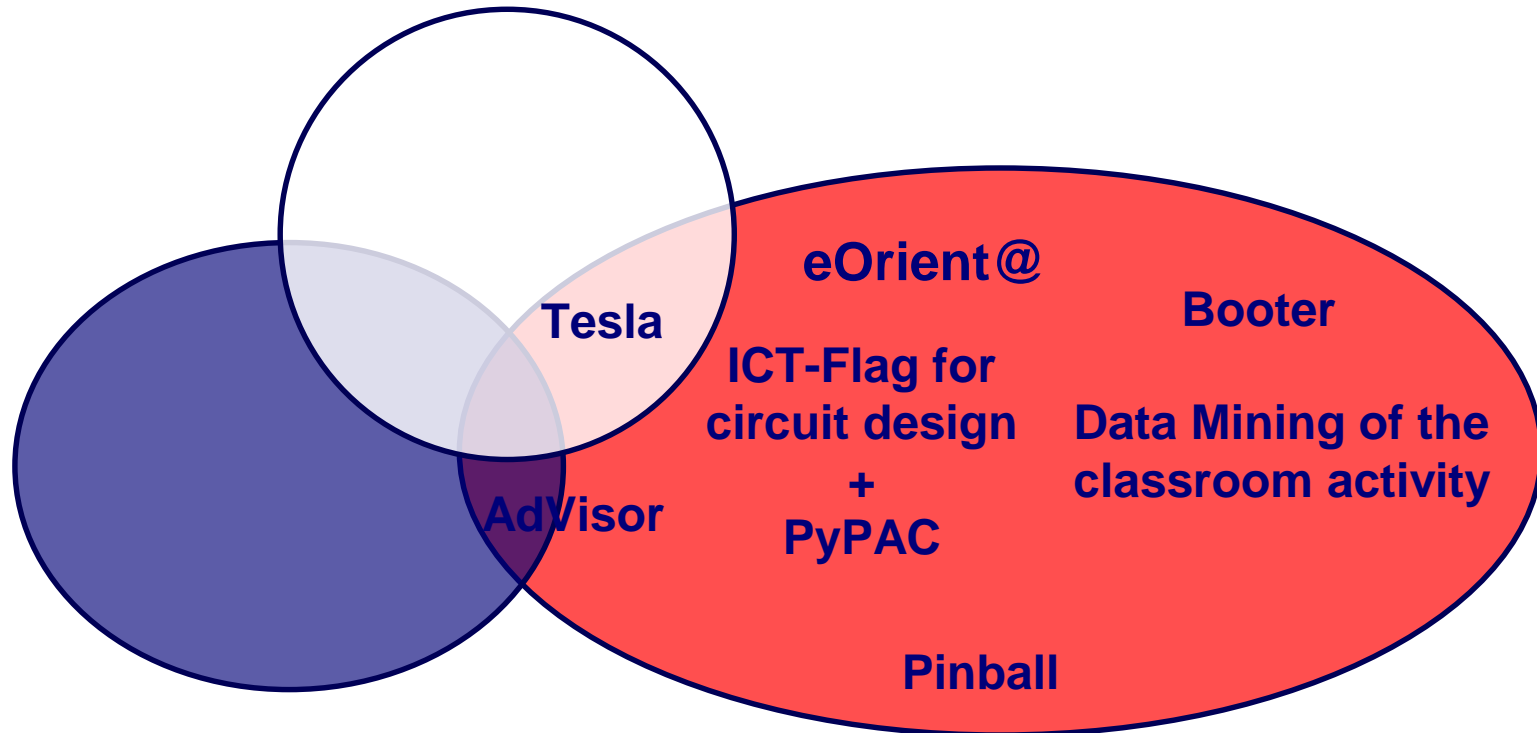


1. Select the academic offer to analyze
2. See the information resultant from the analysis (job positions for example)
3. See how the related information distributes geographically

- Business Intelligence
- Diseño Web: usuarios interfaces y móviles
- Diseño y programación de videojuegos
- Empresa social
- Empreses turístiques
- Gestió de destinacions turístiques OMT
- Gestió econòmica
- Logística i operacions
- MBAs i Programes Directius
- Màrqueting i comunicació
- Posgrado en Interacción persona ordenador
- Recursos humans
- Sistemes d'informació geogràfica



00.1 Some analytic systems focused on Students



00.1 TeSLA

Goal: To perform final exams/assessments virtually

2015 – Still developing and testing



aguerrero@uoc.edu

- A platform that verifies the identity of students and prevents from illegitimate behaviors, using
 1. Facial recognition,
 2. Voice recognition,
 3. Patterns of keystrokes,
 4. Anti-plagiarism systems
- More information in slides of 1st leadership school (<https://goo.gl/FFJqe6>)



Funded by the H2020
Framework Programme
of the European Union

00.1 eOrient@

Goal: To help students to choose the more suitable academic programs to achieve their professional goals

2015 – In stand by

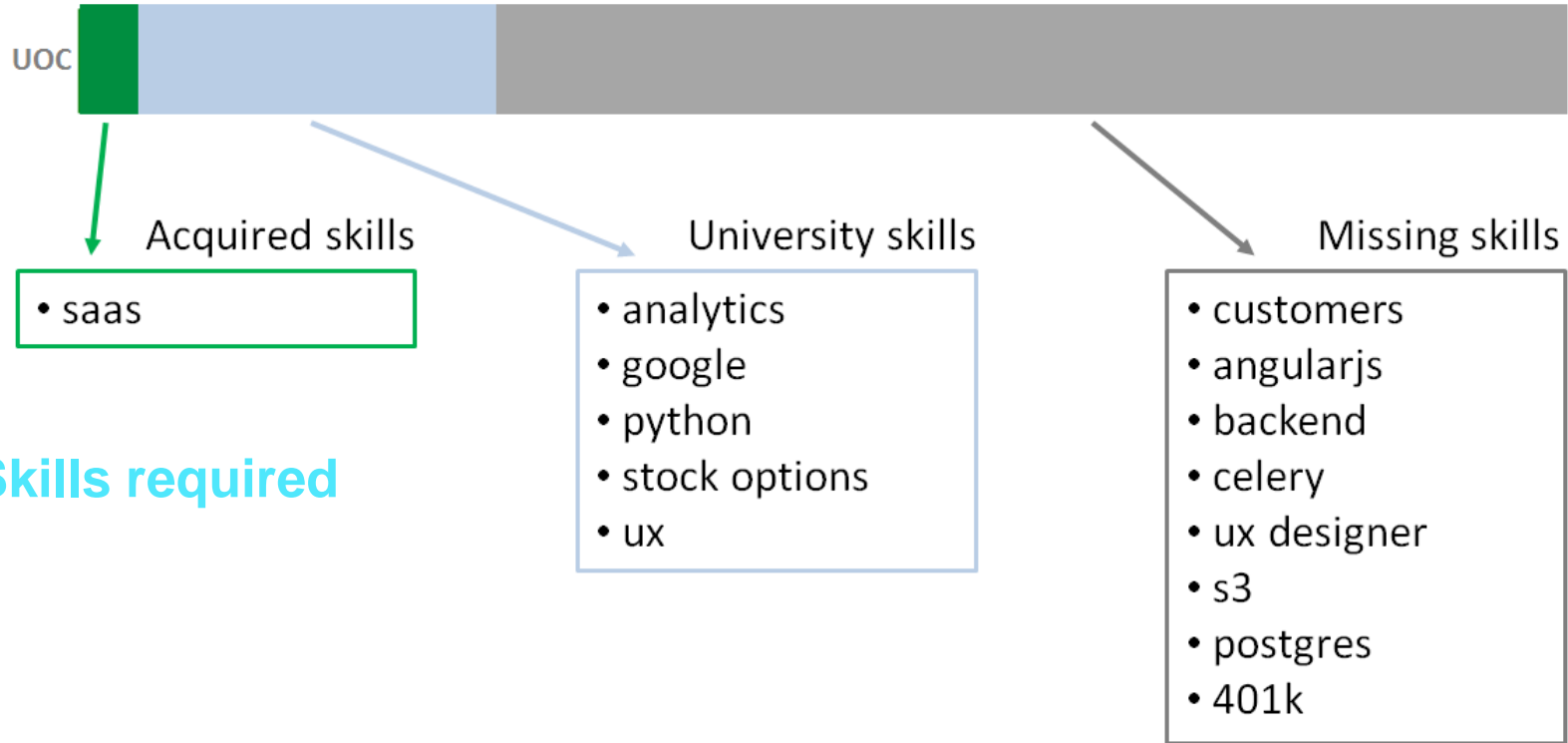
- Addressed to solve the following questions:
 1. Is my professional knowledge outdated?
 2. Do I have the skills needed for the new challenges of the society?
 3. What knowledge do I lack to qualify for a job I like?
 4. What universities can I address to get knowledge that improves my employment expectations?



dbaneres@uoc.edu

A User Experience (Ux) job offer is selected

UX (User Experience) Designer



What courses can provide the required skills for Ux

Postgraduate in Computer User Interaction

■ Completed courses ■ Not completed courses

UX



Postgraduate in Business Intelligence

■ Completed courses ■ Not completed courses

analytics



saas



Postgraduate in Videogames: Design and Programming

■ Completed courses ■ Not completed courses

python



00.1 Booter

Goal: To use a robot as an interface to support students in their learning experiences and management

2016 – still developing

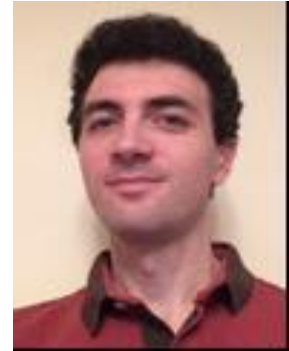


bgomezz@uoc.edu

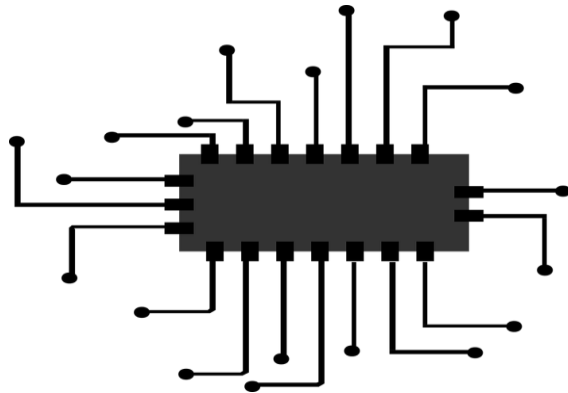
00.1 ICT Flag for circuit design + PayPAC

Goal: To engage students and promote the realization of practical exercises in circuit design

2015 – still living



dbaneres@uoc.edu



VHDL:
X1 <= A1 nand A2;

A1	A2	X1
0	0	1
0	1	1
1	0	1
1	1	0

Recent activity

No recent activity. Ready for a new exercise?

Suggestions

Your classmates are working on KeMap. Why don't you try another exercise?

Report date

2017/05/18

Your performance

9 TOTAL SUBMISSIONS



% RELATIVE TO THE MEDIAN OF ALL STUDENTS

6 %

4 TOTAL EXERCISES



% RELATIVE TO THE MEDIAN OF ALL STUDENTS

6 %

2 COMPLETED EXERCISES



% RELATIVE TO THE MEDIAN OF ALL STUDENTS

3 %

Global progress

This bar shows the number of solved exercises by the group, and the levels achieved.



Hola David Bañeres Besora, el saldo disponible és 21 ★

Beneficis disponibles

Representació de la informació

Circuits combinacionals

Circuits seqüencials

Estructura bàsica d'un computador

Avaluació continuada

Examen

EX + 0,5p

+0,5p

Descripció ⓘ

★ 224 (Disponibles: 3)

Adquirir

EX + 1p

+1p

Descripció ⓘ

★ 224 (Disponibles: 0)

EX - 1ACT



Descripció ⓘ

★ 336 (Disponibles: 11)

Adquirir

EX Virtual



Descripció ⓘ

★ 448 (Disponibles: 9)

Adquirir

00.1 Pinball



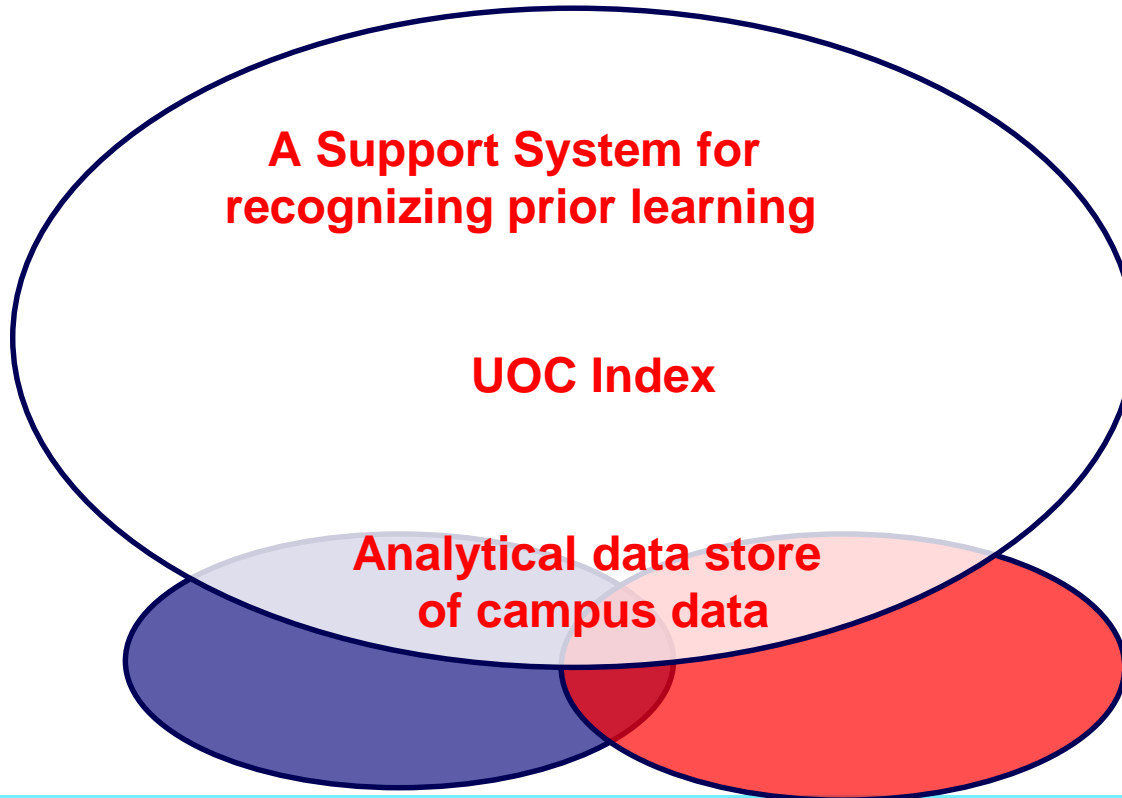
dbaneres@uoc.edu

Goal: To inform the student what are the probabilities of passing the subject according to their current deployment

2016 – still deploying



00.1 Some example of analytics focused on staff



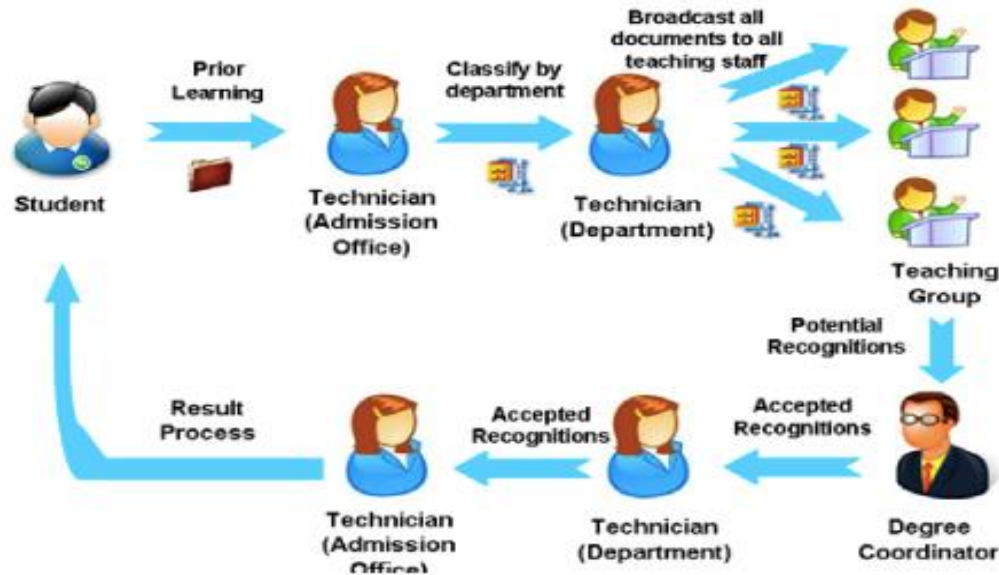
00.1 A Support System for recognizing prior learning

Goal: To find out the potential equivalences between previous learning of students for each subject

2012 – 2014



mjunyent@uoc.edu



00.1 Analytical data store of campus data (the DataMart)

Goal: To provide all the data relevant to the analytical processes from an analytical data store.

2012 – still living



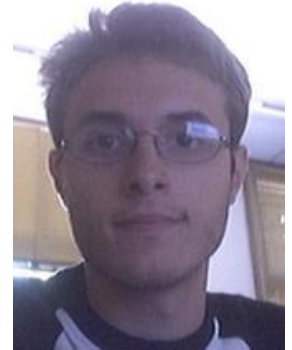
jminguillona@uoc.edu

- To provide an analytical data store to support learning analytics.
- Big data approach, both for size, heterogeneity and velocity.
- Data is stored locally.
- It has been used mainly for dropout analysis.
- It is being repurposed from a service point of view and support broader data → DataLab
- New projects are being developed: Suport@, pinball, emotional thermometer, etc.

00.1 UOC Index

Goal: To provide an API that facilitates accessing the analytical data of the virtual campus at different aggregation levels.

2015 – still living

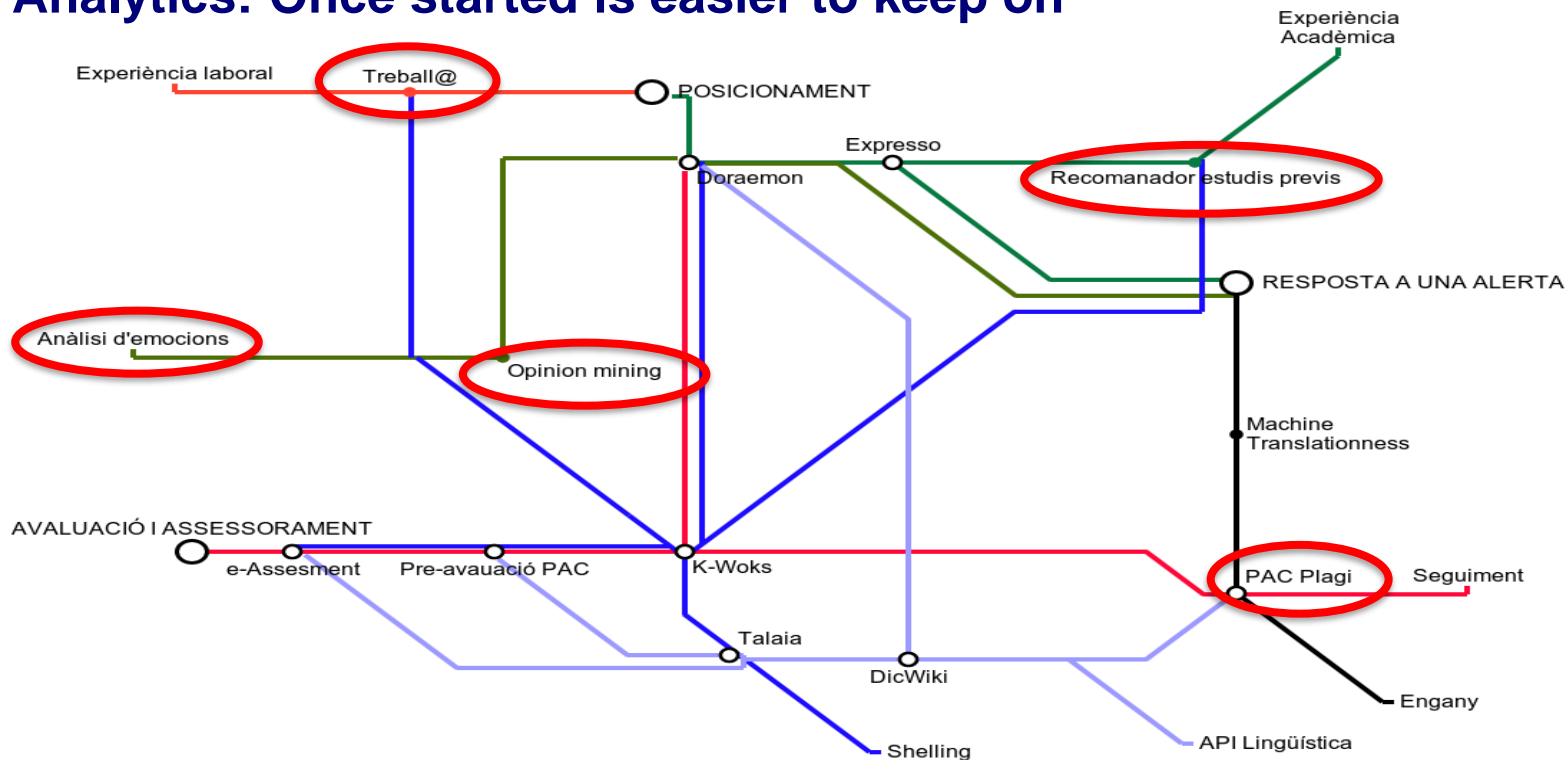


dgarciaso@uoc.edu

- Define a set of indicators that are generic and can be provided at different abstraction levels (classroom, subject, academic program).
- The indicators can be accessed from an API REST

$$Influence_{en} = \frac{messages_fwd(n,e) + messages_reply(n,e)}{\max_{\forall i \in Students_n} (messages_fwd(n,i)) + \max_{\forall i \in Students_n} (messages_reply(n,i))} * 100$$

00.1 Analytics: Once started is easier to keep on



Conclusions

- Data is there and can help us in any way we imagine
- Right use of data can support learning, but also teaching and managing
- The difficulty is not only in creating analytic systems, but on implanting them in real environments
 - In fact, according to data, it is more difficult ;)
- In future, we plan to be creative to promote implantation of developed projects in real environment, by
 - doing thorough analysis of the impact of the developed systems,
 - Involving more people in the validation of the tools, creating communities of interest,
 - Sharing more effectively projects done and results obtained

Let's evolve our information systems
to facilitate tasks that can be
automated in order to allow us to
focus in doing tasks of added value



jconesac@uoc.edu
