A case study of one of the most successful programs designed by a higher education institution to promote employability among students living with disability

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Agenda

- Specific challenges and opportunities for accessible and assistive ICT solutions
- Italian disability laws and regulations for Academia
- MultiChancePoliTeam: existing ICT assistive services and applications
- Results on employability
- Advanced applied research on assistive ICT
Academia for adult life, employment and social responsibility

- Adult life and the … “professional self”
  - The importance of becoming an expert to exercise specific responsibilities in different social contexts.
  - Different professional profiles: scientific versus humanistic ones

- The Campus is a small but complex and significant social context
  - Where people study, teach, work, cooperate, communicate, research
  - Many persons cooperate with different abilities and disabilities.
  - Everybody can experience autonomous and cooperative dimensions possibly supported by innovative strategies
Academia for adult life, employment and social responsibility

- **Academia is a “special land” which allows protected but strategic relationships between:**
  - Learning and professional environments (i.e. schools / enterprises)
  - Social and cultural dimensions
  - Private and public contexts, governmental and non-governmental partners

- **The applied research can promote**
  - ICT accessibility and innovation
  - The analysis of the real impact of ICT and AT and better evaluation of their efficiency
  - The harmony between human and technological strategies
  - A ‘daily’ confidence with ICT and Assistive Technology
At Politecnico di Milano – In Italy

- At Politecnico di Milano: **MultiChancePoliTeam** is the group of specialists which guarantees services to students with disabilities ([www.polimi.it/disabilita](http://www.polimi.it/disabilita))

- In Italy:
  - A **special Law** (number 17/99) guarantees financial supports to organize special services to make the academic life more and more accessible.
  - **Each university receives funds** in relationships to the number of students with disability, the special projects which support them in studying and facing the first employment experiences.
  - **CNUDD groups the Dean’s Delegate for Disability** of each university allowing them coordination, global policies and exchange of innovative strategies.
Special Services: The MultiChancePoliTeam

The MultiChancePoliTeam guarantees services to the students with disability:

- A psycho-educational counseling
- University attendance support (admission test, tutoring, personalized examinations, accessibility to the campus, administrative, accommodation and studying supports)
- Teaching aids: conditions specifically suited to maximize the benefit of classroom and laboratory work by means of personalized and innovative technological teaching aids (Text To Speech & Automatic Speech Recognition technologies)
Special Services: The MultiChancePoliTeam

- The MultiChancePoliTeam guarantees services to the students with disability:
  - Technological aids (HW and SW solutions for personal needs)
  - The Wireless Campus allows a personalized fruition of classrooms and laboratory activities, Internet and local services, ....
  - Distance Learning (only when strictly needed)
  - International mobility
Special Services
Multimodal fruition of lectures

- Recording and converting lectures
- Allowing multimodal cooperation

- Creating guide-lines for teachers (to improve multimodal materials and lectures)
- Handling distance learning
Special Services
Natural Language Processing for Dyslexia

- To study a foreign language
- To prepare and use accessible versions of admission tests
- To face language complexity

\[ I_G = 89 - 10 \cdot \frac{N_L}{N_P} + 300 \cdot \frac{N_F}{N_P} \]

\[ I_{READ} = a \cdot I_G + b \cdot I_C + c \cdot I_T \]
Results

- Students with disabilities with technical degrees from Politecnico di Milano: **0% unemployment rate** over 7 years
- **First year** of employment **supported by the University** with government funds
- All students, once they have experienced **good assistive technologies keep using it** for their private and professional lives
- Programs help **employers better adapt the work environment** to persons with disabilities
Advanced Applied Research: UBICAMPUS and wireless technology

- To navigate and explore the wireless campus
- To reach a complete accessibility of global and local information (often daily changing)
- To communicate with the other protagonists of the academic life
- To handle emergencies
- To be localized
- To obtain personalized services based on a specific profile
The 4Wheels Project

- To navigate and explore the wireless campus using low cost mobile devices
- To use the joystick of the wheelchair for moving and for interacting with the PC and the environment
- To use an advanced domotic SW infrastructure
- To obtained personalized services based on a specific profile
The LURCH Project (BCI at AIR Lab)

Stimulation
EBNeuro Galileo EEG system

Recognition
Feedback for ErrP
Movement Command

Selezione stanza
Cucina  Sala
Camera  Bagno

Stimulation
EBNeuro Galileo EEG system
Feedback for ErrP
Movement Command

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The Predictive BCI Speller
AIR Lab and arcslab

- To improve communication using NLP prediction
- To study attention and multimodal perception
The ATONOMA-MENTE Project

Independent Living
- Multimodal Communication
- Domotics and Automation
- Personal Assistance
- Emergency Handling

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The LAMUSA Project

arcslab – esagramma

- Virtual Environments, Multimodal Communication and Artistic Production for kids and adults with Mental Retardation and Autism
A Symphonic Model for adult life!
“Digital Accessibility Index for Persons with Disability”

“Toolkit for Policy Makers”