Politecnico di Milano

PhD in
Information Technology

Research Area n. 1 - Computer Science and Engineering

Research Title: ART: a framework to support development of Mixed Reality services and applications for interaction-intensive environments

<table>
<thead>
<tr>
<th>Scholarships and Financial support</th>
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| Monthly net income of PhD scholarship (max 36 months) | € 1400  
(In case of a change of the welfare rates during the three-year period, the amount could be slightly modified) |
| Increase in the scholarship for stays abroad | € 566,36 per month, for up to 18 months |
| Number of scholarships | 1 |
| Beginning of PhD | 2 November 2020 |
| Deadline for application | 3 September 2020 |

Context of the research activity

Motivations and objectives of the research in this field
A Mixed Reality (MR) environment can be everything that integrates physical and digital interactive materials. MR involves multiple interaction modes (touch, gestures, manipulation, natural language) and exploits a gamut of technologies ranging from Multimedia to IoT, AI, and Computer Graphics. This PhD will develop an innovative methodological and technological framework to support the design and development of interaction intensive Mixed Reality (MR) environments that offer the “right” interaction affordances and contents to users, allowing them to experience a reality-virtuality mix in a natural and effective way.
<table>
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<tr>
<th>Methods and techniques that will be developed and used to carry out the research</th>
<th>From a technological perspective, the work exploits commercial AR/MR devices (e.g., Microsoft HoloLens). From a methodological perspective, the research benefits from the strong collaboration with therapeutic partners, exploiting a “participatory” design approach and involving therapists and persons with disability in the application design process.</th>
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<tbody>
<tr>
<td>Educational objectives</td>
<td>To develop: technical and methodological skills to master the complexity of AR/MR technology; competences to design and implement advanced AR/MR applications; management skills in complex ICT projects; entrepreneurial skills (thanks to the activities supported by EIT Digital)</td>
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<td>Job opportunities</td>
<td>With the decreasing cost of devices, AR/MR applications are raising an increasing interest in research and industry contexts. The competences and skills developed in this PhD opens up highly qualified job opportunities at national and international level, in academic and industrial research contexts as well as in enterprise environments.</td>
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</table>
| Composition of the research group | Number of Associate Professors: 1  
Number of Assistant Professors: 2  
Number of PhD students: 5  
Number of contracted researchers: 4  
https://i3lab.polimi.it/ |
| Names of the research directors | Franca Garzotto |
| Contacts | franca.garzotto@polimi.it  
+39 02 2399 3505 (3623)  
http://www.garzotto.i3lab.me/  
http://www.deib.polimi.it/ita/personale/dettagli/61018 |
| List of Universities, Companies, Agencies and/or National or International Institutions that are cooperating in the research | 1. EIT Digital (European Institute of Innovation and Technology)  
2. TIM  
3. Technical University of Berlin |
| Additional support |  
**Educational activities** (purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences): financial aid per PhD student per year  
2nd year: max 1534,00 euro per student  
3rd year: max 1534,00 euro per student |
| Teaching assistanship: availability of funding in recognition of supporting teaching activities by the PhD student | There are various forms of financial aid for activities of support to the teaching practice. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations. |
| Computer availability: | 1st year: individual use  
2nd year: individual use  
3rd year: individual use |
| Desk availability: | 1st year: individual use  
2nd year: individual use  
3rd year: individual use |