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| Dissertation / Project Proposal form | | | | |
| **Year 2022/2023, Master in Informatics Engineering, FCEE / University of Madeira** | | | | |
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| Information about advisors | | | | |
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| Task Generator 2.0: leveraging personalized paper and pencil cognitive training to a tablet approach | | | | |
| Project title | | | | |
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| Company/University |  | email |
| https://neurorehabilitation.m-iti.org/TaskGenerator/ |  |
| Project´s URL |  |

Fill out if it is a student´s proposal:

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| Name |  | Student´s number |

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| Information about the proposal |

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| Human Computer Interaction |
| Scientific area  Motivation   |  | | --- | | Cognitive impairments impose important limitations in the performance of activities of daily living. Although there is important evidence on cognitive rehabilitation benefits, its implementation is limited due to the demands in terms of time and human resources. Moreover, many cognitive rehabilitation interventions lack a solid theoretical framework in the selection of paper-and-pencil tasks by the clinicians. In this endeavor, a tool that generates standardized paper-and-pencil tasks, customized according to patients’ needs it’s extremely useful.  Combining the advantages of information and communication technologies and computational models obtained from a participatory design approach with rehabilitation professionals we have developed the Task Generator (TG) (Faria & Bermúdez i Badia, 2015). The TG is a web-based tool that systematically addresses multiple cognitive domains, and easily generates 11 highly personalized paper-and-pencil training tasks. A clinical evaluation of the TG with twenty stroke patients showed that, by enabling the adaptation of task parameters and difficulty levels according to patient cognitive assessment, this tool provides a comprehensive cognitive training. |   Main goals   |  | | --- | | 1. **Review of multi-platform frameworks for mobile development**    1. Development of small proof of concept applications in the selected frameworks    2. Selection of the appropriate framework 2. **Study of the web version of the Task Generator**    1. Decide on the integration approach with the existing system 3. **Development of a tablet version of the Task Generator web-tool.**    1. Implementation of the computational models that allow personalization according to the patient cognitive profile.    2. Re-design of the cognitive training tasks to enable interaction of the patient with the tablet.    3. Implement task adaptation rules according with the patient performance. |   Resources required   |  | | --- | | The supervisors will provide the SW and HW, as well as guidance and technical support.  The candidate is expected:  • To have a technical background with good programming and database management skills (in Javascript, HTML, CSS, MySQL, php).   * Be familiar with Human Computer interaction methods, for the design and evaluation of the proposed system |   Fill out if advisor belongs to an external institution:   |  |  |  | | --- | --- | --- | |  |  | () | | Institution name |  | Phone number | |  |  |  | | Address |  | emaill |   Observations   |  | | --- | |  | |