



Departamento de  
Informática

## Extending Xournal++ Project Proposal

**Supervisor:** Alexandra Mendes (amendes@di.ubi.pt)

### Objectives

Xournal++ [1] is a handwriting notetaking software with PDF annotation support. The goal of this project is to add new functionalities to Xournal++. The focus will be on adding recognition of handwritten mathematics but other new functionalities may be explored. The development of this solution should follow best practices in software engineering and should result in a solution that e.g. allows easy and straightforward replacement of the handwriting recogniser.

There are many existing tools and packages that recognise handwritten mathematics (e.g. SESHAT [2]) and some even allow its manipulation (e.g. Windows OneNote Maths Assistant [3] and Graspable Math [4]). In this project, you will explore the existing solutions and choose one to be integrated into Xournal++. You may also explore and implement other new features.

### Work plan and expected timeline

- T1** Literature review and initial familiarisation with Xournal++  
(week 1 -> week 3)
- T2** Choose technologies to be used and prepare work environment  
(week 2 -> week 4)
- T3** Gather requirements and define design for the solution  
(week 2 -> week 5)
- T4** Implement and test the solution  
(week 5 -> week 13)
- T5** Evaluation  
(week 13)
- T6** Report writing  
(ongoing throughout the project with the final 2 weeks fully dedicated to report writing)

### Expected Output

1. Project report
2. Extended Xournal++
3. Conference Paper (depending on results and time available)

## Bibliography

- [1] Xournal++, <https://github.com/xournalpp/xournalpp>
- [2] SESHAT, <https://github.com/falvaro/seshat>
- [3] Windows OneNote Maths Assistant, <https://www.onenote.com/ink>
- [4] Graspable Math, <https://graspablemath.com/>