



Summer Fellowship Report

On

Creating Spoken Tutorials for Scilab

Submitted by

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Chapter 1

Introduction

The Spoken Tutorial Project is about teaching and learning a particular FOSS (Free and Open Source Software) like Linux, Scilab, LaTeX, PHP MySQL, Java, C/C++, LibreOffice etc. via an easy Video tool. It is a multi-award winning educational content portal. Here one can learn various Free and Open Source Software all by oneself. It's self-paced, multi-lingual courses ensure that anybody with a computer and a desire for learning, can learn from any place, at any time and in a language of their choice. Students, Staff Teachers from Schools, Colleges, Universities, Polytechnics, ITIs, Skill centers, NGOs all can avail the training at very low cost.

The method is Active learning on Computer systems and very suited for Remote/Distance Education. Teachers students can master the software courses on their own, in their own campus and at their own time. Once one gets started any student or faculty can master the Software Course and also get Certificates. UG, PG or Research scholar students and even teachers of Science, IT, Engineering, Commerce, Management, MCA disciplines can learn any of the FOSS.

Today, SMEs and Govt. departments are moving to Open Source Software like Linux OS. Students with this knowledge will have an edge in the job market. They can also become entrepreneurs and use Open Source Software in their businesses, and save money vs., if they were using commercial software.

IIT Bombay Spoken Tutorials now offers Partnership opportunity to Computer Institutes/Centres to give their learners a range of 75+ relevant Basic and Specialized Courses. These cover General IT skills, Programming, Web development, Multimedia, Mathematics, Sciences, Industrial process simulation packages and many more. Institutes can train unlimited students in many courses along with Certificates.

This report is a short description of my four month internship and it was carried out within the Spoken Tutorial, Scilab Team, FOSSEE, IIT Bombay. I strongly feel like that I had such a wonderful opportunity to work with faculty from IIT Bombay. In the following chapter a description of the Spoken Tutorial and the activities is given. After this a reflection on my functioning, the unexpected circumstances and the learning goals achieved during the internship are described. Finally I give a conclusion on the internship experience.

Chapter 2

Internship activities

My internship was completely focused on Creating a Spoken Tutorials. And I was assigned to work on the following series:

- Xcos Series
- GUI Series
- FOT Series

2.1 Process of creating a Spoken tutorial

Outline: An outline for the topic is created to help us get a basic understanding of the subject and to give some idea about the structure and sequence of the overall tutorial.

Script: A script is the written form of the spoken tutorial. A script is precise, simple and self explanatory in nature. The script must satisfies the Spoken Tutorial guidelines.

Slides: Slides provide a visual aspects to explain certain topics in the script. They are made corresponding to the script. The slides carrying enough points to understand the concepts clearly. LaTeX beamer environment is used to create the slides. The slides should also follow the Spoken Tutorial guidelines.

Novice Check: Novice check is done by a person who has not enough knowledge about that concepts, to make sure that the script and slides are easy to understand. The novice also points out quality and correctness of the script and slides.

Recording: After the verification the video need to be recorded. The concepts are explained in step wise format for complete understanding of the tutorial. The narrated video should also satisfies the guidelines of ST norms.

Review: After the above steps, the all related files are sent to the reviewer who verifies that the recording and files are done according to the spoken tutorial guidelines and checklist. This is to ensure a good quality of the content being uploaded. Once all issues are addressed the reviewer publishes the tutorial on the spoken tutorial website.

2.2 Creating Spoken Tutorials for Xcos series

Xcos is a graphical editor to design hybrid dynamical systems models. Models can be designed, loaded, saved, compiled and simulated. Xcos provides functionalities for modeling of mechanical systems, hydraulic circuits, control systems, etc. Xcos is freely available and distributed with Scilab.

In the Xcos series, I have worked on two tutorials:

- Interactive Simulation in Xcos using slider
- User-defined variables in Xcos

2.2.1 Interactive Simulation in Xcos using slider

This tutorial explains how to change the parameters of the while the simulation is running using the slider.

For this tutorial, first I have created the script and slides. After the script and slides were checked by the Scilab team, I recorded the video for this tutorial. Later it was edited by the editing team. The edited video is now ready to publish in the Spoken Tutorial website. Follow the link to view the [script](#), [slides](#) and the [video](#) for this tutorial.

2.2.2 User-defined variables in Xcos

This tutorial explains how to create a user defined variables using Scilab console and Context menu.

I have done the recording for this tutorial and it was edited by the editing team. The edited video is now it is ready to publish in the website. Follow the link to view the [video](#) for this tutorial.

2.3 Creating Spoken Tutorials for GUI series

A Graphic User Interface (GUI) is a graphical display, which comprises objects, to make the user enable to perform interactive tasks. To design a GUI, the user need not create a script or type commands at the command line. The GUI components include menus, toolbars, push buttons, radio buttons, list boxes, sliders, etc. In

Scilab, a GUI can be used to display data in tabular form or as plots.

In the GUI series, I have worked on three tutorials:

- Creating a GUI based exponent calculator
- Building a GUI for basic plotting
- Creating a GUI based Interest calculator

2.3.1 Creating a GUI based exponent calculator

This tutorial explains how to calculate the exponent of a number using GUI.

For this tutorial, first I made the script and slides. After the script and slides were checked by the Scilab team, I recorded the video for this tutorial. Later it was edited by the editing team. The edited video is now ready to publish in the Spoken Tutorial website. Follow the link to view the [script](#), [slides](#) and the [video](#) for this tutorial.

2.3.2 Building a GUI for basic plotting

This tutorial explains how to plot the graph using the object Checkbox.

For this tutorial, first I created the script and slides. After the script and slides were checked by the Scilab team, I recorded the video for this tutorial. Later it was edited by the editing team. The edited video is now ready to publish in the Spoken Tutorial website. Follow the link to view the [script](#), [slides](#) and the [video](#) for this tutorial.

2.3.3 Creating a GUI based Interest calculator

This tutorial explains how to calculate the simple and compound interest using the object Radiobutton in GUI.

For this tutorial, I have created the script and slides. After the script and slides were checked by the Scilab team, I recorded the video for this tutorial. Later it was edited by the editing team. The edited video is now ready to publish in the Spoken Tutorial website. Follow the link to view the [script](#), [slides](#) and the [video](#) for this tutorial.

2.4 Novice Check

I have performed the novice check for the following tutorials:

- GUI series
 - Installation of GUI Builder Toolbox
- FOT series
 - Integer Linear Programming using linprog function
 - Unconstrained Optimisation using fminunc and intfminunc functions
 - Bounded Optimisation using fminbnd and intfminbnd functions

Chapter 3

Reflection on the internship

The experience of working as an intern in Spoken Tutorial, IIT Bombay was fascinating and the experience is sufficient to build me. During four months of internship, I have accumulated various experiences and new knowledge through activities and tasks assigned to me.

Regarding my learning goals I shortly discuss my experiences; if I have achieved my goal, whether I experienced difficulties and what I think I have to improve.

3.1 New knowledge and skills gained in each of the Tasks

3.1.1 Skills

Scilab, Xcos, Graphical User Interface, FOSSEE Optimization Toolbox and Latex.

3.1.2 Responsibilities

Working towards achieving my individual goals, which helped the organisation reach its objectives. Taking responsibility for my own professional and career development. Being open and accepting constructive feedback and take initiative to improve, giving others feedback, completing any tasks assigned to me and applying the learning to improve my performance, keeping record of my performance and challenges.

3.1.3 Working experience with experienced and more skilled individuals

Working with the faculty of IIT Bombay and other interns make this internship a very diverse demographic.

3.1.4 Challenges faced and how managed

Lack of field-specific knowledge/skills. And this was solved by getting guidance from the mentors.

3.1.5 Benefits derived from this internship

The benefits derived from the internship are:

- Internship helped me to understand work ethics, responsibilities and opportunities.
- It prepared me for the working environment
- It enhanced my CV needed to negotiate future jobs.

Chapter 4

Conclusion

On the whole, this internship was a useful experience. I have gained new knowledge and skills. I achieved several of my learning goals, however for some the conditions did not permit. I learned the different facets of working within a Spoken Tutorial. Furthermore I experienced that it is of importance that the education is objective and that you have to be aware of the view of other people. This helped me to define what skills and knowledge I have to improve in the coming time.

The professional and technical skills I acquired from this internship will certainly help me in my future works. I feel much more confidence in myself, and now I look forward to facing the upcoming challenges of the world. I hope this experience will surely help me in my future. At last this internship has given me new insights and motivation to pursue my career.

Chapter 5

Reference

- <https://spoken-tutorial.org/#>
- <https://www.scilab.org/>
- <http://atoms.scilab.org/toolboxes/guibuilder/4.2.1>
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