

MEETING TEMPLATES - SimPEG

Subject/Purpose	- SimPEG Organizational meeting
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Organizer's Name	Eldad Haber, Rowan Cokett			Date	2013-06-04
Organizer's Location	ESB 4013				
Meeting date/ location	GIF room	from:	13:00	to:	14:00

ATTENDANTS			
No	Name	Initials	RoI
1	Eldad Haber	EH	Moderator
2	Rowan Cokett	RC	Moderator
3	Dave Marchant	DM	Moderator
4	Lars Ruthotto	LR	Participant
5	Roman Shetkman	RS	Participant
6	Luz Angelica Caudillo Mata	LACM	Participant
7	Kristofer Davis	KD	Participant
8	Seogi Kang	SK	Participant
9	Jenn Fohring	JF	Participant
10	Wing Wa Yu	WY	Participant

PRE-REQUISITES	
Description	Who
Python code for Quasi-static Maxwell's Equations in Freq domain	EH
Git-Bitbucket repository set up for the group	RC,DM

AGENDA						
Hours of		Time (min)		No	Topics	Discussion Leader
Start	End	Plan	Real			
13:00				1	Meeting purpose, Introduction	EH
				2	Advantages and disadvantages of Python	DM
				3	Code overview	EH
				4	Next steps	EH,RC,DM

Totals	60	60	
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ACTIVITIES, ACTIONS AND IMPORTANT INFORMATION			
No	What	Who	When
1	Object Oriented Programming Tutorial	DM	2013-06-11
2	Open bitbucket account and install SourceTree and Git	All	2013-06-11
3	Send email to be included in Bitbucket repository	All	2013-06-11
4	Install Python (go to https://www.enthought.com/)	All	2013-06-11
5	Visualization of scalar and vector fields with python	JF	2013-06-11
6	Interpolation with python	SK	2013-06-11
7	Clean up Python MEF code	RC	2013-06-11
8	Put code in bitbucket repository and send theory notes	EH	2013-06-06

Notes

MEETING SUMMARY

1. Meeting's purpose and introduction.
 EH said that it is time to make a group effort to create software that can be distributed. We will experiment with Python, which is a programming language that allow us to do similar things to MATLAB without the restriction of being a proprietary system.

2. Advantages and disadvantages of Python.

Advantages: Open source, Offer similar characteristics to MATLAB, without the restrictive part, Balance of low level and high level programming, Language interoperability, Documentation System, Available libraries

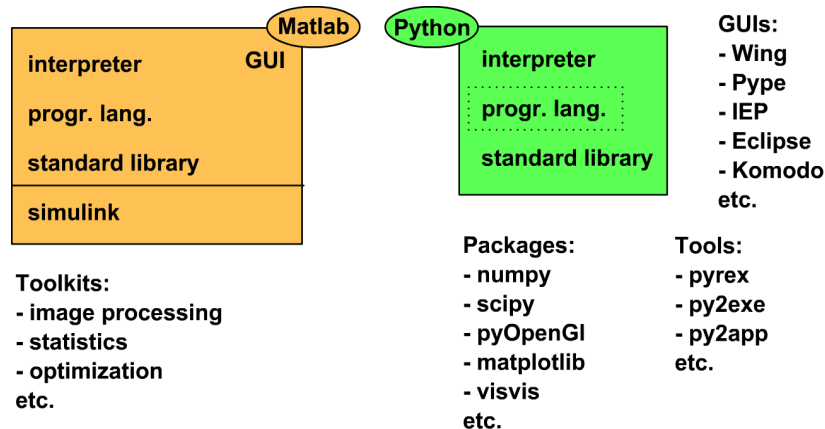


Figure 1. Python vs Matlab

Disadvantages: Learning curve (this really depend on the programmer), current landscape of conventions and available resources.

More sites to read:

<http://www.stat.washington.edu/~hoytak/blog/whypython.html>
<https://sites.google.com/site/pythonforscientists/python-vs-matlab>

3. Code Overview.

The current code developed by EH considers the Finite Volume discretization of the weak formulation of the Quasi-Static Maxwell's equations in Frequency Domain. Where the magnetic permeability and the conductivity are scalar functions. The discretization is done using Logical Orthogonal Meshes.

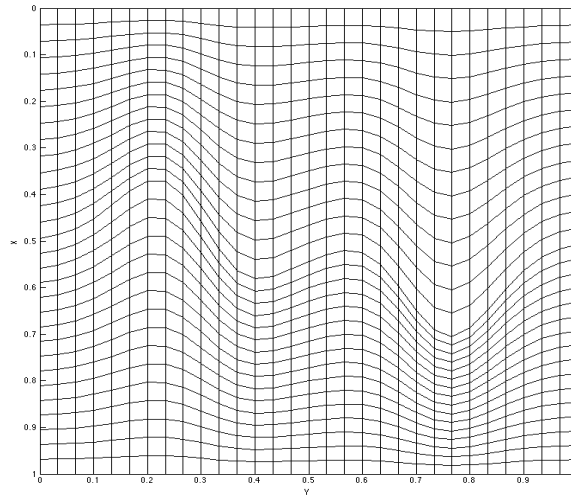


Figure 2. Logical Orthogonal Meshes

4. List of sub projects

- Sources programing
- Solvers (iterative and direct)
- Fields visualization
- Pre conditioners
- Derivatives and sensitivities
- Input/Output
- Regularization
- Interpolation

AGREEMENTS

1. Code will be developed using Object Oriented Programming paradigm with Python.
2. Start with Quasi-Static Maxwell's Equations in Frequency Domain where the parameters are scalar functions. Mesh used: Logical orthogonal.
3. We will base the code on the one developed by EH.
4. RW will be the "goal keeper"
5. Meetings will be held in the GIF room every one or two weeks depending on work done.
6. This is a group effort, we are all responsible to make this work.
7. Project's title is SimPEG.

COMMENTS AND OTHER TOPICS TO BE DISCUSSED IN FURTHER MEETINGS

1. Our code standards
2. General organization (Logo of the project?)