

# Introduction to computer science

## GIGA Doctorate School

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## Who am I?

- ▶ Master in Electrical Engineering and Ph.D. in Engineering
- ▶ FRS-FNRS Research Director
- ▶ Research and interest in “neuroimaging methods”  
→ data processing of brain images (MRI and PET) and  
electro-physiological data (M/EEG)
- ▶ Linked to:
  - GIGA *in silico* medicine & CRC *in vivo* imaging research units
  - Department of Electrical Engineering & Computer Science



# Who are you ?

- ▶ Background
- ▶ Programming experience?

# Course program



- ▶ Check <https://indico.giga.uliege.be/event/264/> for the slides

TUESDAY, 5 OCTOBER			
09:30 → 10:00	<b>Welcome + Introduction to computer science : historical perspective, computer structure, operating systems &amp; languages</b> Speaker: Prof. Christophe Phillips (GIGA in silico medicine & CRC in vivo imaging)	30m	
10:00 → 11:00	<b>Data representation &amp; storage: bits/bytes, data format, signal discretization, compression</b> Speaker: Dr Mohamed Bahri	1h	
11:00 → 11:30	Coffee break	30m	
11:30 → 12:00	<b>ULiège IT resources by the SeGI/UDI's</b> Speaker: Mr Yves Wesche	30m	
12:00 → 12:30	<b>GIGA-ULiège Mass storage</b> Speaker: David Stern	30m	
12:30 → 13:30	Lunch break	1h	
13:30 → 14:30	<b>Access to and use of the mass storage</b> Speaker: Dr Alice Mayer	1h	
14:30 → 15:00	Coffee break	30m	
15:00 → 17:00	<b>Matlab &amp; Octave practical</b> See the 'minutes' for the program Speakers: Prof. Christophe Phillips (GIGA in silico medicine & CRC in vivo imaging) , Dr Mohamed Bahri	2h	



MONDAY, 11 OCTOBER



09:30	→ 10:30	<b>Introduction to algorithmic thinking: Different types of algorithms, computer logic.</b> Speaker: Dr Mohamed Bahri	🕒 1h	📄
10:30	→ 11:00	Coffee break	🕒 30m	
11:00	→ 12:00	<b>Code versioning &amp; Git, an introduction.</b> Speaker: Prof. Christophe Phillips (GIGA in silico medicine & CRC in vivo imaging)	🕒 1h	📄
12:00	→ 13:00	Lunch break	🕒 1h	
13:00	→ 15:00	<b>GitHub/Gitlab account hands-on check and explanations</b> Speakers: Dr Grégory Hammad (GIGA-CRC in vivo imaging), Martin Grignard	🕒 2h	📄
15:00	→ 15:30	Coffee break	🕒 30m	
15:30	→ 17:30	<b>Matlab &amp; Octave practical</b> See the 'minutes' for the program Speakers: Prof. Christophe Phillips (GIGA in silico medicine & CRC in vivo imaging), Dr Mohamed Bahri	🕒 2h	📄



## MONDAY, 18 OCTOBER



09:30	→ 10:30	<b>Good practices in scientific computing: Code modularity, validation, optimization, documentation</b> Speaker: Prof. Christophe Phillips (GIGA in silico medicine & CRC in vivo imaging)	🕒 1h	📄 -
10:30	→ 11:00	Coffee break	🕒 30m	
11:00	→ 12:00	<b>Working with clusters &amp; parallel processing: parallel processing, data management, resources.</b> Speaker: Dr Alice Mayer	🕒 1h	📄 -
12:00	→ 13:00	<b>Working with the GIGA cluster hands-on</b> Speaker: Dr Alice Mayer	🕒 1h	📄 -
13:00	→ 14:00	Lunch break	🕒 1h	
14:00	→ 15:00	<b>Research Data Management and Reproducibility: good habits for good research</b> Speaker: Dr Judith Biernaux (ARD ULiege)	🕒 1h	📄 -
15:00	→ 15:30	Coffee break	🕒 30m	
15:30	→ 17:30	<b>Matlab &amp; Octave practical</b> See the 'minutes' for the program Speakers: Prof. Christophe Phillips (GIGA in silico medicine & CRC in vivo imaging) , Dr Mohamed Bahri	🕒 2h	📄 -



MONDAY, 25 OCTOBER



09:30	→ 10:30	<b>Working with personal data ? Think GDPR!</b> Speaker: Mr Pierre-François Pirlet	🕒 1h	✎
10:30	→ 11:00	Coffee break	🕒 30m	
11:00	→ 12:00	<b>Data processing in genomics, from the sequencers to the results: data management, pipelines and containers, reproducibility.</b> Speaker: Dr Arnaud Lavergne	🕒 1h	✎
12:00	→ 13:00	Lunch break	🕒 1h	
13:00	→ 15:00	<b>Data processing in genomics, hands-on</b> Speaker: Dr Arnaud Lavergne (GIGA)	🕒 2h	✎
15:00	→ 15:30	Coffee break	🕒 30m	
15:30	→ 17:30	<b>Matlab &amp; Octave practical</b> Speakers: Prof. Christophe Phillips (GIGA in silico medicine & CRC in vivo imaging) , Dr Mohamed Bahri	🕒 2h	✎



Let's go!



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