


André HARNIST

PhD student in Mathematics

 ACSIOM team
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Montpellier University, France

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Education

since 2018	<p>PhD in Mathematics <i>Hybrid High-Order method for complex problems in fluid mechanics</i> Supervised by Daniele A. Di Pietro</p> <p><i>Courses undertaken (174h)</i></p> <p>Teaching</p> <ul style="list-style-type: none">• MOOC Training to teach in higher education• How to have an innovative pedagogy?• Why and how to develop interactive courses?• Introduction to teaching tools for higher education• Prepare, organize and conduct a course• Public speaking <p>Research and integration</p> <ul style="list-style-type: none">• Ecomas Congress 2020 & 14th WCCM, Virtual event• XXIèmes Louis Antoine Numerical Analysis day at Rennes• MOOC Research integrity in scientific professions <p>Miscellaneous</p> <ul style="list-style-type: none">• Level 1 Prevention and Civic Assistance training <p><i>Description</i></p> <p>Hybrid High-Order methods are a recent and highly innovative class of new generation numerical methods for PDEs that aim at overcoming the limitations of traditional discretization methods such as Finite Element or Finite Volumes. The goal of this PhD thesis is to develop, analyze, and implement novel HHO discretizations of complex problems in fluid mechanics. We specifically aim at treating non-Newtonian fluids. This will require to develop discrete functional analysis lemmas whose interest will go beyond applications to computational fluid mechanics.</p>	Montpellier France
2016-2018	<p>Master's degree in Mathematics MANU (Modelization and numerical analysis of PDEs), <i>with distinction « Très Bien »</i></p>	Montpellier France
2013-2016	<p>Bachelor's degree in Mathematics Research option, <i>with distinction « Bien »</i></p>	La Rochelle France
2013	<p>Baccalaureate STL (Laboratory Sciences and Technologies) option, <i>with distinction « Assez Bien »</i></p>	Niort France

Publications

- Dec 2020 Article
D. A. Di Pietro, J. Droniou, and A. Harnist (CA)
Improved error estimates for Hybrid High-Order discretizations of Leray-Lions problems
HAL preprint [hal-03049154](#)
arxiv preprint [2012.05122](#)
- March 2020 Article
M. Botti, D. Castanon Quiroz, D. A. Di Pietro, and A. Harnist (CA)
A Hybrid High-Order method for creeping flows of non-Newtonian fluids
HAL preprint [hal-02519233](#)
arxiv preprint [2003.13467](#)

Presentations

- Sept 2020 Conference on Scientific Computing Algorithmy 2020 – Online talk
A HHO method for creeping flows of non-Newtonian fluids Podbanske
Slovaquie
- March 2020 PhD students day at IMAG – Talk
A HHO method for creeping flows of non-Newtonian fluids Montpellier
France
- July 2019 Doctiss 2019 day at i2S – Poster, *1st price obtained*
A HHO method for creeping flows of non-Newtonian fluids Montpellier
France
- May 2019 POEMS 2019 conference at CIRM – Poster
A HHO method for creeping flows of non-Newtonian fluids Marseille
France

Responsibilities

- 2019-2021 Representative of PhD students in Mathematics and Biostatistics
Meetings at the i2S doctoral school with the aim of improving the quality of life and integration into the professional environment of doctoral students, discussing the training offered on the i2S catalog and other. Montpellier
France

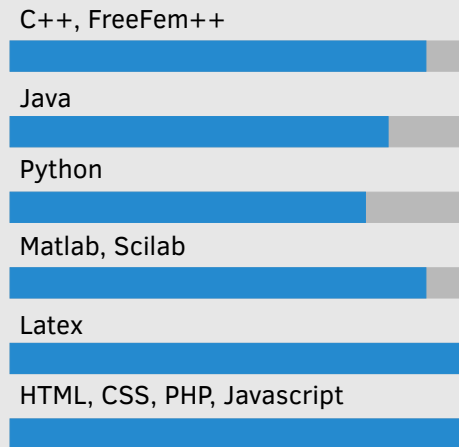
Teaching

- 2020-2021 Mathematics of decision - 3rd year degree
Person in charge (Lecture, Tutorial, Exam), 64h
Groups 1 et 2 of cursus IG3 at Polytech Montpellier Montpellier
University
- 2019-2020 Analysis and algebra 2 (HLMA206Y) - 1st year degree
Tutorial classes, 24h
Cursus PEIP1 at Polytech Montpellier Montpellier
University
Analysis and algebra 1 (HLMA101) - 1st year degree
Tutorial classes, 42h
Cursus L1 Mathematics at Faculté des sciences de Montpellier
- 2018-2019 Analysis and algebra 2 (HLMA206Y) - 1st year degree
Tutorial classes, 42h
Cursus PEIP1 at Polytech Montpellier Montpellier
University
Numerical analysis (HLMA405) - 2nd year degree
Tutorial classes, 10h
Cursus L2 Mathematics at Faculté des sciences de Montpellier
Introduction to scientific software (HLMA310) - 2nd year degree
Tutorial classes, 12h
Cursus L2 Mathematics at Faculté des sciences de Montpellier

Experiences

March 2018	6 months Internship <i>Hybrid-High Order method for creeping flows of power-law fluids</i> Supervised by Daniele A. Di Pietro, ACSIOM team, IMAG laboratory	Montpellier France
March 2016	5 weeks Internship <i>Modelization of the growth of tree leaves by the algorithm of Qinglan Xia</i> Supervised by Michel Berthier and Catherine Choquet, MIA laboratory	La Rochelle France

Programming skills



Language skills

French native
English current

Soft skills

Autonomous
Sense of responsibility
Pedagogue
Teamwork

Hobbies

Running
Gardening
Chess

References

PhD director : [Daniele A. Di Pietro](#)
Members of thesis monitoring committees: [Vanessa Lleras](#) (Domain Expert),
[Matthieu Hillairet](#) (IMAG representative),
[Moulay Benameur](#) (i2S representative)

Updated on January 1, 2021