





Design and optimisation of lattice structures for aerospace applications

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Contents

Co	Contents				
In	trodu	action	1		
1.	Lite	rature review	3		
	1.1.	An introduction to structural optimization	3		
	1.2.	Ultra-lightweight structures optimization	3		
		1.2.1. Feature-Mapping topology optimization	3		
		1.2.2. Truss topology optimization	3		
	1.3.	Cellular structures optimization	3		
		1.3.1. Multi-scale structures optimization	3		
		1.3.2. Full-scale structures optimization	3		
2.	Eval	luating discretization approaches for ultralight structure optimization	5		
	2.1.	The formulation of a common problem: volume minimization with stress constraints	5		
		2.1.1. Continuous discretization NAND minimum volume formulation	5		
		2.1.2. Truss discretization SAND minimum volume formulation	5		
	2.2.	Comparison between continuous and truss discretization	5		
		2.2.1. Definition of a common test case	5		
		2.2.2. Numerical application	5		
	2.3.	Conclusion	6		
3.	Enri	iching the classic TTO formulation with advanced mechanical constraints	7		
	3.1.	Local buckling and kinematic compatibility constraints	7		
		3.1.1. Local and topological buckling constraints	7		
		3.1.2. Kinematic compatibility constraints	7		
	3.2.	Optimization formulation and solving strategy	7		
		3.2.1. Optimization strategy	7		
		3.2.2. First step: SLP optimization	7		
		3.2.3. Handling local minima: reinitialization strategy	7		
		3.2.4. Second step: NLP optimization	7		
	3.3.	Numerical application	7		
		3.3.1. Ten-bar truss	7		
		3.3.2. 2D cantilever beam	7		
		3.3.3. Simply supported 3D beam	7		
		3.3.4. Ten-bar truss with multiple load cases	7		
	3.4.	Conclusion	7		
4.	Opt	imizing cellular architechted structures	9		
	4.1.	Formulation of a cellular structure optimization algorithm	9		
		4.1.1. Variable linking	9		

	4.2.	Numerical application	9
		4.2.1. On the equivalence of multi load cases and cellular structures	9
		4.2.2. Parametric study on the number, the shape, and the complexity of the repeating	
		cell	9
	4.3.	Conclusion	9
5	Ont	imizing the cell layout in space	11
٥.	5.1.	Manual clustering	11
		DMO	11
		Numerical application	11
		11	11
	3.4.	Conclusion	11
6.	Des	ign of real-size aeronautical wing structures	13
	6.1.	3D CRM wingbox with multiple load cases	13
		6.1.1. Advanced thresholding	13
		6.1.2. Enriching the mesh	13
		6.1.3. Numerical application	13
	6.2.	NACA profile extruded	13
		6.2.1. Numerical implementation	13
		6.2.2. Meshing irregular volumes	13
		6.2.3. Definition of the repetitive zones	13
		6.2.4. Numerical application	13
	6.3.		13
	6.4.	Conclusion	13
C		sion and navanastives	15
C	niciu	sion and perspectives	13
Bi	bliog	graphy	17
Aı	PPENI	DIX	19
A	Car	another concention for alter light atmesteres	21
A.	Geo	metry generation for ultra-light structures	21

List of Figures

List of Tables

Introduction

Towards lighter structures

Objective

Outline of the thesis

Literature review 1

Introduction

Extensively present in nature (e.g., bone-microstructure or birds beak), their research interest came thanks to the observation that the stiffness of optimal structures spans multiple scales [1, 2]. In addition to that, Fleck observed that [3] "one reason for such structural hierarchy in engineering structures is to increase buckling strength: recall that the buckling strength scales with any representative strut length l according to l^{-2} , and so the finer the length scale, the higher the buckling strength."

- 1.1. An introduction to structural optimization
- 1.2. Ultra-lightweight structures optimization
- 1.2.1. Feature-Mapping topology optimization
- 1.2.2. Truss topology optimization
- 1.3. Cellular structures optimization
- 1.3.1. Multi-scale structures optimization
- 1.3.2. Full-scale structures optimization

- 1.1 An introduction to structural optimization 3
- 1.2 Ultra-lightweight
 structures optimization 3
 1. Kohn et al. (1986), 'Optimal design 1.3 Cellular structures and relaxation of variational problems' optimization 3
- 2. Allaire et al. (1999), 'On optimal microstructures for a plane shape optimization problem'
- **3.** Fleck et al. (2010), 'Microarchitectured materials'

Evaluating discretization approaches for ultralight structure optimization

4	

Introduction	2.1	The formulation of a common problem: volume minimization	
2.1. The formulation of a common problem: volume minimization with stress constraints	2.2	with stress constraints Comparison between	5
2.1.1. Continuous discretization NAND minimum volume	2.3	continuous and truss discretization	
formulation			
Spatial filtering and projection			
Von Mises stress evaluation			
Constraints aggregation and relaxation			
Optimization formulation			
Sensitivity calculation			
2.1.2. Truss discretization SAND minimum volume formulation			
Plastic material formulation			
2.2. Comparison between continuous and truss discretization			
2.2.1. Definition of a common test case			
2.2.2. Numerical application			
Compliance-volume graph			
Compliance-stress graph			
Stress-volume graph			

2.3. Conclusion

Enriching the classic TTO formulation with advanced mechanical constraints

Introduction	3.1	Local buckling and kinematic compatibility constraints	7
3.1. Local buckling and kinematic compatibility constraints	3.2	Optimization formulation and solving	
	3.3	strategy	
3.1.1. Local and topological buckling constraints		Conclusion	
3.1.2. Kinematic compatibility constraints			
3.2. Optimization formulation and solving strategy			
3.2.1. Optimization strategy			
3.2.2. First step: SLP optimization			
3.2.3. Handling local minima: reinitialization strategy			
3.2.4. Second step: NLP optimization			
3.3. Numerical application			
3.3.1. Ten-bar truss			
3.3.2. 2D cantilever beam			
3.3.3. Simply supported 3D beam			
3.3.4. Ten-bar truss with multiple load cases			
3.4. Conclusion			

Optimizing cellular architechted structures

_	

Introduction	
IIIIIOuucuon	

4.1.	Formulation of a cellular structure
	optimization algorithm

- 4.1.1. Variable linking
- 4.2. Numerical application
- **4.2.1.** On the equivalence of multi load cases and cellular structures
- 4.2.2. Parametric study on the number, the shape, and the complexity of the repeating cell

Simply supported 3D beam

4.3. Conclusion

4.1	Formulation of a	
	cellular structure	
	optimization algorithm	9

- 4.2 Numerical application 9
- 4.3 Conclusion 9

Optimizing the cell layout in space 5

Introduction	5.1 Manual clustering 11 5.2 DMO 1
5.1. Manual clustering	5.3 Numerical application . 11 5.4 Conclusion 11
5.2. DMO	
5.3. Numerical application	
5.4. Conclusion	

Design of real-size aeronautical wing structures

Introduction	6.1	3D CRM wingbox with multiple load cases 13
	6.2	NACA profile extruded13
6.1. 3D CRM wingbox with multiple load cases	6.3	3D printing 13
	6.4	Conclusion 13
6.1.1. Advanced thresholding		
6.1.2. Enriching the mesh		
6.1.3. Numerical application		
Maximum displacements constraints		
Active mechanical constraints		
62 NACA profile extruded		

6.2. NACA profile extruded

- 6.2.1. Numerical implementation
- 6.2.2. Meshing irregular volumes
- 6.2.3. Definition of the repetitive zones
- 6.2.4. Numerical application
- 6.3. 3D printing
- 6.4. Conclusion

Conclusion and perspectives

Conclusion

Perspectives

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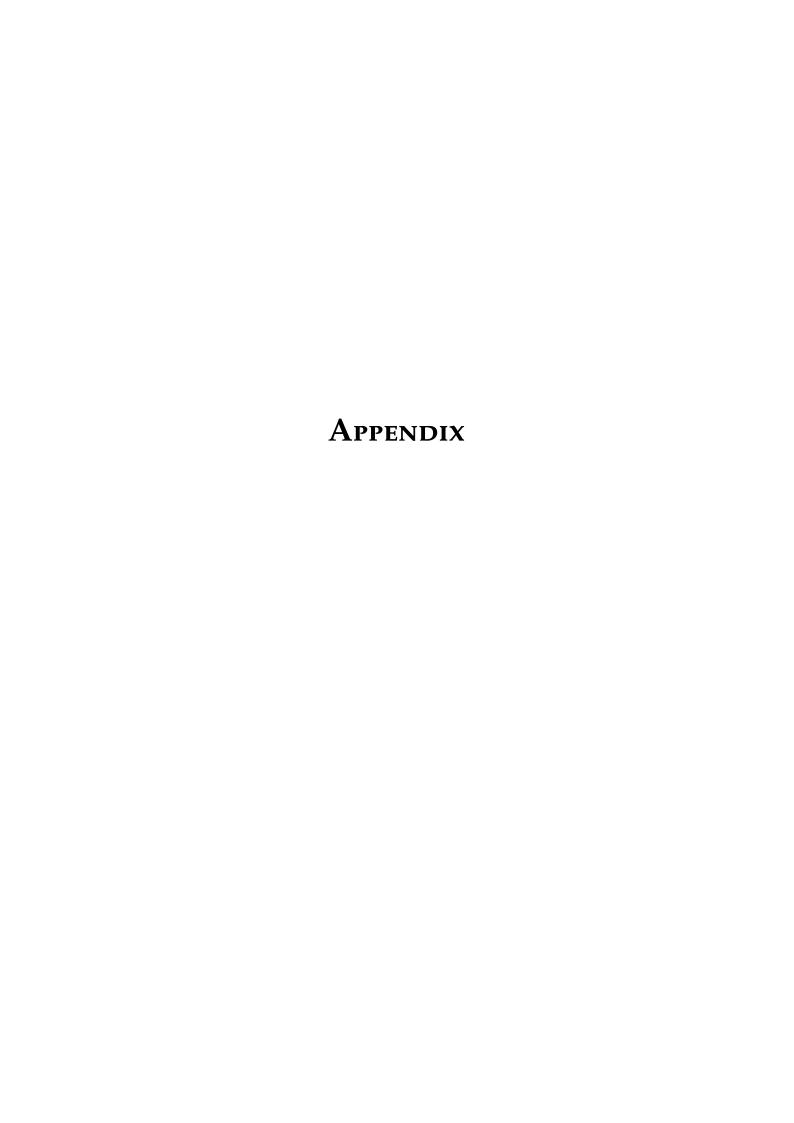
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Geometry generation for ultra-light structures A

