TAMS-MESH PROJECT

WORKPLAN

Creation Date : 11.02.2025
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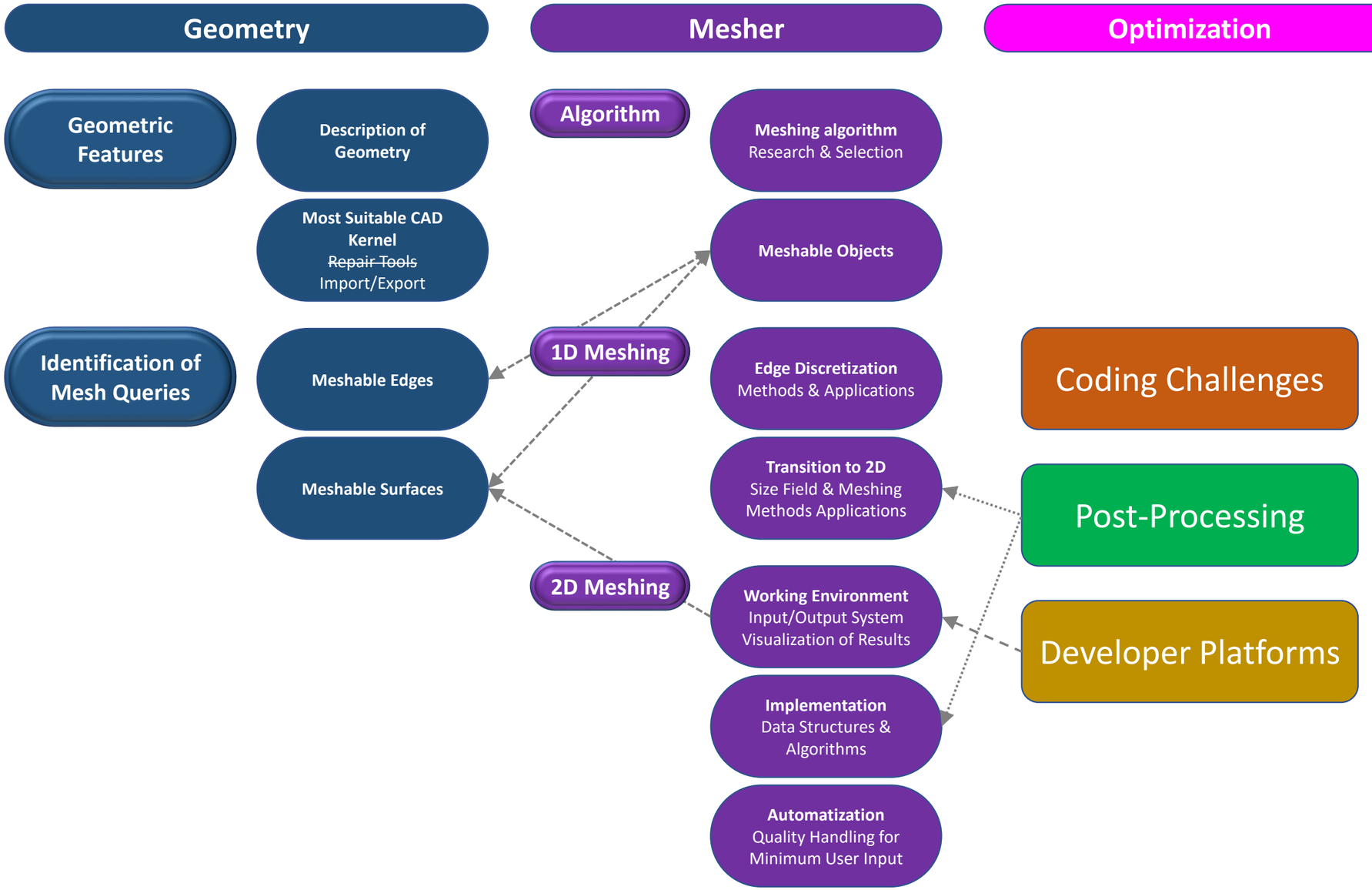
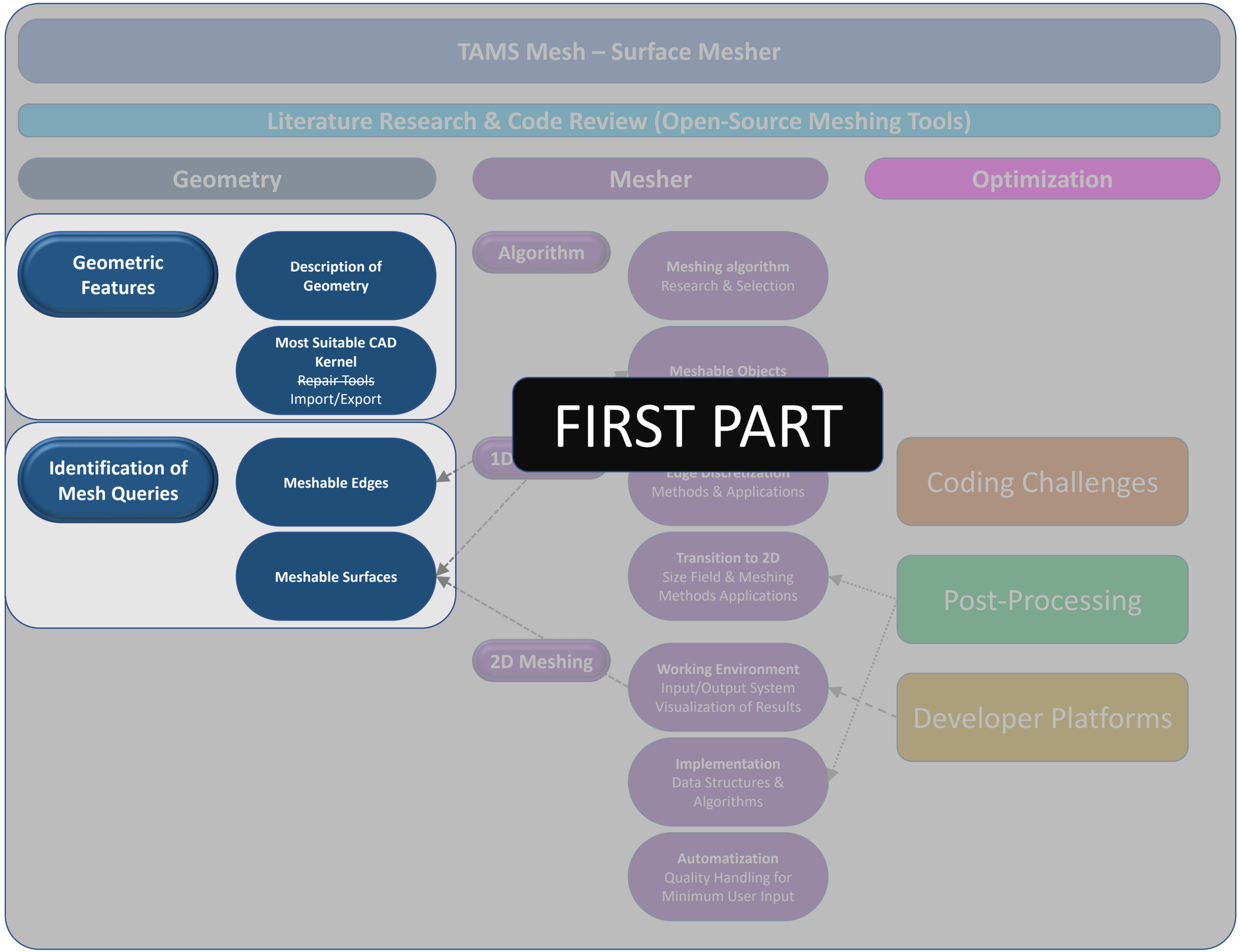
TAMS Mesh – Surface Mesher

Literature Research & Code Review (Open-Source Meshing Tools)




TAMS Mesh – Surface Mesher
Literature Research & Code Review (Open-Source Meshing Tools)
Geometry
Mesher
Optimization
Geometric Features
Description of Geometry
Most Suitable CAD Kernel
~~Repair Tools~~
Import/Export
Identification of Mesh Queries
Meshable Edges
Meshable Surfaces
Algorithm
Meshing algorithm
Research & Selection
Meshable Objects
1D
Methods & Applications
Transition to 2D
Size Field & Meshing
Methods Applications
2D Meshing
Working Environment
Input/Output System
Visualization of Results
Implementation
Data Structures & Algorithms
Automatization
Quality Handling for Minimum User Input
FIRST PART
Coding Challenges
Post-Processing
Developer Platforms

Literature Research & Code Review

Building Up Understanding → CAD SYSTEMS

Starting Point

→ OCCT
→ CGAL

TASKS	OUTPUT OF THE TASK
Import cad exchange format files (step)	Framework to Import a CAD file
Geometric data storage (meaning of benchmarked code, non uniform rational b-spline)	Data container structure and use classes. Documentation by code demonstration.
Used functions, methods to mathematically modeling geometry	Functions and mathematical models. Documentation by code demonstration.

→ MESHABLE OBJECTS

Literature Research & Code Review

Building Up Understanding → MESHER

Starting Point

→ GMSH

→ NETGEN

TASKS	OUTPUT OF THE TASK
Benchmarking low level libraries meaning of required inputs	Required information's to create mesh. Geometrical data containers and interpreters. (Additionally shared elements, neighboring relations etc.) Documentation
Comparison	Differences, similarities and difficulties discussion

→ MESHABLE OBJECTS