IROS
ICRA
T-RO
RAL

RSS
ICLR

Capabilities

tiago - door opening

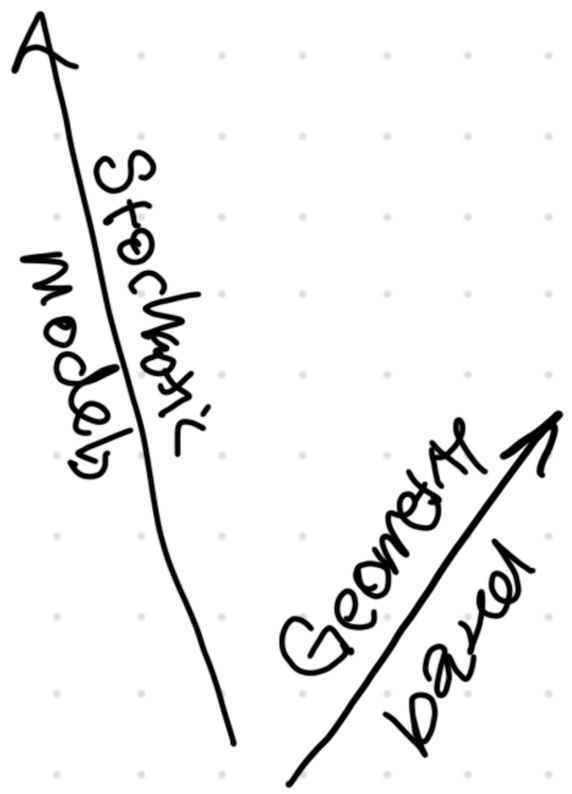
(Path planner
to get
nearest target)

→ Gaussian Process
- Probabilistic roadmaps

→ Chaos etc

→ Gaussian splatting

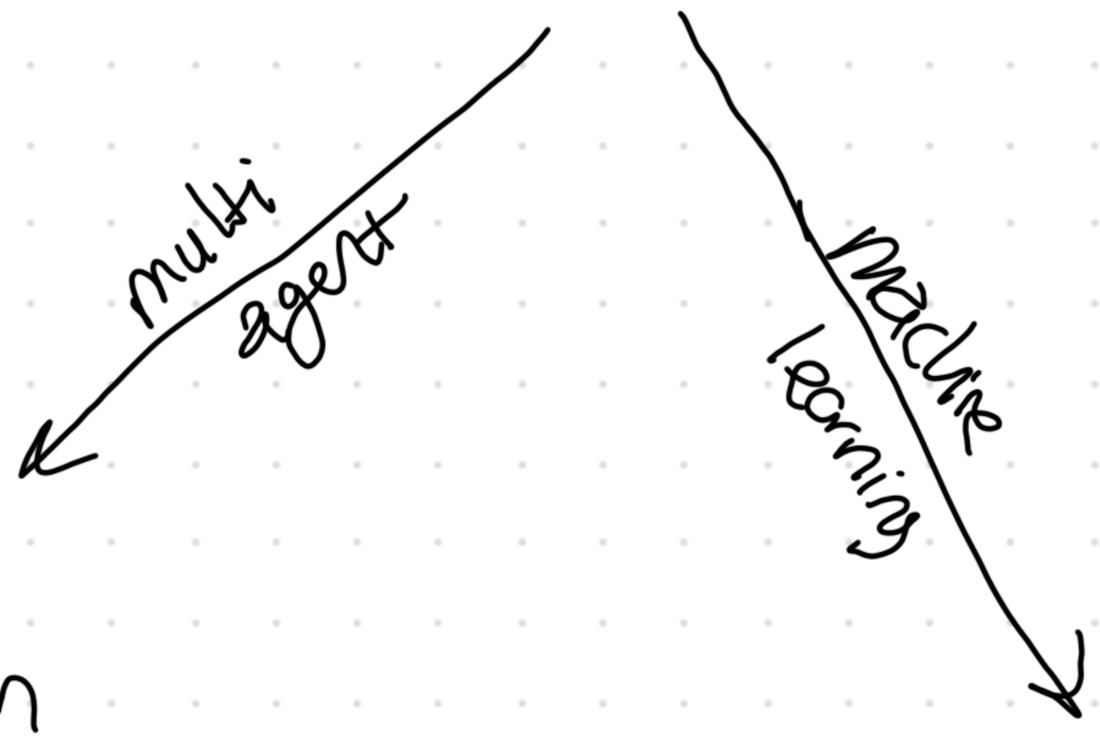
→ Diffusion models



- compute Graphics approach

{delaunay}

- convex Geometric



- Gbw-worm
  swarm optimization

- motion planning Network
- diffusion motion planning

Problem definition

↳ human or ---- in an environment

↳ getting something to somewhere etc.

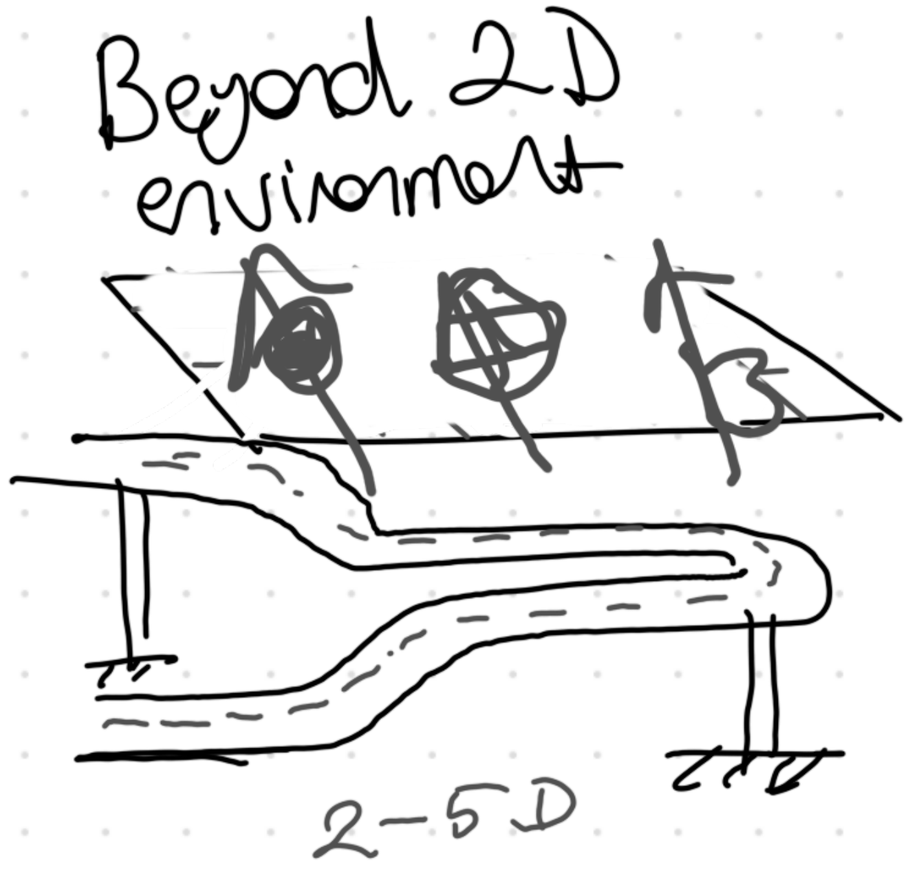
planning for construction

narrow passage.

Can use sim environment

→ GODOT

→ actual robots



Concepts

- Origami folding
- soft robotics / articulated applications
- Differentible rendering | Gaussian splatting
- Geodesic motion planning
- Very high dim - Configuration spaces
- Vector fields

Path Planning to morph Objects

= Deformation =

3D printing ----> Path planning

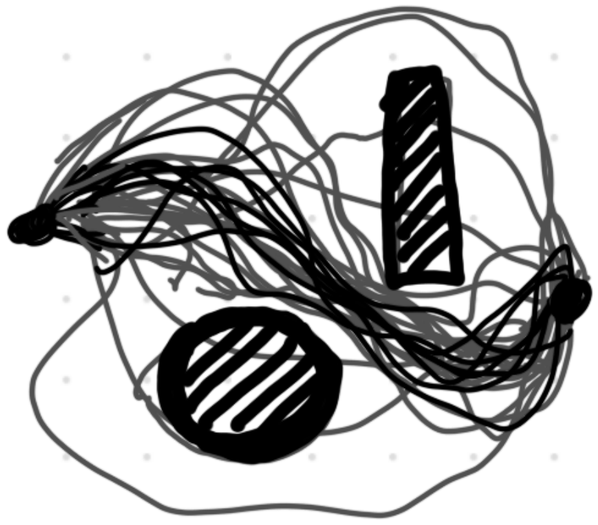
Drawing ----> coverage planning

----> also motion planning problem

Diffusion based

- Will the robot be in configuration space or be in planning space

- Geodesic distance
- diffusion space.



(+) Compute Graphics

Robotics

WIDE RANGE APPLICATIONS

(−) It takes time to make sense/ learn

Thinking process
= flowchart =

Conference vs Journal ⟹ harder
more complete
works

⟹ more
implementable
works

Continuum robots

→ new kinematics
RRT, basics

→ high dimension

→ Cross entropy

RRT*

locomotion planning
deformable tetrahedron

Polygon based RRT

Concave hull

Shape changing TRUSS robot

→ Computational Geometry

→ Cellular robots

→ various robots
link augmented graph.

← size
Adaptive Path-planner

spectral subsurface

Singularity free guiding

Lyapunov function learning

Geodesic Planning

Guiding vector fields

Dynamic Trajectory Guided

→ Draw on surface

→ robot arm

→ Travelling

→ Robotic Pen + art

diffusion Path finding

→ intermittent diffusion || multiple robot systems

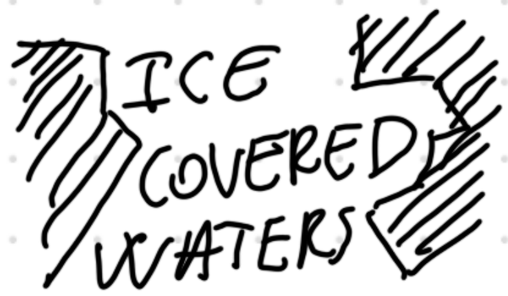
{ time varying vector fields }

{ artificial vector fields }

minimum Obstacle displacemet

Constrained planning

| State feedback |



interaction w/ env.

Active planning for aerial photogrametry = Geometry aware path planning for depowdering

Nerf - Gaussian Splatting

→ machine learning

NeRF2Sim

(door traversal)

Pebble graph based

graph based sampling

dispersion sampling based. RRT* = locally exploitative sampling

(Star worlds)
(Conformal navigation transformation)

(Polyhedral rep.)