Survey & Presentation

USTC, 2024 Spring

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https://qingfang1208.github.io/

Survey + presentation

- Date : 08, May (Wed) – 05, Jun (Wed)

月	教学周	星期日		星期一		星期二	星期三		星期四		星期五		星期六	
五	十	28	*补周四课程	29		30	1	劳动节(*休)	2	(*休)	3	(*休)	4	(*休)
	十一	5	(*休)	6		7	8		9		10		11	*补周三课程
	十二	12		13		14	15		16		17		18	
	十三	19		20		21	22		23		24		25	
	十四	26		27		28	29		30		31		1	
	十五	2		3		4	5		6		7		8	(*休)

Survey + presentation

- Members (42)
- Presentation (20 score)
  - 20 Minutes
- Survey (20 score)

Homework (#1-#8 40 score)

2	序号	学号	姓名	1
3	1	SA23001028	李苑浩	
4	2	SA23001044	彭晓东	
5	3	SA23001008	陈子聪	
6	4	SA23001080	赵安宇	
7	5	SA23001059	王梓睿	
8	6	SA22001031	林哲晖	
9	7	SA23001085	周鹏	
10	8	SA23001121	吴飞燕	
11	9	SA23001037	栾力	
12	10	SA23001018	胡诗敏	

2	40	SA23001064	许清宇	
3	41	SA23001017	胡家瑜	
4	42	SA23001011	代铁琳	
5	43	SA22001009	陈泽豪	
6	44	SA23001114	陶马成	
7	45	SA22001118	赵云开	
8	46	SA23001115	陶昱晖	
9	47	SA23001012	范瑞临	
0	48	SA21001089	朱子建	
1	49	BA23214021	朱开元	
2	50	SA20001033	莫子铭	

Survey + presentation

- Searching
- Presentation
- Writing a survey

How to search?

- Google / Google scholar
- Digital libraries
- Authors' homepage
- Course & seminary

Google / Google scholar

- Keywords

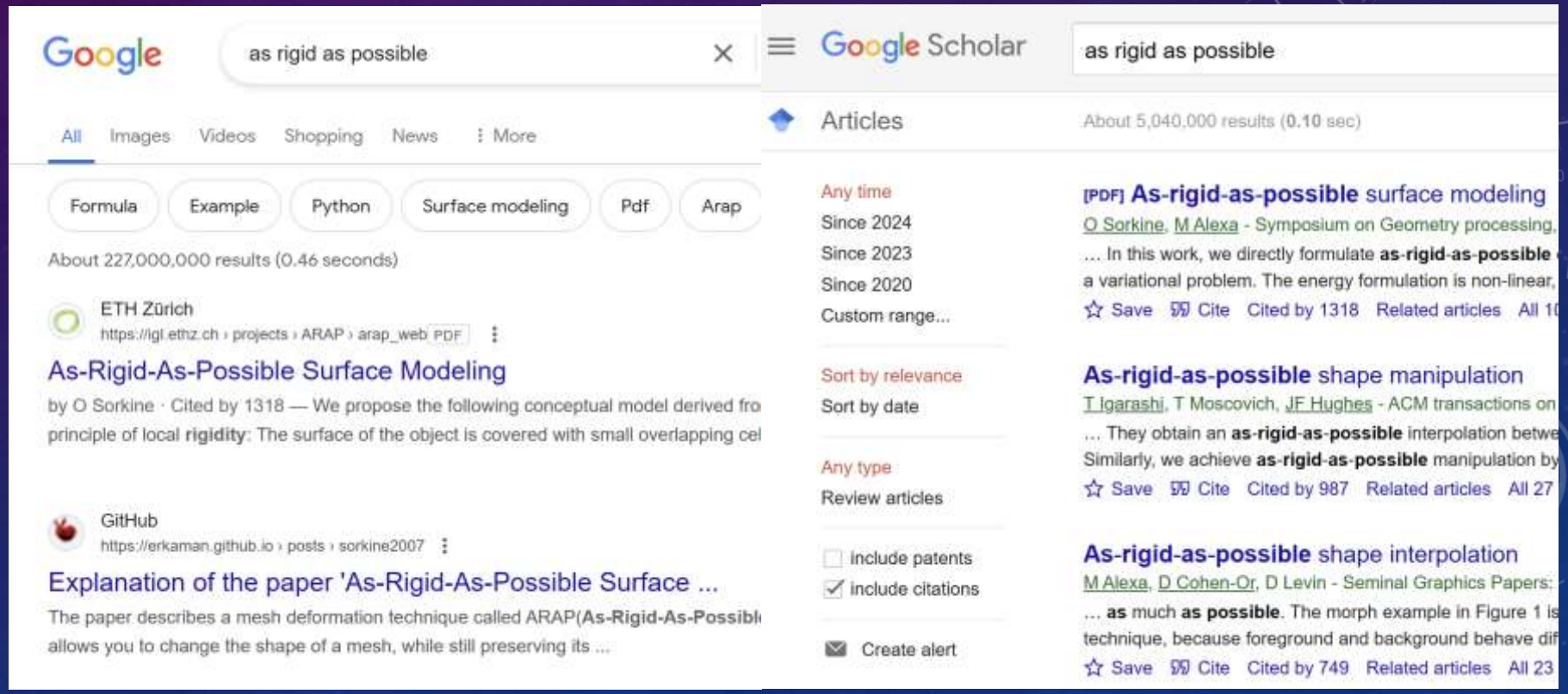
survey or overview,

state-of-the-art,

tutorial or course,

revisited,

trend or recent



Google / Google scholar

- Keywords
- Latest work

The trimmed iterative closest point algorithm

Search within citing articles

A review of point cloud registration algorithms for mobile robotics

F Pomerleau, F Colas, R Siegwart - Foundations and Trends® ..., 2015 - nowpublishers.com

The topic of this review is geometric registration in robotics. Registration algorithms associate sets of data into a common coordinate system. They have been used extensively ...

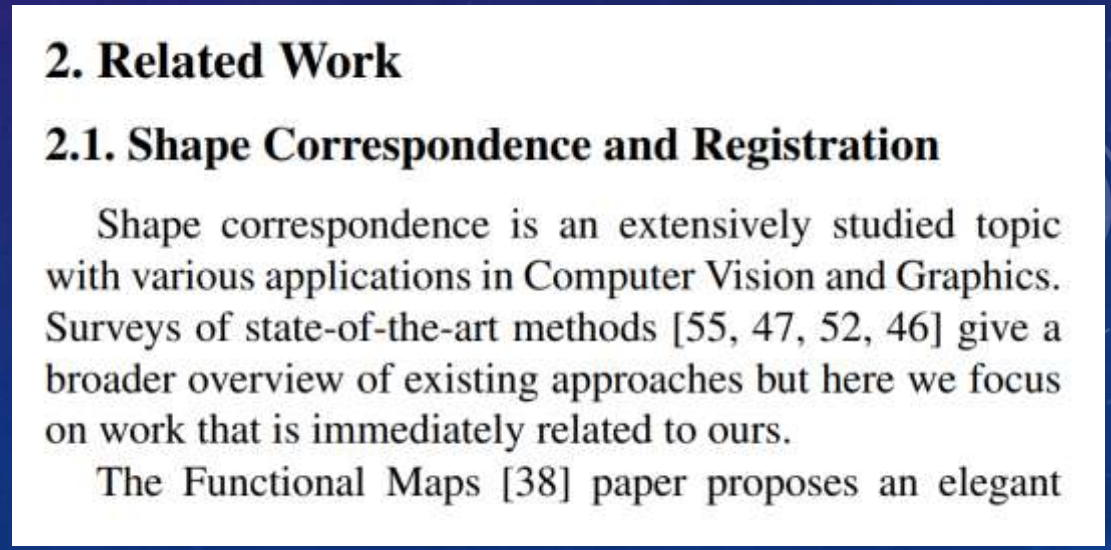
Save Cite Cited by 726 Related articles All 13 versions

Registration of large-scale terrestrial laser scanner point clouds: A review and benchmark

Z Dong, F Liang, B Yang, Y Xu, Y Zang, J Li... - ISPRS Journal of ..., 2020 - Elsevier

This study had two main aims:(1) to provide a comprehensive review of terrestrial laser scanner (TLS) point cloud registration methods and a better understanding of their strengths ...

Save Cite Cited by 273 Related articles All 8 versions



2. Related Work

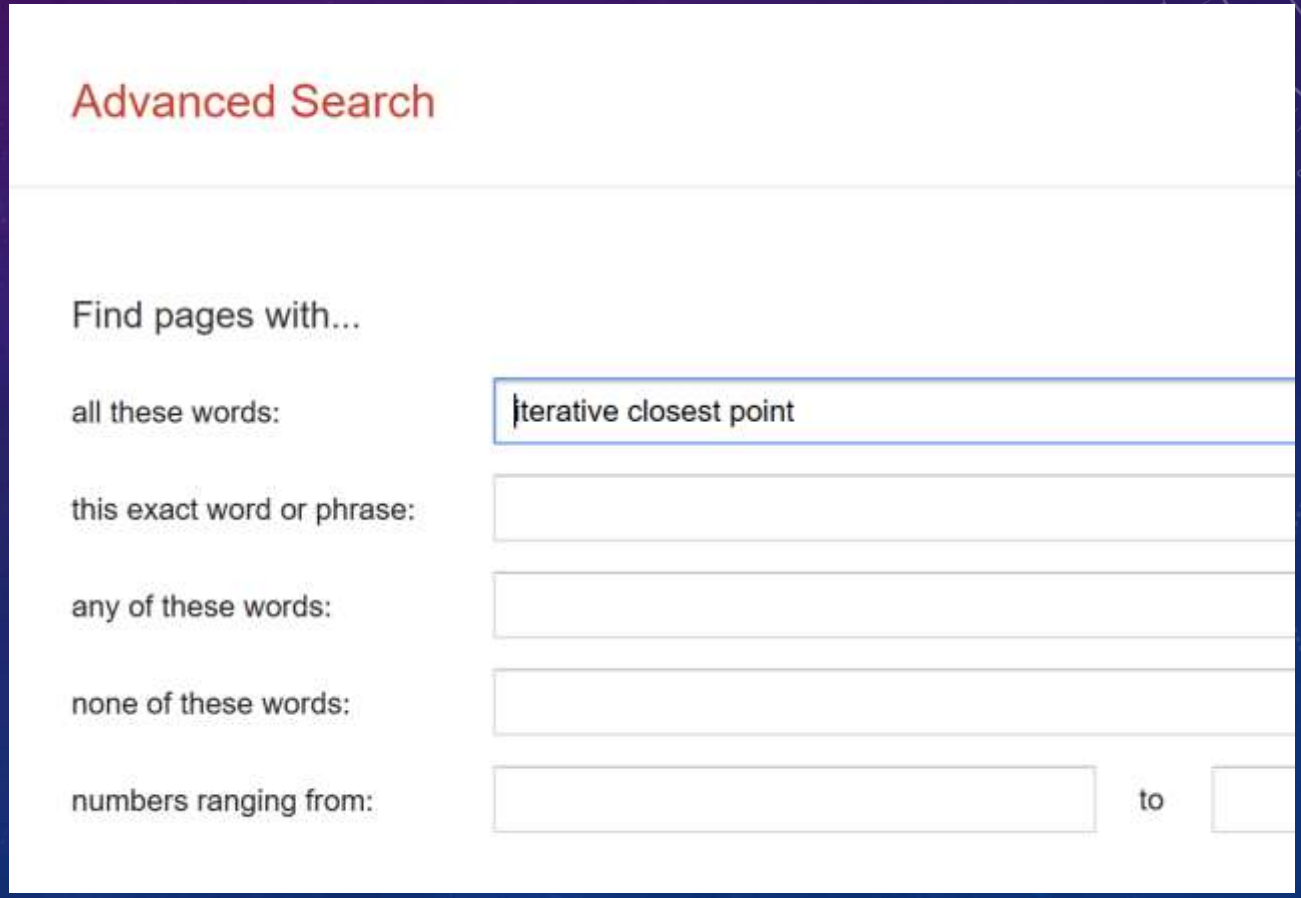
2.1. Shape Correspondence and Registration

Shape correspondence is an extensively studied topic with various applications in Computer Vision and Graphics. Surveys of state-of-the-art methods [55, 47, 52, 46] give a broader overview of existing approaches but here we focus on work that is immediately related to ours.

The Functional Maps [38] paper proposes an elegant

Google / Google scholar

- Keywords
- Latest work
- Advanced search
- …



Digital libraries

[中国科学技术大学图书馆 (ustc.edu.cn)](#)

[ACM Digital Library](#)

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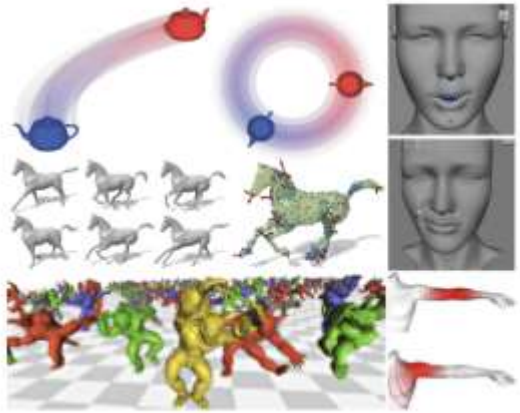
Skinning: Real-time Shape Deformation

ACM SIGGRAPH 2014 Course
ACM SIGGRAPH Asia 2014 Invited Course
Symposium on Geometry Processing 2015 Invited Course
International Geometry Summit 2016 Invited Course

Alec Jacobson
Columbia University
Zhigang Deng
University of Houston
Ladislav Kavan
University of Pennsylvania
J.P. Lewis
Victoria University, Weta Digital

SIGGRAPH Asia lecturer: Yotam Gingold
George Mason University



Course Materials

- Part I: Direct methods (Ladislav Kavan)
  Course notes | Slides
- Part II: Automatic methods (Alec Jacobson)
  Course notes | Course notes (low resolution) | Slides | Slides (167MB .pptx with videos)
- Part III: Example-based methods (JP Lewis)

Presentation

- Background
- Categories of methods
- Comparison
- Future trend

Writing

- Introduction
- Methods
- Conclusion

Example

Inversion-free geometric mapping construction: A survey

- Introduction
  - What's inversion-free geometric mapping?
  - Why need inversion-free mapping?

Example

Inversion-free geometric mapping construction: A survey

- General formulation
  - Variables
  - Objectives
  - Inversion-free constraints
  - …

Pros and cons!

Example

Inversion-free geometric mapping construction: A survey

- Conclusion and unsolved problems
  - Theoretical guarantee in removing flips
  - 2D -> 3D (bijective constraints, conformal constraints)
  - Applications (Feature preserving in PolyCube)
  - …