

The background features a dark blue gradient with faint, light blue geometric patterns. On the left side, there are several concentric circles and arcs, some of which are marked with degree values ranging from 40 to 260. These markings are arranged in a way that suggests a circular scale or a compass rose. The overall aesthetic is technical and modern.

# 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	
10	48	SA21001089	朱子建	
11	49	BA23214021	朱开元	
12	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

The image shows a side-by-side comparison of search results for the query "as rigid as possible". On the left is the standard Google search interface, and on the right is the Google Scholar interface.

**Google Search Results:**

- Search bar: "as rigid as possible"
- Filters: All (selected), Images, Videos, Shopping, News, More
- Result type filters: Formula, Example, Python, Surface modeling, Pdf, Arap
- Results: About 227,000,000 results (0.46 seconds)
- Top result: ETH Zürich, [https://lgl.ethz.ch/projects/ARAP/arap\\_web/PDF](https://lgl.ethz.ch/projects/ARAP/arap_web/PDF), **As-Rigid-As-Possible Surface Modeling** by O Sorkine · Cited by 1318 — We propose the following conceptual model derived from principle of local rigidity: The surface of the object is covered with small overlapping cel
- Second result: GitHub, <https://erkaman.github.io/posts/sorkine2007>, **Explanation of the paper 'As-Rigid-As-Possible Surface ...** The paper describes a mesh deformation technique called ARAP(As-Rigid-As-Possibl allows you to change the shape of a mesh, while still preserving its ...

**Google Scholar Search Results:**

- Search bar: "as rigid as possible"
- Filter: Articles
- Results: About 5,040,000 results (0.10 sec)
- Filters: Any time (selected), Since 2024, Since 2023, Since 2020, Custom range...; Sort by relevance (selected), Sort by date; Any type (selected), Review articles
- Checkboxes: ☐ include patents, ☒ include citations, ☐ Create alert
- Top results:
  - [PDF] As-rigid-as-possible surface modeling** by [O Sorkine](#), [M Alexa](#) - Symposium on Geometry processing, ... In this work, we directly formulate **as-rigid-as-possible** a variational problem. The energy formulation is non-linear, ☆ Save Cite Cited by 1318 Related articles All 10
  - As-rigid-as-possible shape manipulation** by [T Igarashi](#), [T Moscovich](#), [JF Hughes](#) - ACM transactions on ... They obtain an **as-rigid-as-possible** interpolation between ... Similarly, we achieve **as-rigid-as-possible** manipulation by ☆ Save Cite Cited by 987 Related articles All 27
  - As-rigid-as-possible shape interpolation** by [M Alexa](#), [D Cohen-Or](#), [D Levin](#) - Seminal Graphics Papers: ... **as much as possible**. The morph example in Figure 1 is technique, because foreground and background behave dif ☆ Save Cite Cited by 749 Related articles All 23

# 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
- ...

Advanced Search

Find pages with...

all these words:

this exact word or phrase:

any of these words:

none of these words:

numbers ranging from:  to



# Digital libraries

[中国科学技术大学图书馆 \(ustc.edu.cn\)](http://ustc.edu.cn)



The screenshot shows the USTC Library website with two main sections: '快速导航' (Quick Navigation) and '常用数据库' (Common Databases).

**快速导航 (Quick Navigation):**

- 馆藏书目
- 馆藏分布
- 数据库地图
- 查收查引
- 科技查新
- 文献传递与馆际互借
- 常见问题
- 相关业务联系人
- 读者指南
- 教学电子资源

**常用数据库 (Common Databases):**

- Web of Science (SCI)
- Ei Compendex
- Scopus
- SciFinder
- Reaxys
- IEEE Xplore
- Nature Press Group
- ACS
- Elsevier ScienceDirect
- CNKI

A cartoon character is visible on the right side of the database list, and a blue banner at the bottom right says '欢迎点击咨询' (Welcome to click for consultation).

[ACM Digital Library](http://acmdl.acm.org)



The screenshot shows the ACM Digital Library homepage. The header features the 'ACM DL DIGITAL LIBRARY' logo. Below the logo is a search bar with the text 'Search' and a magnifying glass icon. To the right of the search bar is a link to 'Advanced Search'.

A welcome message is displayed in a dark box at the bottom:

Welcome to the ACM Digital Library  
A community engaged with a repository of resources to support computing research and practice  
Please explore and use the [Feedback] button on any page to help us shape the new site.

# How to search?

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

## 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

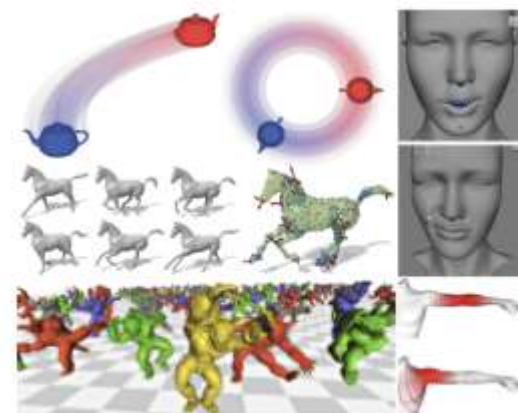
*University of Houston*

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  $\rightarrow$  3D (bijective constraints, conformal constraints)
  - Applications (Feature preserving in PolyCube)
  - ...