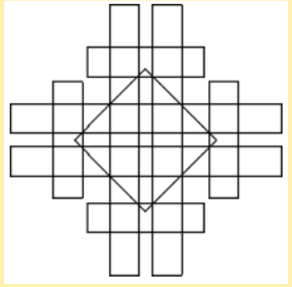
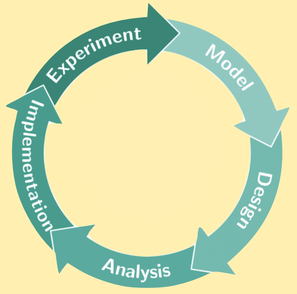


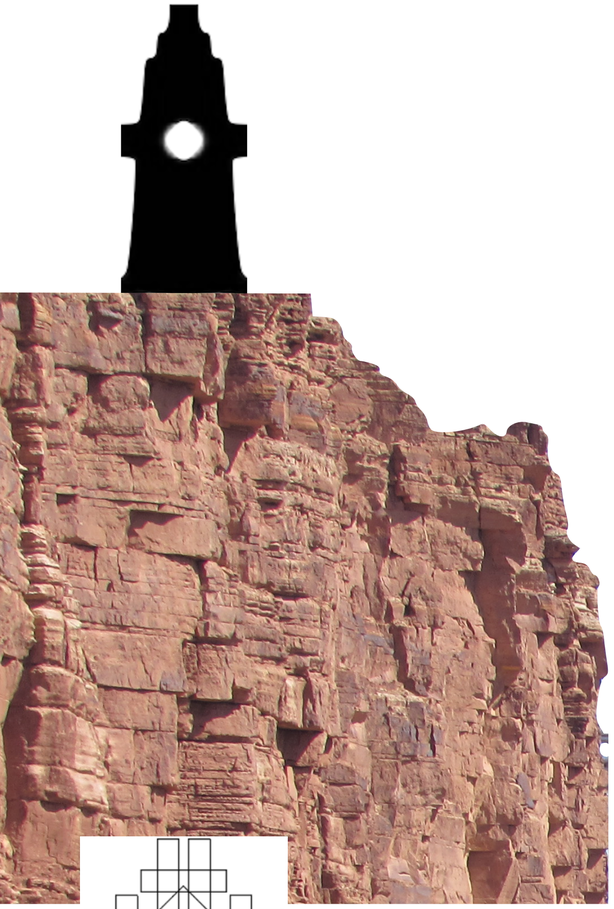
Theory and Practice: Bridging the Gap at SoCG?

Sándor Fekete, Private Citizen



Computational Geometry and Applied Sciences

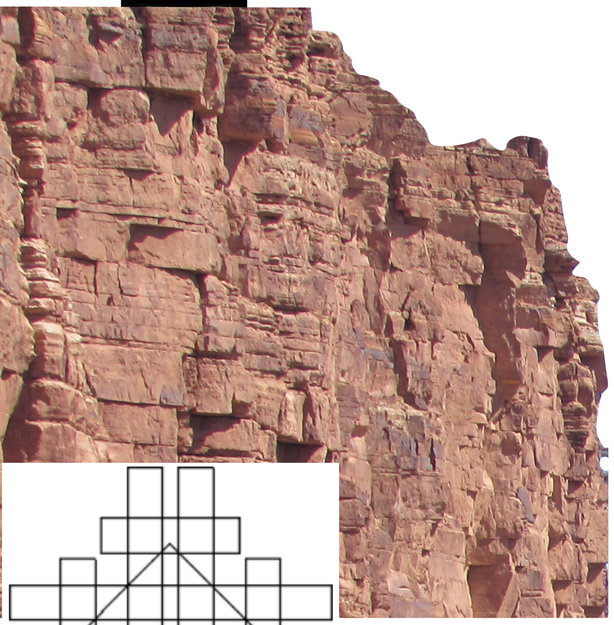
Computational Geometry

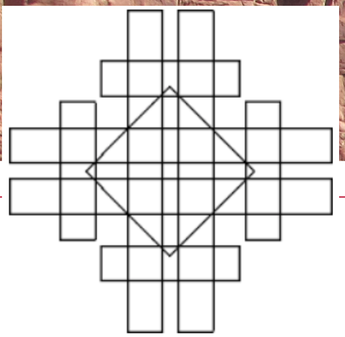


Applied Sciences

Theory and Practice

Theory





Practice

The Applied Track at SoCG: 1997-2001

1997, 13th SoCG
C. Hoffman (Applied Track chair)
Bernard Chazelle, Jung-Hong Chuang

1998, 14th SoCG
J. Rossignac (Applied Track chair)

1999, 15th SoCG
J. Canny (Applied Track chair)

2000, 16th SoCG
S. Fortune (Applied Track chair)

2001, 17th SoCG
D. Halperin (Applied Track chair)

September 22, 2004

"Applied" Papers at SoCG

Ernie's 3D Pancakes

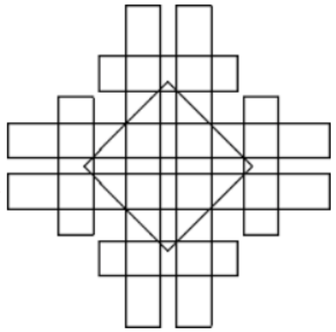
Let Σ be a combinatorial surface with n vertices, genus g, and b boundaries. Amen.

In its first year, the applied track was a roaring success, at least in terms of numbers. The conference received twice as many submissions as usual, and the program committee was forced to expand the conference to four days instead of the usual three to avoid parallel sessions. (The record number of submissions may also have been influenced by the fact that SoCG was held in the French Riviera that year.)

But over the long haul, the applied track at SoCG has been a train wreck. Some of this failure stems from our community's ~~intellectual snobbery~~ unmitigated gall. The applied track was *really* introduced to bring potential customers of computational geometry to SoCG to see that, really, we're useful, honest. "You've been doing it all wrong," we said. "Just explain your little geometric problem to us experts; we'll be able to solve it in no time, because we (unlike you) have the *right* tools."

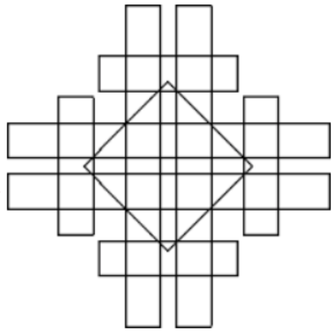
(Tongue in Cheek) Options from 2024

1. **Do nothing**
2. **Theoretical approach:** Develop a perfect solution
3. **Pragmatic approach:** Give it a try, evaluate, refine



Proposal from 2024

1. Discuss:	Now!
2. Task Force:	Vote at BM, let new SC appoint TF
3. Elaborate:	Continue discussion, work out details
4. Vote:	Electronically, some time soon
5. Try out:	When?
6. Improve:	Try, evaluate, refine

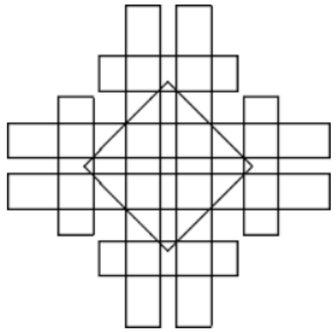


Task Force Recommendation

Proposal: SoCG track B

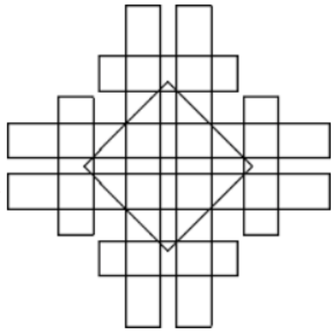
Following these objectives, we propose to strengthen SoCG as a whole by splitting the existing four paper types into two tracks. The second track will focus on implementations and applications, ensuring that such work will be reviewed by experts in such topics. No changes to the mathematical foundations and complexity papers will be made.

To achieve the desirable significance of this new track, we favor the tried and tested format of ESA, which offers a Track A (aimed at algorithm theory in ESA) and a track B (aimed at algorithm engineering in ESA). Each track has its own program committee and separate chairs, but the PC chairs work together to jointly create a program for ESA, with no explicit distinction in the proceedings and in the program. Scope and objectives of this SoCG track B will be adjusted to fit the needs of our community, including the submission of data and software, and the addition of 3 to 4 “software testers” for evaluating the viability of computational contributions. However, SoCG will keep its high quality standards, and the SoCG B PC will not have any pressure to accept submissions. Weak submissions will be rejected at SoCG B, just as weak theory papers are rejected at SoCG (A) currently, but the addition of the extra track will allow for the applied papers to be reviewed by a group with expertise in this domain and desiderata to focus on these aspects of the submissions.



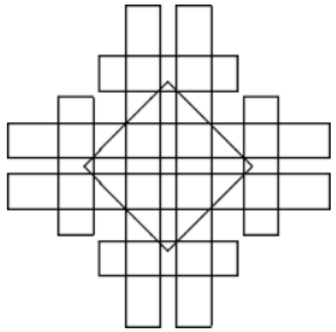
Vote on Recommendation

Keep SoCG single track and single PC, and work to address concerns within the current model, e.g. by strengthening and enforcing reviewing based on paper types.	42
Move ahead to implement a second track "B", for "applied" and “implementation” papers, broadly defined, in the general spirit of the recommendation of the task force report, with exact details of its implementation subject to further discussion within the community.	130
I do not like either option. (If you select this, please follow up with the SC.)	6



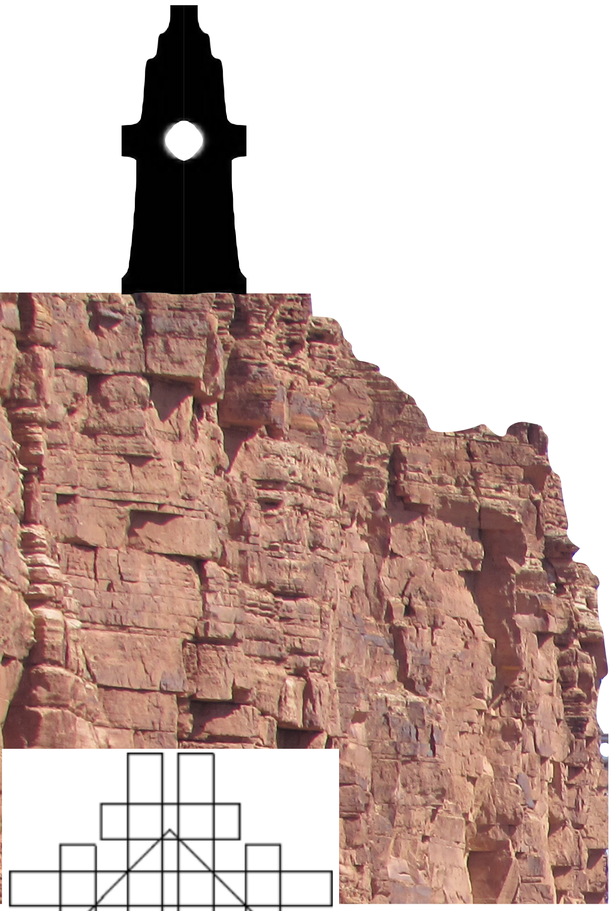
Conclusion of Proposal

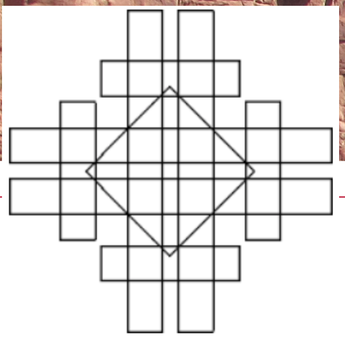
We propose that the details of these guidelines should be specified by the first PC, with input from the community, and evaluated and adjusted each year as needed. We expect a period of flexibility and adaptation being necessary, as there will be a period of adjusting details based on the success and volume of submissions.



Let’s Make It Work!

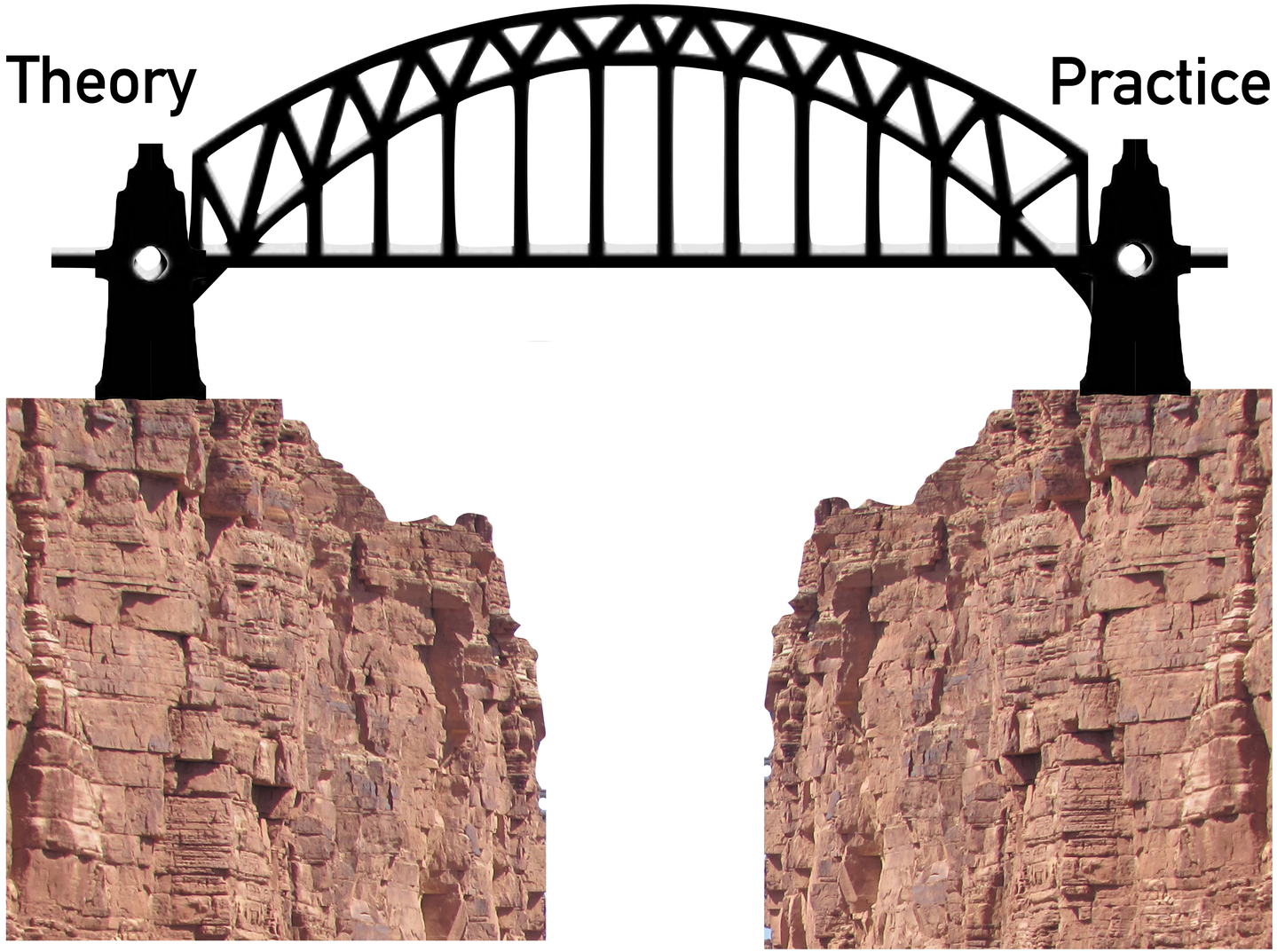
Theory



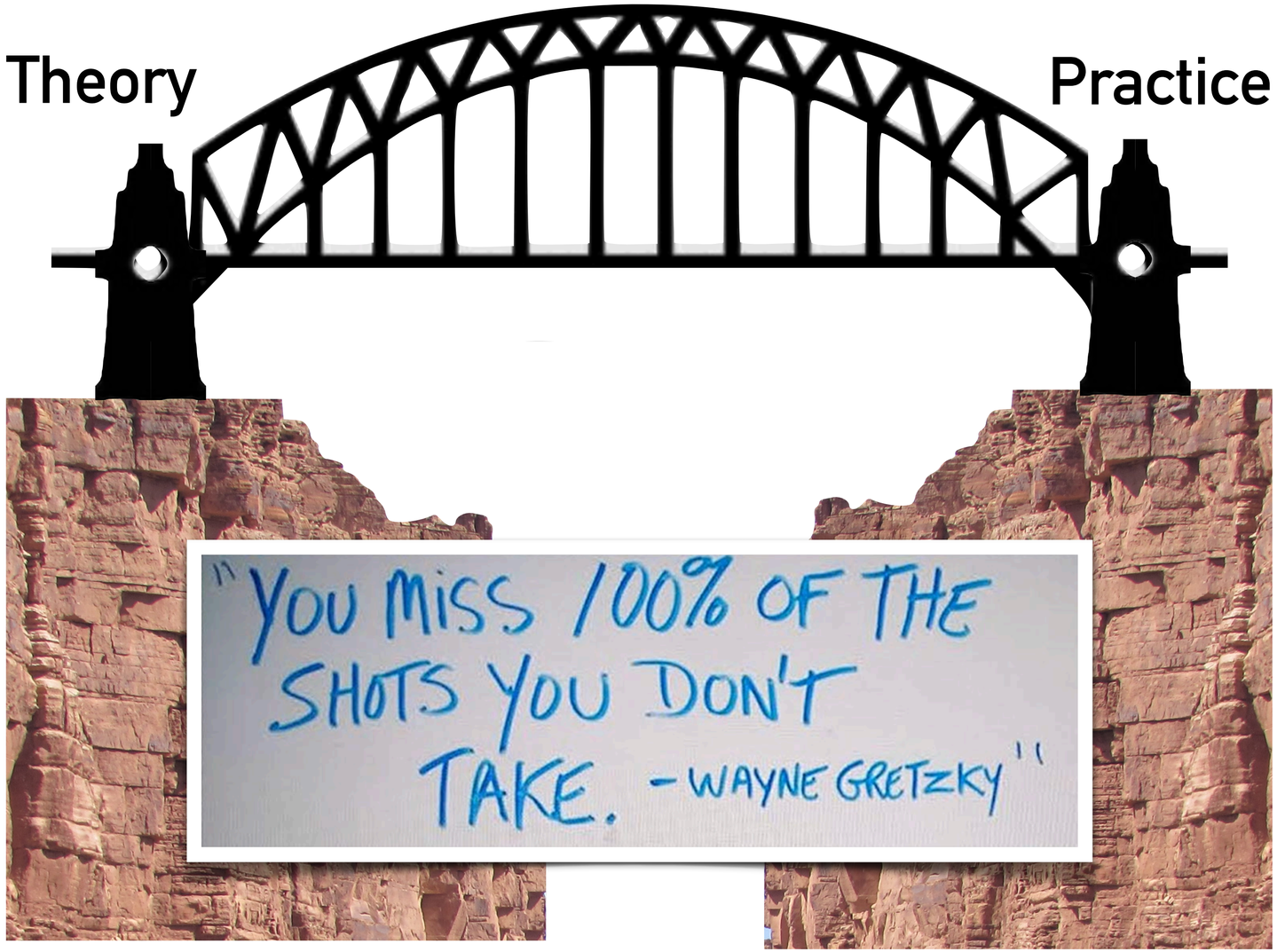


Practice

Let’s Make It Work!



Let’s Make It Work!



Model ESA

The European Symposium on Algorithms (ESA) covers research in efficient algorithms and data structures in computer science, discrete applied mathematics, operations research and mathematical programming. Starting from 2002, the symposium has two tracks:

- Design and Analysis Track Design and mathematical analysis of algorithms
- Engineering and Application Track Real-world applications, engineering and experimental analysis of algorithms
- New since 2022: Simplicity Track. Proofs or algorithms that show results (possibly already known) in a simple and elegant way

Each track has its own program committee. Papers are submitted to a particular track, but the committees have the right to move papers between tracks. The program committees selects best papers as well as best student papers. In 2014,