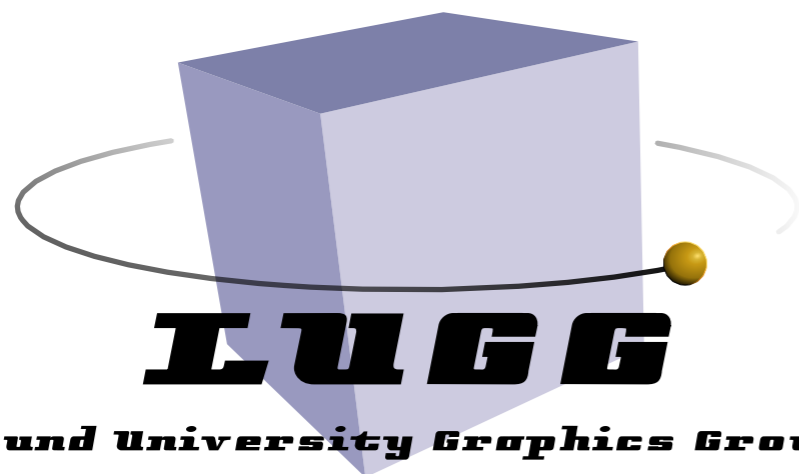




Project Presentations



Michael Doggett
Department of Computer Science
Lund University

Competition Jury

- **Gregor Ehrenstein, Lead Engine Programmer, Massive Ubisoft**
- **Jonas Gustavsson, AMD developer support**
- **Calle Lejdfors, AMD developer support**
- **Anders Lindqvist, Nvidia Research Lund**
- **Niklas Sandén, Winner of 2023 competition**
- **Gustaf Waldemarson, WASP Industrial PhD student with ARM**

1. Marching - Theodor, Jintao & Jiuming

2. Parallel RT - Karl

3. AO - Martin & Patrik

4. Pixelization - Patrik & Jesper

5. Snow - Nicklas

6. Toon - Arturo & José

7. DOF & ChromAber - Oskar & Erik

8. Clouds - Johan

9. GPU RTIOW - Mateusz & Maximilliano

10. 1-bit shading - Olof & Michal

11. NPR - Edvin & Vlad

12. RTIOW - Yanling, Zilin & Viviana

13. Photon Mapping - Jacqueline & Linda

14. L-system - Lilly & Jonas

15. Fluid - Luke, Su & Zhenghang

16. CUDA RT - Oscar

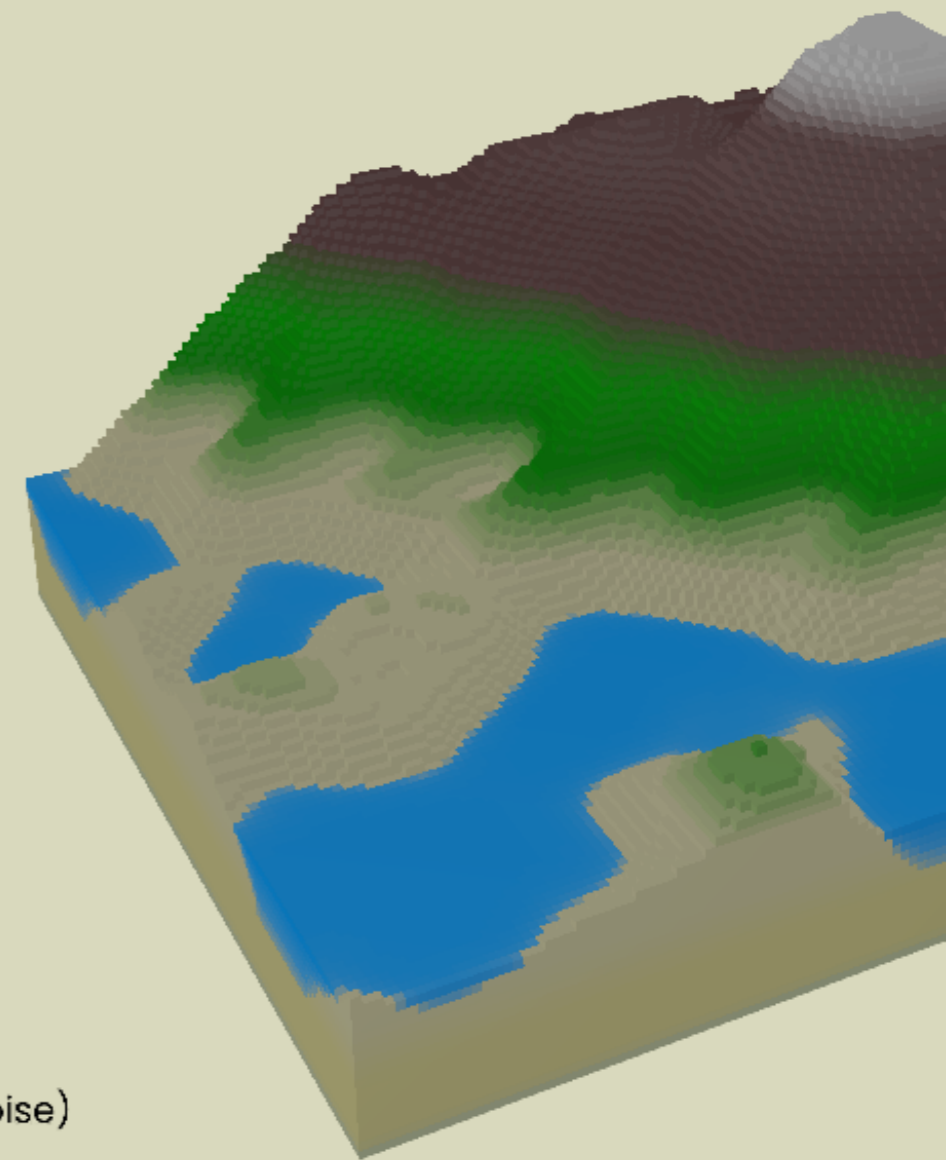
17. Aquarium - Anush & Thong

18. Fountain - Garima & Yuxi

FPS: 729

GPU: 0,43 ms

CPU: 0,47 ms



Current Scene: 8 - (Noise)

Current rule: 4/5

Voxel count: 1,0 M

Time: 83 s

1. Marching - Theodor, Jintao & Jiuming

2. Parallel RT - Karl

3. AO - Martin & Patrik

4. Pixelization - Patrik & Jesper

5. Snow - Nicklas

6. Toon - Arturo & José

7. DOF & ChromAber - Oskar & Erik

8. Clouds - Johan

9. GPU RTIOW - Mateusz & Maximilliano

10. 1-bit shading - Olof & Michal

11. NPR - Edvin & Vlad

12. RTIOW - Yanling, Zilin & Viviana

13. Photon Mapping - Jacqueline & Linda

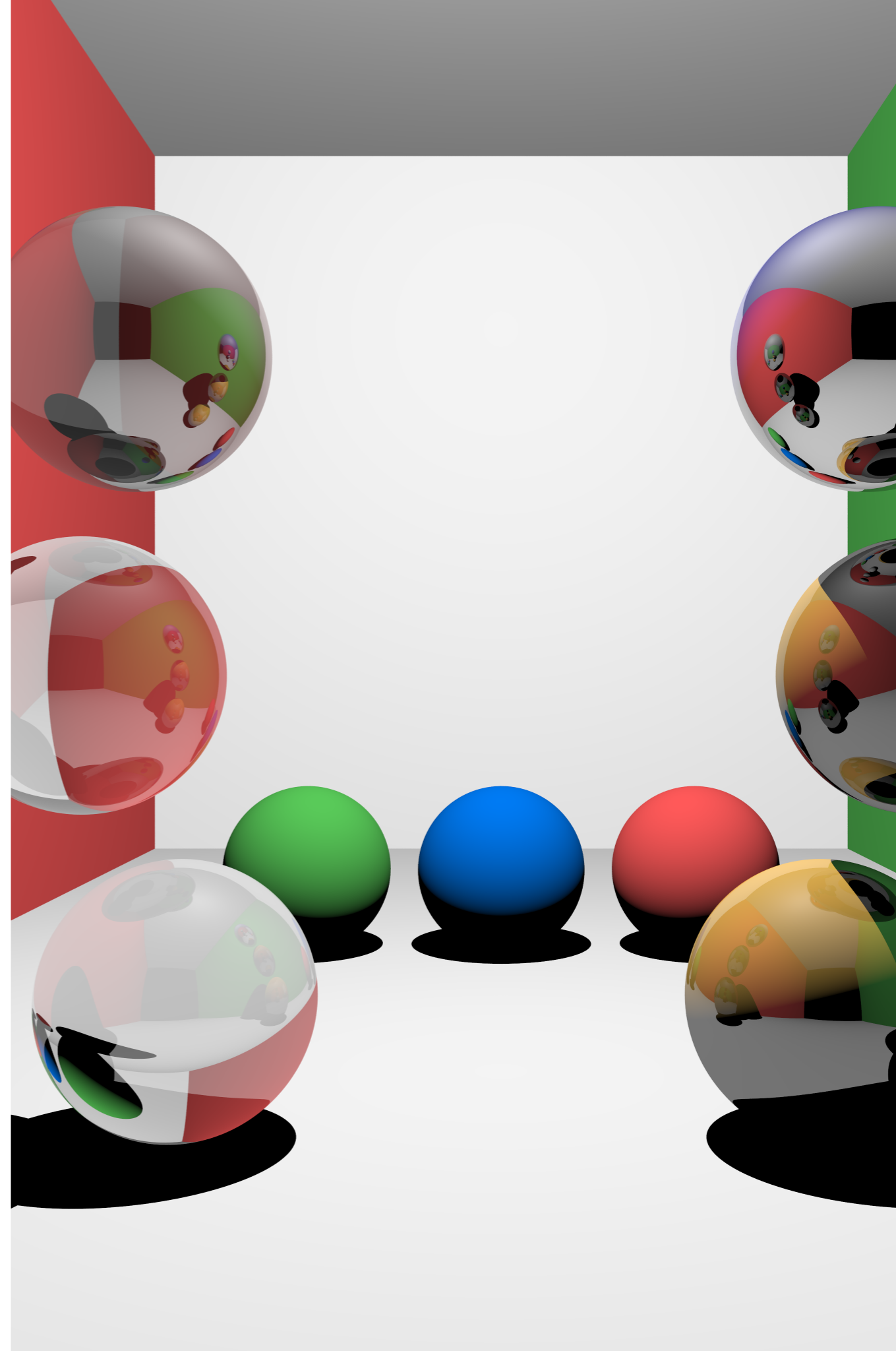
14. L-system - Lilly & Jonas

15. Fluid - Luke, Su & Zhenghang

16. CUDA RT - Oscar

17. Aquarium - Anush & Thong

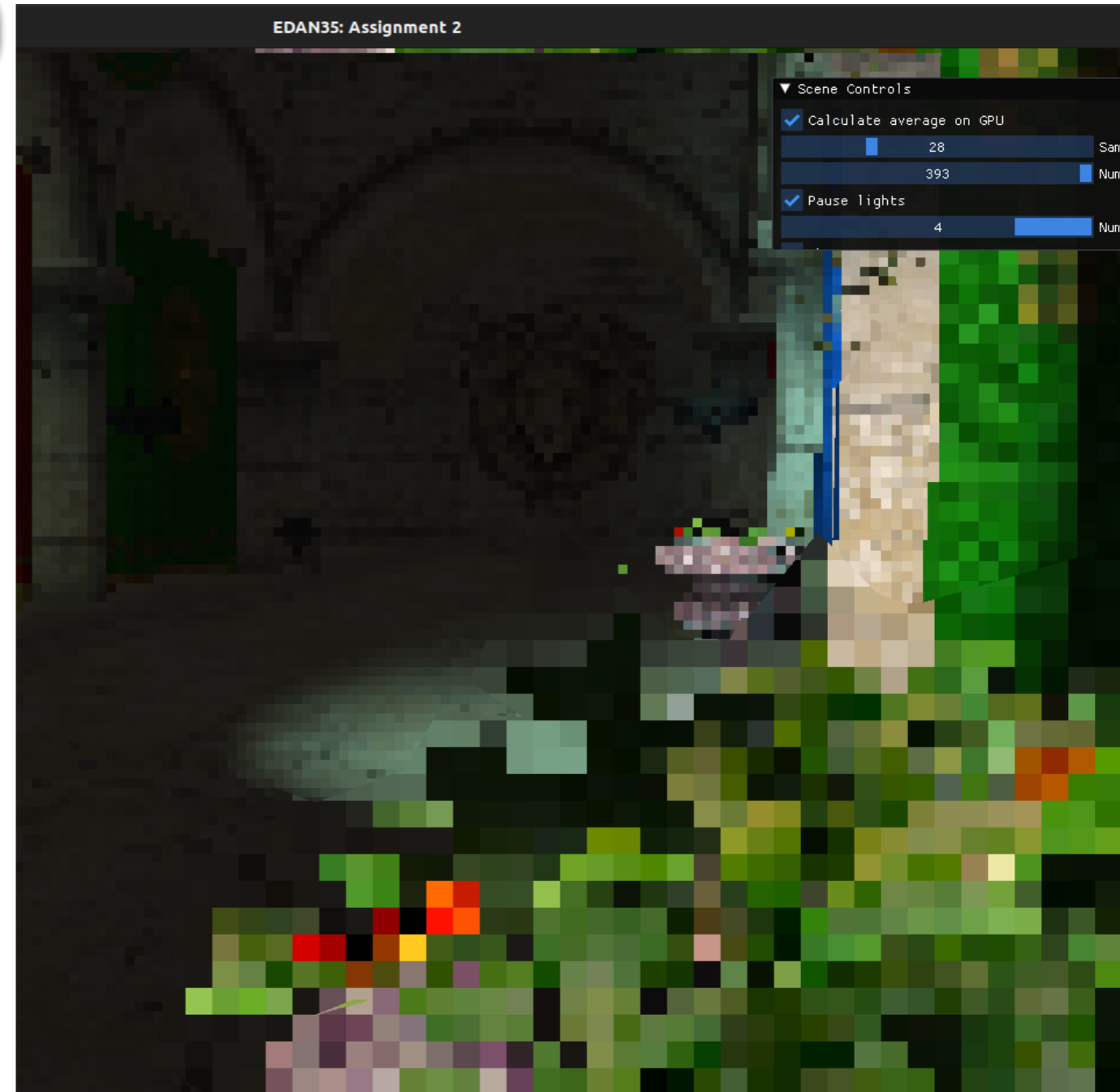
18. Fountain - Garima & Yuxi



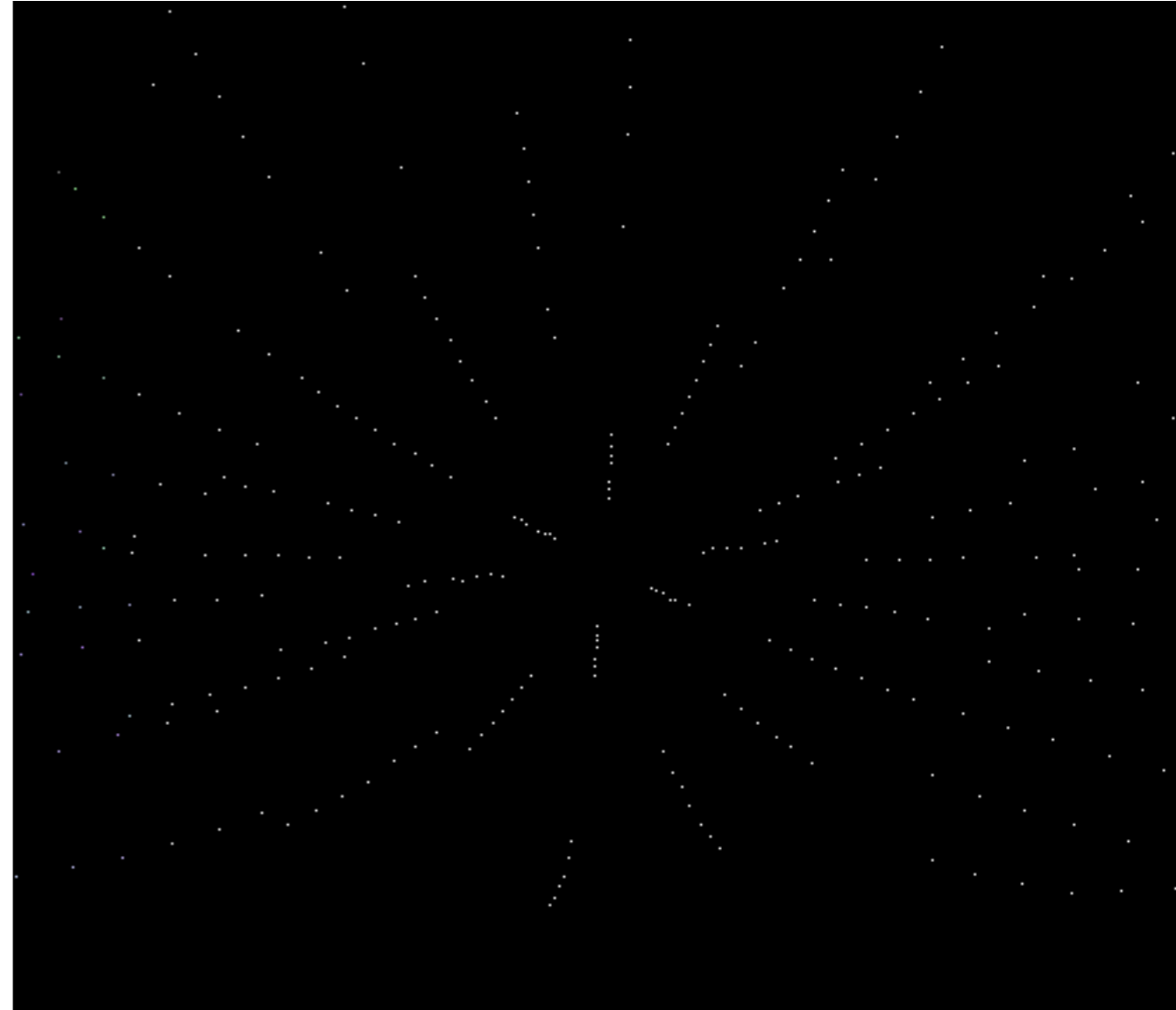
1. **Marching - Theodor, Jintao & Jiuming**
2. **Parallel RT - Karl**
3. **AO - Martin & Patrik**
4. **Pixelization - Patrik & Jesper**
5. **Snow - Nicklas**
6. **Toon - Arturo & José**
7. **DOF & ChromAber - Oskar & Erik**
8. **Clouds - Johan**
9. **GPU RTIOW - Mateusz & Maximilliano**
10. **1-bit shading - Olof & Michal**
11. **NPR - Edvin & Vlad**
12. **RTIOW - Yanling, Zilin & Viviana**
13. **Photon Mapping - Jacqueline & Linda**
14. **L-system - Lilly & Jonas**
15. **Fluid - Luke, Su & Zhenghang**
16. **CUDA RT - Oscar**
17. **Aquarium - Anush & Thong**
18. **Fountain - Garima & Yuxi**



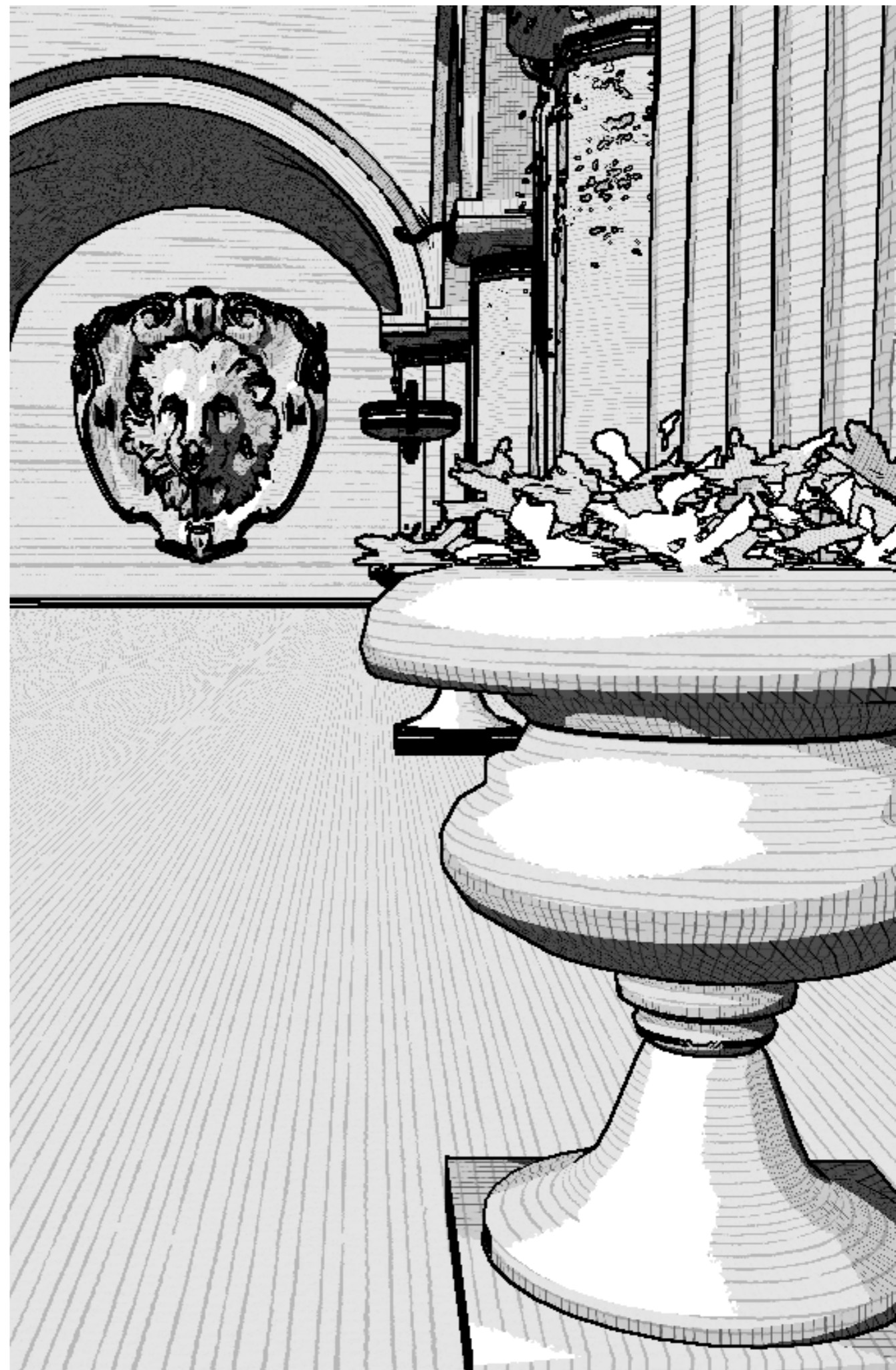
1. **Marching - Theodor, Jintao & Jiuming**
2. **Parallel RT - Karl**
3. **AO - Martin & Patrik**
4. **Pixelization - Patrik & Jesper**
5. **Snow - Nicklas**
6. **Toon - Arturo & José**
7. **DOF & ChromAber - Oskar & Erik**
8. **Clouds - Johan**
9. **GPU RTIOW - Mateusz & Maximilliano**
10. **1-bit shading - Olof & Michal**
11. **NPR - Edvin & Vlad**
12. **RTIOW - Yanling, Zilin & Viviana**
13. **Photon Mapping - Jacqueline & Linda**
14. **L-system - Lilly & Jonas**
15. **Fluid - Luke, Su & Zhenghang**
16. **CUDA RT - Oscar**
17. **Aquarium - Anush & Thong**
18. **Fountain - Garima & Yuxi**



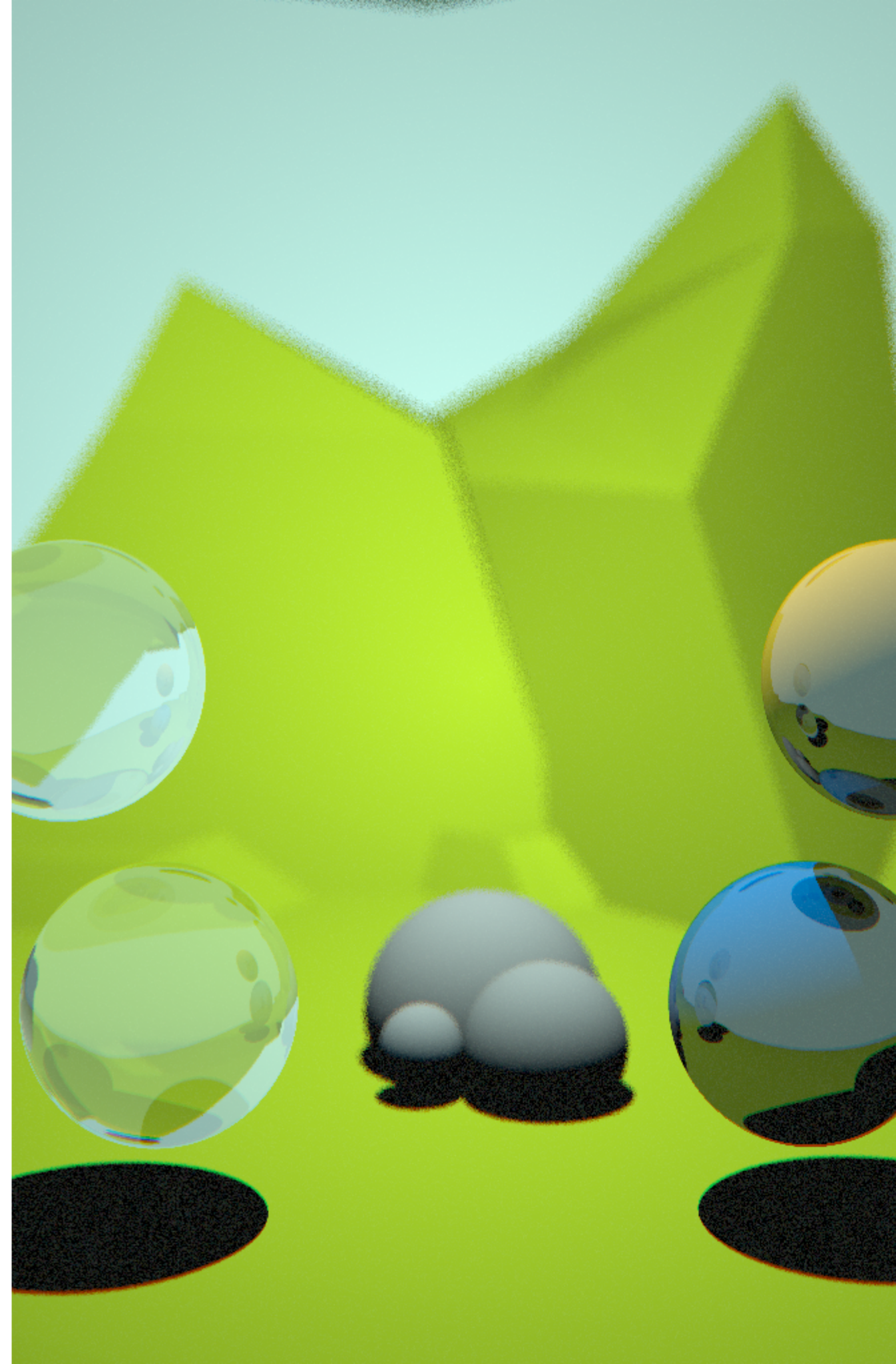
1. **Marching - Theodor, Jintao & Jiuming**
2. **Parallel RT - Karl**
3. **AO - Martin & Patrik**
4. **Pixelization - Patrik & Jesper**
5. **Snow - Nicklas**
6. **Toon - Arturo & José**
7. **DOF & ChromAber - Oskar & Erik**
8. **Clouds - Johan**
9. **GPU RTIOW - Mateusz & Maximilliano**
10. **1-bit shading - Olof & Michal**
11. **NPR - Edvin & Vlad**
12. **RTIOW - Yanling, Zilin & Viviana**
13. **Photon Mapping - Jacqueline & Linda**
14. **L-system - Lilly & Jonas**
15. **Fluid - Luke, Su & Zhenghang**
16. **CUDA RT - Oscar**
17. **Aquarium - Anush & Thong**
18. **Fountain - Garima & Yuxi**



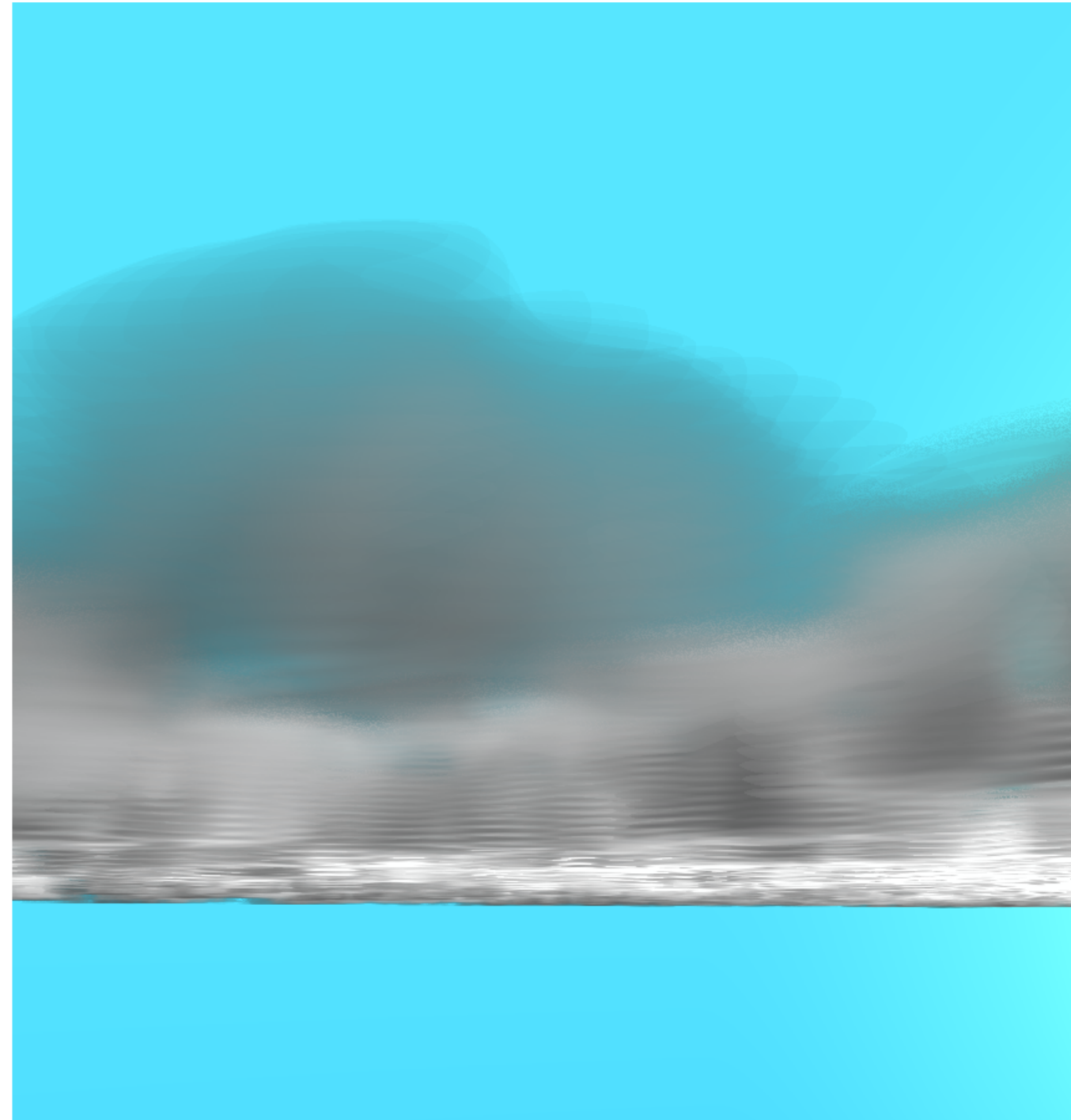
1. **Marching - Theodor, Jintao & Jiuming**
2. **Parallel RT - Karl**
3. **AO - Martin & Patrik**
4. **Pixelization - Patrik & Jesper**
5. **Snow - Nicklas**
6. **Toon - Arturo & José**
7. **DOF & ChromAber - Oskar & Erik**
8. **Clouds - Johan**
9. **GPU RTIOW - Mateusz & Maximilliano**
10. **1-bit shading - Olof & Michal**
11. **NPR - Edvin & Vlad**
12. **RTIOW - Yanling, Zilin & Viviana**
13. **Photon Mapping - Jacqueline & Linda**
14. **L-system - Lilly & Jonas**
15. **Fluid - Luke, Su & Zhenghang**
16. **CUDA RT - Oscar**
17. **Aquarium - Anush & Thong**
18. **Fountain - Garima & Yuxi**



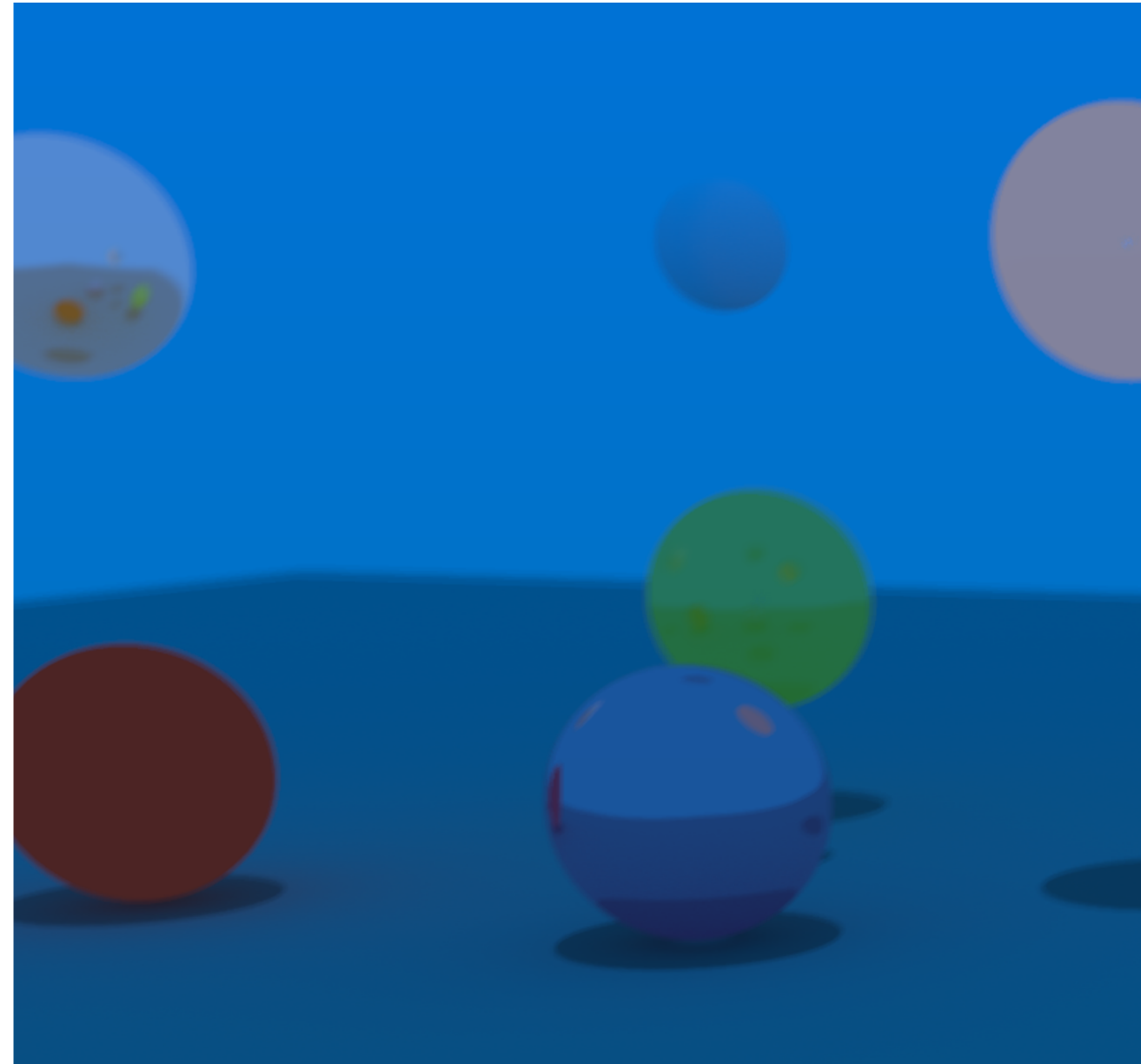
1. **Marching - Theodor, Jintao & Jiuming**
2. **Parallel RT - Karl**
3. **AO - Martin & Patrik**
4. **Pixelization - Patrik & Jesper**
5. **Snow - Nicklas**
6. **Toon - Arturo & José**
7. **DOF & ChromAber - Oskar & Erik**
8. **Clouds - Johan**
9. **GPU RTIOW - Mateusz & Maximilliano**
10. **1-bit shading - Olof & Michal**
11. **NPR - Edvin & Vlad**
12. **RTIOW - Yanling, Zilin & Viviana**
13. **Photon Mapping - Jacqueline & Linda**
14. **L-system - Lilly & Jonas**
15. **Fluid - Luke, Su & Zhenghang**
16. **CUDA RT - Oscar**
17. **Aquarium - Anush & Thong**
18. **Fountain - Garima & Yuxi**



1. **Marching - Theodor, Jintao & Jiuming**
2. **Parallel RT - Karl**
3. **AO - Martin & Patrik**
4. **Pixelization - Patrik & Jesper**
5. **Snow - Nicklas**
6. **Toon - Arturo & José**
7. **DOF & ChromAber - Oskar & Erik**
8. **Clouds - Johan**
9. **GPU RTIOW - Mateusz & Maximilliano**
10. **1-bit shading - Olof & Michal**
11. **NPR - Edvin & Vlad**
12. **RTIOW - Yanling, Zilin & Viviana**
13. **Photon Mapping - Jacqueline & Linda**
14. **L-system - Lilly & Jonas**
15. **Fluid - Luke, Su & Zhenghang**
16. **CUDA RT - Oscar**
17. **Aquarium - Anush & Thong**
18. **Fountain - Garima & Yuxi**



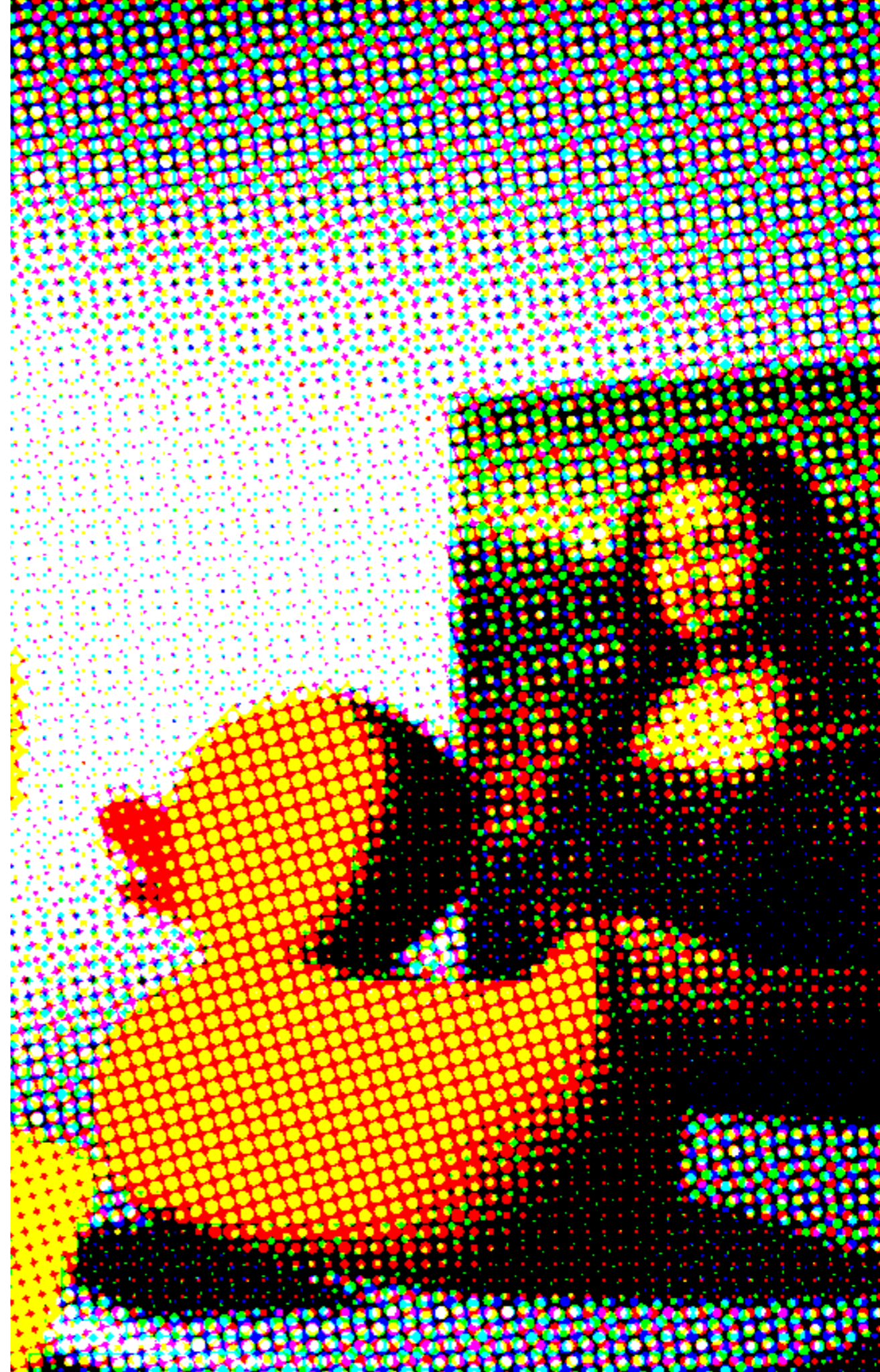
1. **Marching - Theodor, Jintao & Jiuming**
2. **Parallel RT - Karl**
3. **AO - Martin & Patrik**
4. **Pixelization - Patrik & Jesper**
5. **Snow - Nicklas**
6. **Toon - Arturo & José**
7. **DOF & ChromAber - Oskar & Erik**
8. **Clouds - Johan**
9. **GPU RTIOW - Mateusz & Maximilliano**
10. **1-bit shading - Olof & Michal**
11. **NPR - Edvin & Vlad**
12. **RTIOW - Yanling, Zilin & Viviana**
13. **Photon Mapping - Jacqueline & Linda**
14. **L-system - Lilly & Jonas**
15. **Fluid - Luke, Su & Zhenghang**
16. **CUDA RT - Oscar**
17. **Aquarium - Anush & Thong**
18. **Fountain - Garima & Yuxi**



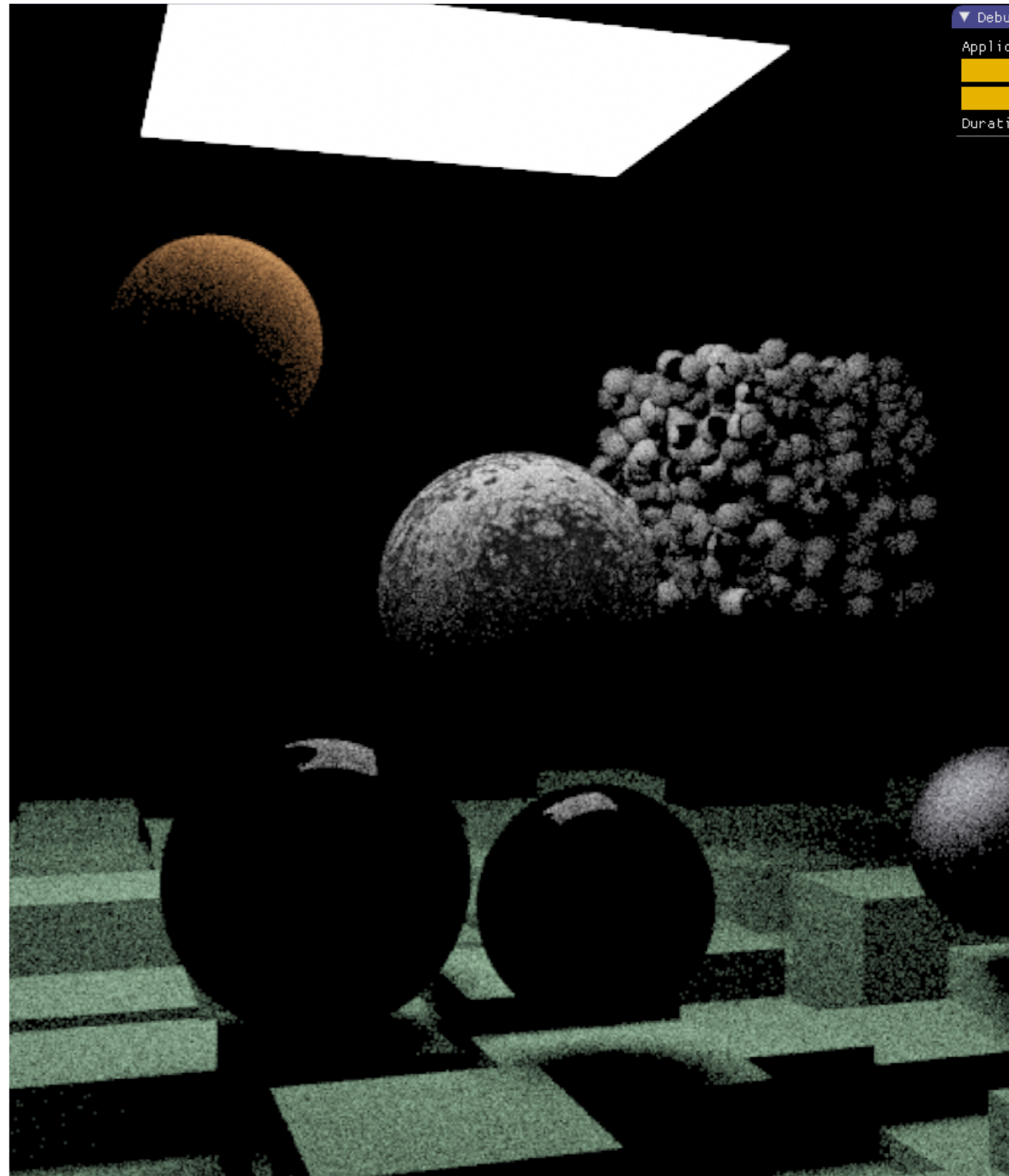
1. **Marching - Theodor, Jintao & Jiuming**
2. **Parallel RT - Karl**
3. **AO - Martin & Patrik**
4. **Pixelization - Patrik & Jesper**
5. **Snow - Nicklas**
6. **Toon - Arturo & José**
7. **DOF & ChromAber - Oskar & Erik**
8. **Clouds - Johan**
9. **GPU RTIOW - Mateusz & Maximilliano**
10. **1-bit shading - Olof & Michal**
11. **NPR - Edvin & Vlad**
12. **RTIOW - Yanling, Zilin & Viviana**
13. **Photon Mapping - Jacqueline & Linda**
14. **L-system - Lilly & Jonas**
15. **Fluid - Luke, Su & Zhenghang**
16. **CUDA RT - Oscar**
17. **Aquarium - Anush & Thong**
18. **Fountain - Garima & Yuxi**



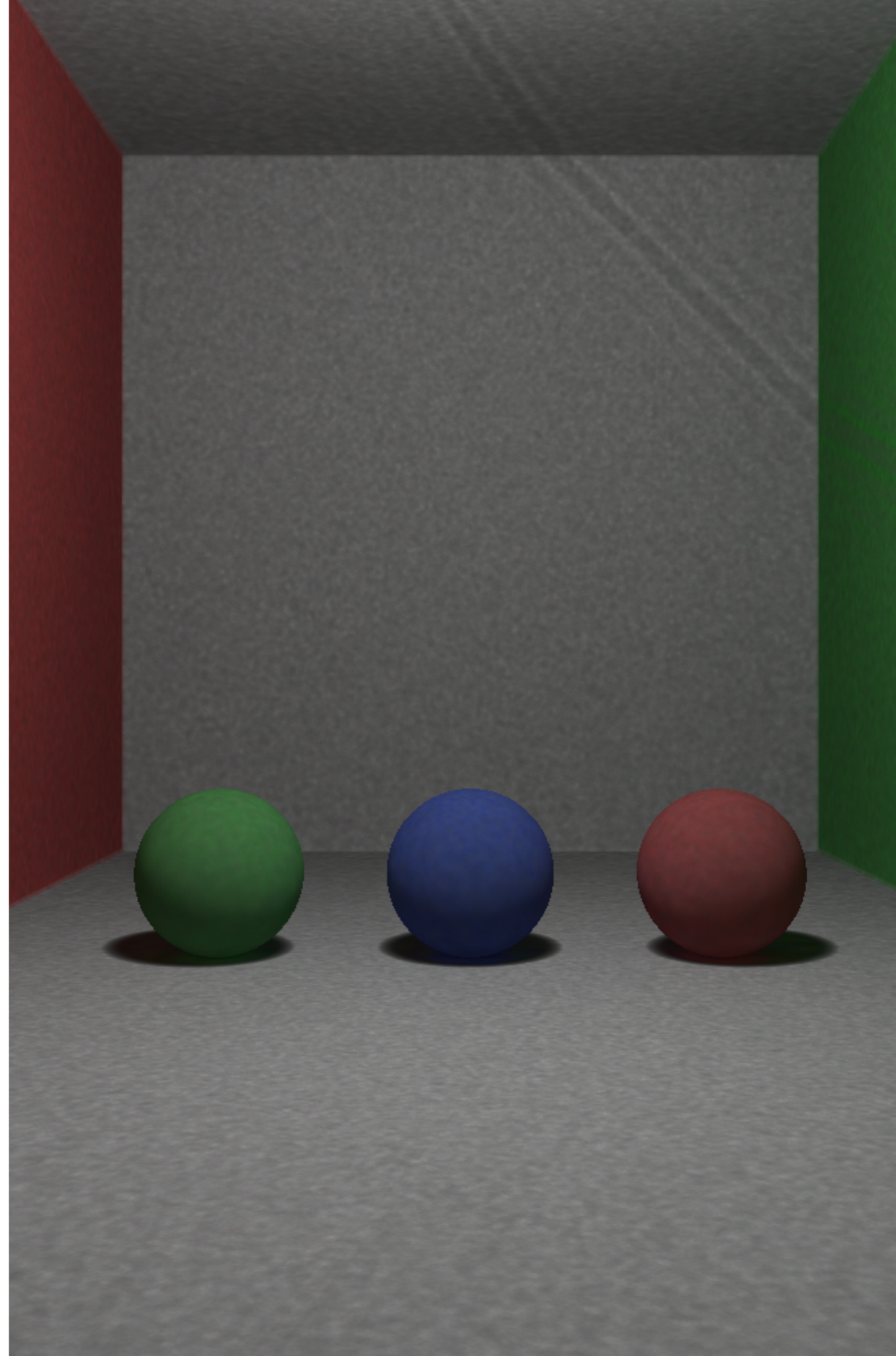
1. **Marching - Theodor, Jintao & Jiuming**
2. **Parallel RT - Karl**
3. **AO - Martin & Patrik**
4. **Pixelization - Patrik & Jesper**
5. **Snow - Nicklas**
6. **Toon - Arturo & José**
7. **DOF & ChromAber - Oskar & Erik**
8. **Clouds - Johan**
9. **GPU RTIOW - Mateusz & Maximilliano**
10. **1-bit shading - Olof & Michal**
11. **NPR - Edvin & Vlad**
12. **RTIOW - Yanling, Zilin & Viviana**
13. **Photon Mapping - Jacqueline & Linda**
14. **L-system - Lilly & Jonas**
15. **Fluid - Luke, Su & Zhenghang**
16. **CUDA RT - Oscar**
17. **Aquarium - Anush & Thong**
18. **Fountain - Garima & Yuxi**



1. **Marching - Theodor, Jintao & Jiuming**
2. **Parallel RT - Karl**
3. **AO - Martin & Patrik**
4. **Pixelization - Patrik & Jesper**
5. **Snow - Nicklas**
6. **Toon - Arturo & José**
7. **DOF & ChromAber - Oskar & Erik**
8. **Clouds - Johan**
9. **GPU RTIOW - Mateusz & Maximilliano**
10. **1-bit shading - Olof & Michal**
11. **NPR - Edvin & Vlad**
12. **RTIOW - Yanling, Zilin & Viviana**
13. **Photon Mapping - Jacqueline & Linda**
14. **L-system - Lilly & Jonas**
15. **Fluid - Luke, Su & Zhenghang**
16. **CUDA RT - Oscar**
17. **Aquarium - Anush & Thong**
18. **Fountain - Garima & Yuxi**



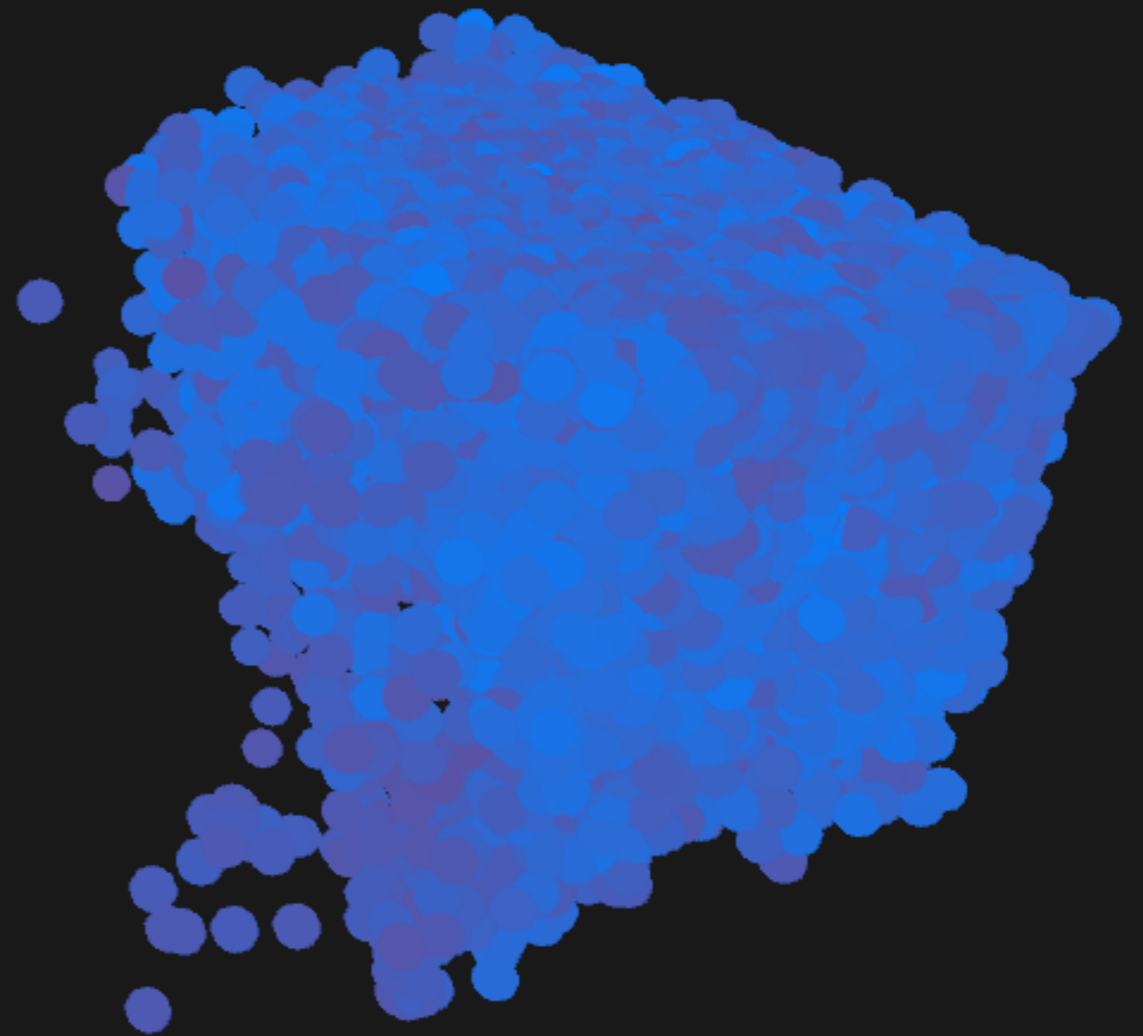
1. **Marching - Theodor, Jintao & Jiuming**
2. **Parallel RT - Karl**
3. **AO - Martin & Patrik**
4. **Pixelization - Patrik & Jesper**
5. **Snow - Nicklas**
6. **Toon - Arturo & José**
7. **DOF & ChromAber - Oskar & Erik**
8. **Clouds - Johan**
9. **GPU RTIOW - Mateusz & Maximilliano**
10. **1-bit shading - Olof & Michal**
11. **NPR - Edvin & Vlad**
12. **RTIOW - Yanling, Zilin & Viviana**
13. **Photon Mapping - Jacqueline & Linda**
14. **L-system - Lilly & Jonas**
15. **Fluid - Luke, Su & Zhenghang**
16. **CUDA RT - Oscar**
17. **Aquarium - Anush & Thong**
18. **Fountain - Garima & Yuxi**



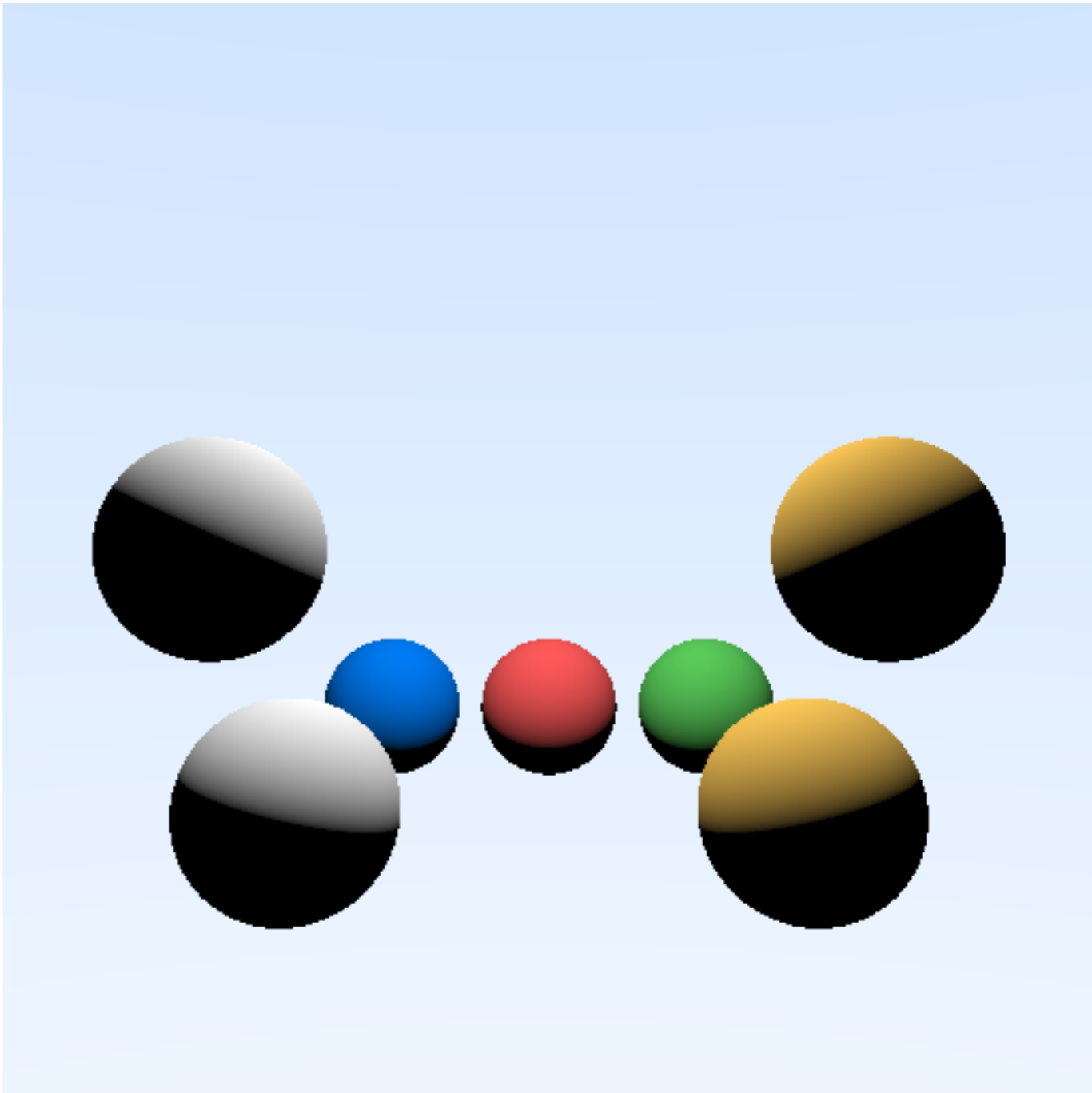
1. **Marching - Theodor, Jintao & Jiuming**
2. **Parallel RT - Karl**
3. **AO - Martin & Patrik**
4. **Pixelization - Patrik & Jesper**
5. **Snow - Nicklas**
6. **Toon - Arturo & José**
7. **DOF & ChromAber - Oskar & Erik**
8. **Clouds - Johan**
9. **GPU RTIOW - Mateusz & Maximilliano**
10. **1-bit shading - Olof & Michal**
11. **NPR - Edvin & Vlad**
12. **RTIOW - Yanling, Zilin & Viviana**
13. **Photon Mapping - Jacqueline & Linda**
14. **L-system - Lilly & Jonas**
15. **Fluid - Luke, Su & Zhenghang**
16. **CUDA RT - Oscar**
17. **Aquarium - Anush & Thong**
18. **Fountain - Garima & Yuxi**



1. **Marching - Theodor, Jintao & Jiuming**
2. **Parallel RT - Karl**
3. **AO - Martin & Patrik**
4. **Pixelization - Patrik & Jesper**
5. **Snow - Nicklas**
6. **Toon - Arturo & José**
7. **DOF & ChromAber - Oskar & Erik**
8. **Clouds - Johan**
9. **GPU RTIOW - Mateusz & Maximilliano**
10. **1-bit shading - Olof & Michal**
11. **NPR - Edvin & Vlad**
12. **RTIOW - Yanling, Zilin & Viviana**
13. **Photon Mapping - Jacqueline & Linda**
14. **L-system - Lilly & Jonas**
15. **Fluid - Luke, Su & Zhenghang**
16. **CUDA RT - Oscar**
17. **Aquarium - Anush & Thong**
18. **Fountain - Garima & Yuxi**



1. **Marching - Theodor, Jintao & Jiuming**
2. **Parallel RT - Karl**
3. **AO - Martin & Patrik**
4. **Pixelization - Patrik & Jesper**
5. **Snow - Nicklas**
6. **Toon - Arturo & José**
7. **DOF & ChromAber - Oskar & Erik**
8. **Clouds - Johan**
9. **GPU RTIOW - Mateusz & Maximilliano**
10. **1-bit shading - Olof & Michal**
11. **NPR - Edvin & Vlad**
12. **RTIOW - Yanling, Zilin & Viviana**
13. **Photon Mapping - Jacqueline & Linda**
14. **L-system - Lilly & Jonas**
15. **Fluid - Luke, Su & Zhenghang**
16. **CUDA RT - Oscar**
17. **Aquarium - Anush & Thong**
18. **Fountain - Garima & Yuxi**



1. **Marching - Theodor, Jintao & Jiuming**
2. **Parallel RT - Karl**
3. **AO - Martin & Patrik**
4. **Pixelization - Patrik & Jesper**
5. **Snow - Nicklas**
6. **Toon - Arturo & José**
7. **DOF & ChromAber - Oskar & Erik**
8. **Clouds - Johan**
9. **GPU RTIOW - Mateusz & Maximilliano**
10. **1-bit shading - Olof & Michal**
11. **NPR - Edvin & Vlad**
12. **RTIOW - Yanling, Zilin & Viviana**
13. **Photon Mapping - Jacqueline & Linda**
14. **L-system - Lilly & Jonas**
15. **Fluid - Luke, Su & Zhenghang**
16. **CUDA RT - Oscar**
17. **Aquarium - Anush & Thong**
18. **Fountain - Garima & Yuxi**



1. **Marching - Theodor, Jintao & Jiuming**
2. **Parallel RT - Karl**
3. **AO - Martin & Patrik**
4. **Pixelization - Patrik & Jesper**
5. **Snow - Nicklas**
6. **Toon - Arturo & José**
7. **DOF & ChromAber - Oskar & Erik**
8. **Clouds - Johan**
9. **GPU RTIOW - Mateusz & Maximilliano**
10. **1-bit shading - Olof & Michal**
11. **NPR - Edvin & Vlad**
12. **RTIOW - Yanling, Zilin & Viviana**
13. **Photon Mapping - Jacqueline & Linda**
14. **L-system - Lilly & Jonas**
15. **Fluid - Luke, Su & Zhenghang**
16. **CUDA RT - Oscar**
17. **Aquarium - Anush & Thong**
18. **Fountain - Garima & Yuxi**



The jury will leave us now...

They'll be back in a little while
with the results!

Who won?

Project Results

- 1. Edvin Paulcén and Vlad-Tudor Stefanescu - Ben Day Dots**
- 2. Yuke Fu, Li Su and Zhenghang Wu - Particle Simulation**
- 3. Theodor Lundqvist, Jintao Yu and Jiuming Zeng - Voxel Ray Marching**

Honourable Mentions

- Olof Ekenberg and Michal Dawid Pomorski - 1-bit Dithering**
- José Ignacio Gaete Bórquez and Arturo Yepez - Toon Rendering**

-

**THE
END!**