

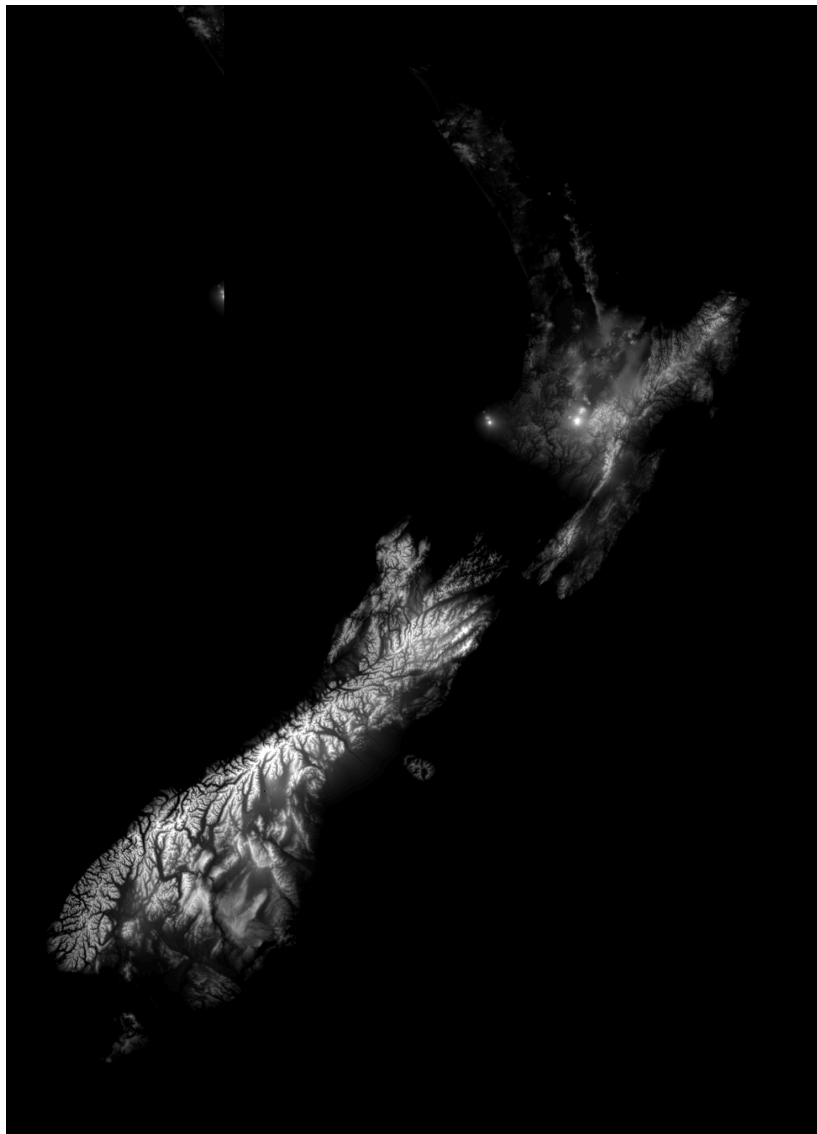
# Systemy CAD/CAE

Zadanie 4

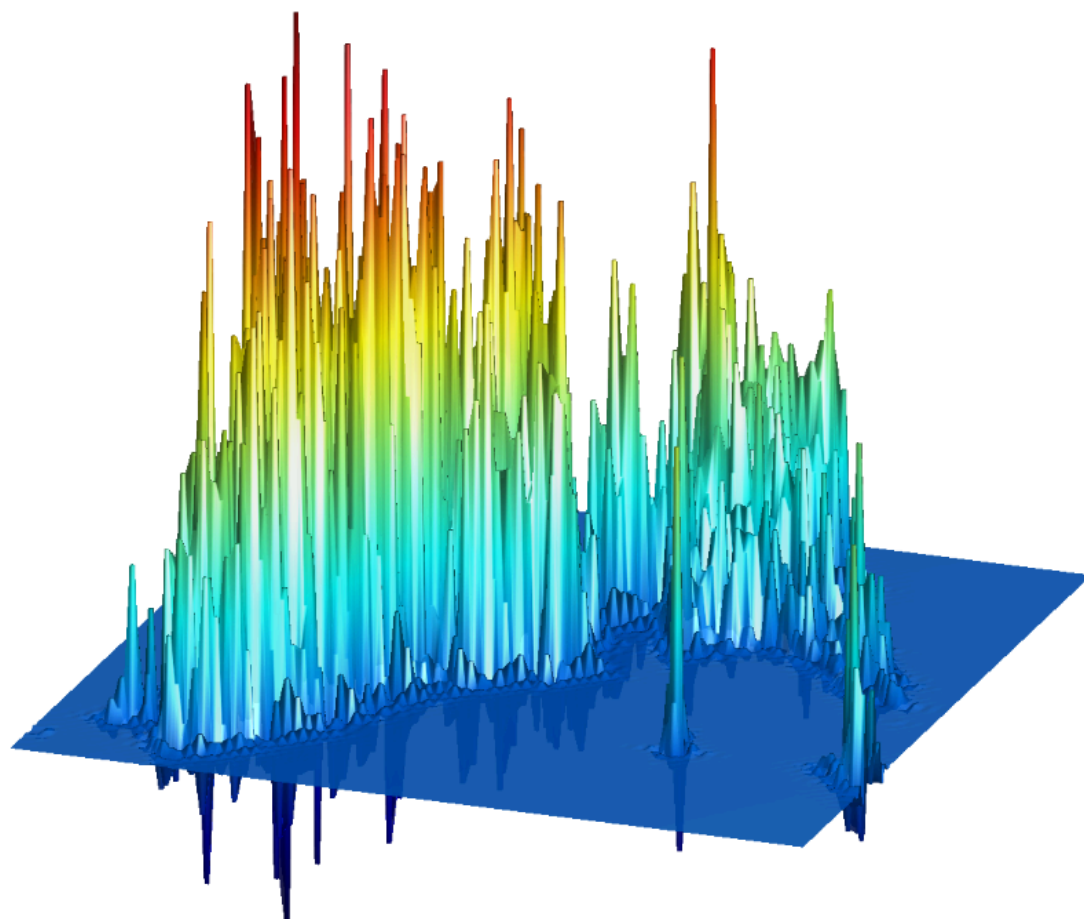
Krzysztof Solecki

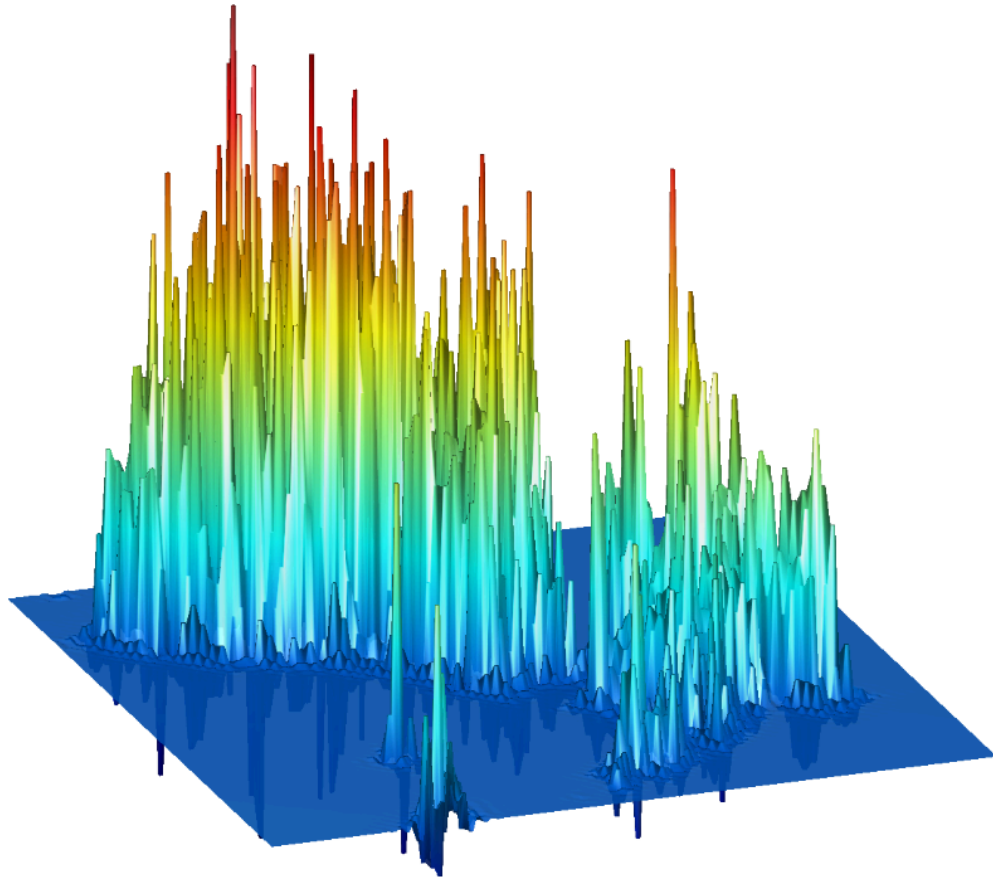
02.11.2024

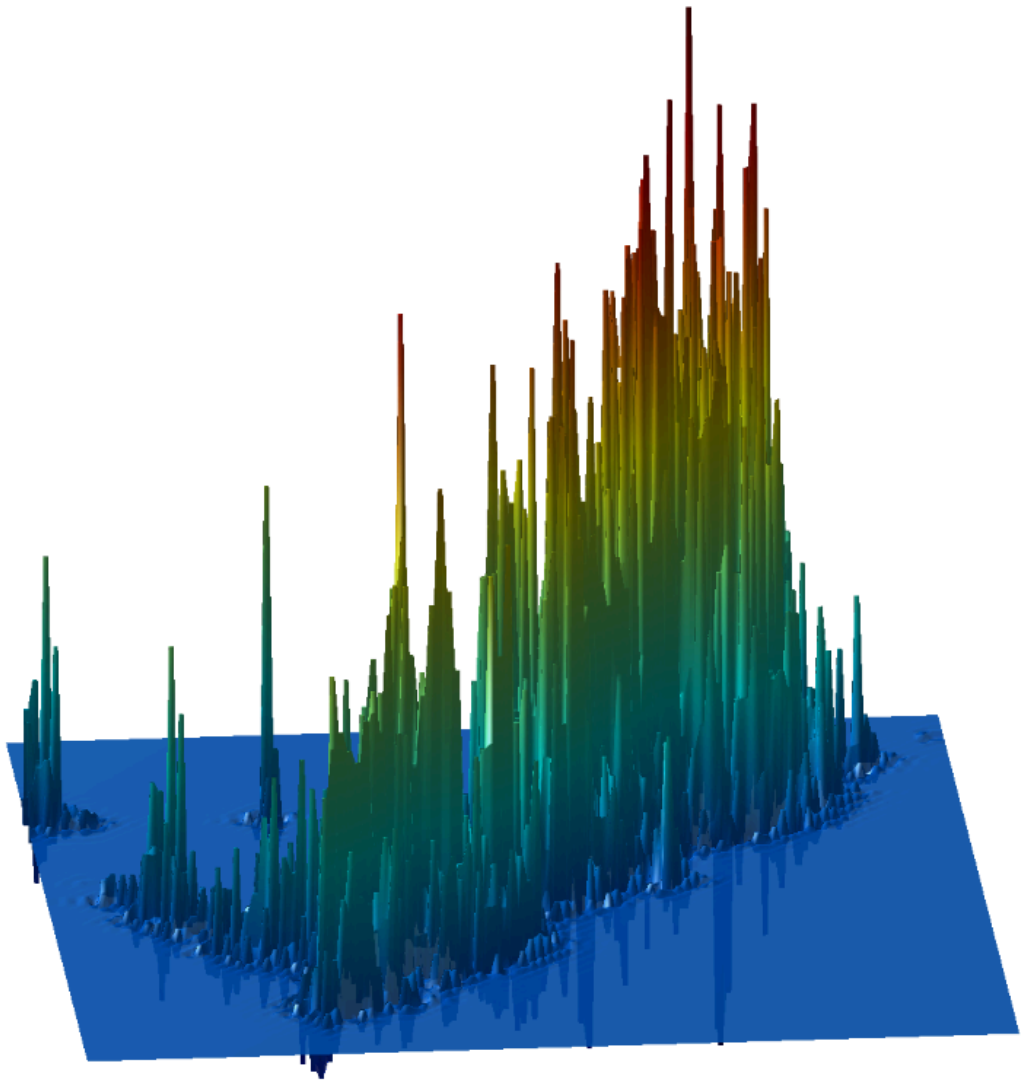
Bitmapa mapy wysokości wybranego kraju:

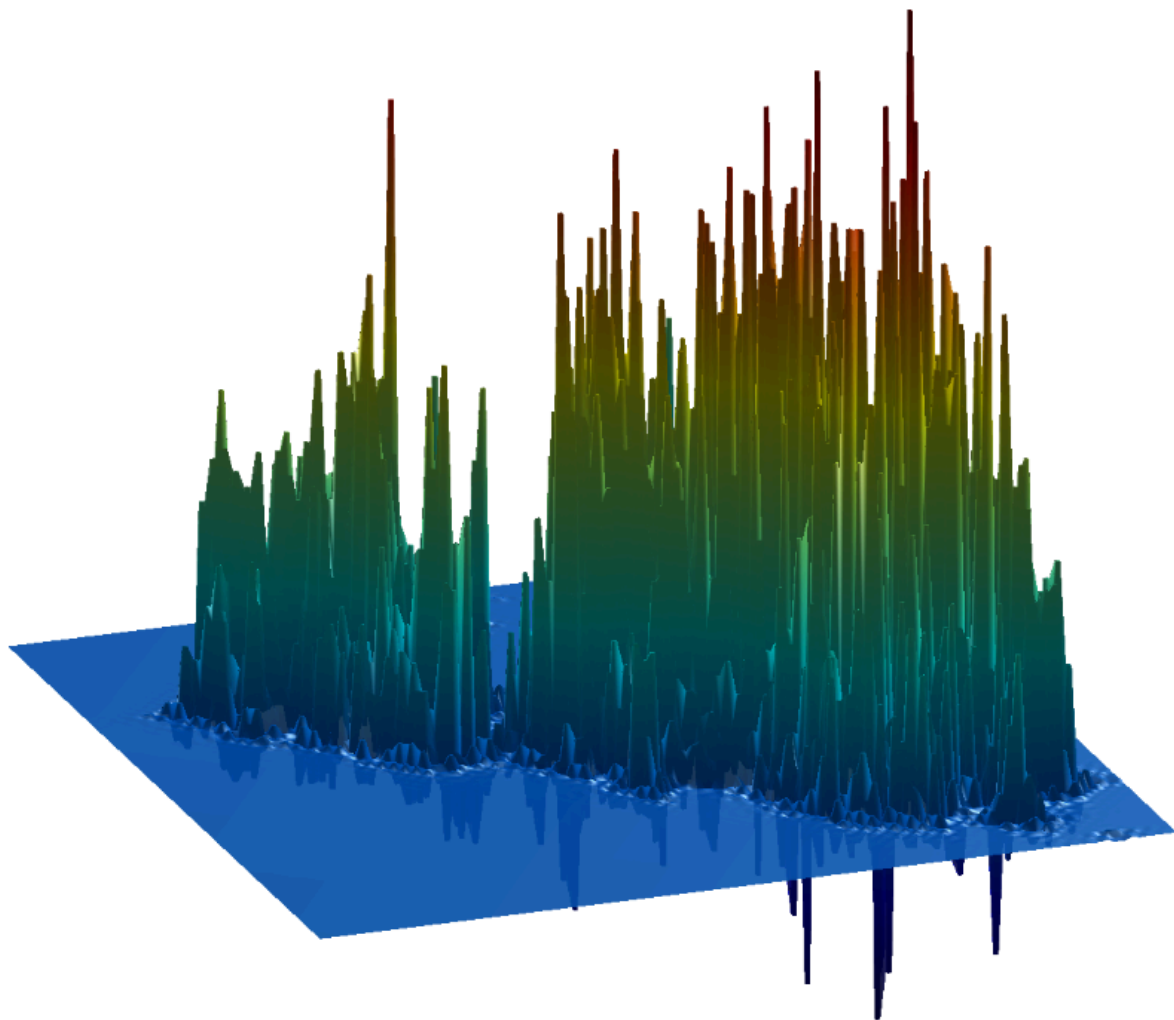


Rysunki 3D z kilku perspektyw na podstawie wybranej bitmapy:









Kod implementujący generowanie klatek i łączący je w film:

```
filename = 'zeland.png';
elements = 100;
p = 2;

GRAY = bitmap_terrain(filename, elements, p);
angles = 0:5:355;
output_folder = 'images/';

for i = 1:length(angles)
    figure('Visible', 'off', 'Position', [100, 100, 1920, 1080]);
    surf(GRAY * 0.5, 'EdgeColor', 'none');
```

```
colormap("jet");
shading interp;
lighting gouraud;
camlight headlight;
material shiny;
view(angles(i), 20);
axis equal;
axis off;
alpha(0.9);

filename = fullfile(output_folder, sprintf('view_%03d.png', angles(i)));
saveas(gcf, filename);
close;
end
```

```
output_folder = 'images/';
output_video = 'terrain_animation';
frame_rate = 10;

video = VideoWriter(output_video, 'Motion JPEG AVI');
video.FrameRate = frame_rate;
open(video);

angles = 0:5:355;
for i = 1:length(angles)
    filename = fullfile(output_folder, sprintf('view_%03d.png', angles(i)));
    img = imread(filename);

    writeVideo(video, img);
end

close(video);
disp('Animacja została zapisana jako terrain_animation.mp4');
```