Shapemaker: Créations audiovisuelles procédurales musicalement synchrones

Gwenn Le Bihan
gwenn.lebihan@etu.inp-n7.fr
ENSEEIHT

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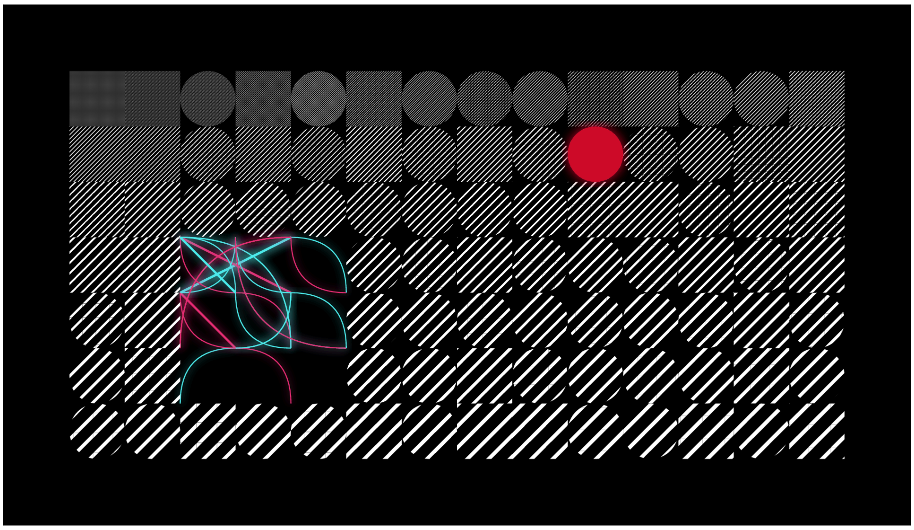

```
use shapemaker::*;
use rand::Rng;

pub fn dna_analysis_machine() -> Canvas {
    let mut canvas = Canvas::new(vec![]);

    canvas.colormap = ColorMapping {
        black: "#000000".into(),
        white: "#ffffff".into(),
        red: "#cf0a2b".into(),
        green: "#22e753".into(),
        blue: "#2734e6".into(),
        yellow: "#f8e21e".into(),
        orange: "#f05811".into(),
        purple: "#6a24ec".into(),
        brown: "#a05634".into(),
        pink: "#e92e76".into(),
        gray: "#81a0a8".into(),
        cyan: "#4fecec".into(),
    };

    canvas.set_grid_size(16, 9);
    canvas.set_background(Color::Black);

    let draw_in = canvas.world_region.resized(-2, -2);

    let filaments_area =
        Region::from_bottomleft(draw_in.bottomleft().translated(2, -1), (3, 3)).unwrap();
    let red_circle_at = Region::from_topright(draw_in.topright().translated(-3, 0), (4, 3))
        .unwrap()
        .random_point();

    let mut hatches_layer = Layer::new("hatches");
    let mut red_dot_layer = Layer::new("red dot");

    for (i, point) in draw_in.iter().enumerate() {
        if filaments_area.contains(&point) {
            continue;
        }

        if point == red_circle_at {
            red_dot_layer.add_object(
                format!("red circle @ {}", point),
                Object::BigCircle(point)
                    .color(Fill::Solid(Color::Red))
                    .filter(Filter::glow(5.0)),
            );
        }

        hatches_layer.add_object(
            point,
            if rand::thread_rng().gen_bool(0.5) || point == red_circle_at {
                Object::BigCircle(point)
            } else {
                Object::Rectangle(point, point)
            }
            .color(Fill::Hatched(
                Color::White,
                Angle(45.0),
                (i + 5) as f32 / 10.0,
                0.25,
            )),
        );
    }

    let mut filaments = canvas.n_random_linelikes_within("splines", &filaments_area, 30);

    for (i, object) in filaments.objects.values_mut().enumerate() {
        object.recolor(Fill::Solid(if i % 2 == 0 {
            Color::Cyan
        } else {
            Color::Pink
        }));
    }

    filaments.filter_all_objects(Filter::glow(4.0));

    canvas.layers.push(red_dot_layer);
    canvas.layers.push(hatches_layer);
    canvas.layers.push(filaments);
    canvas
}
```

Bibliographie