A short story about Rust and WASM

I said short

Attentec

Mikael Silvén

@msilvn
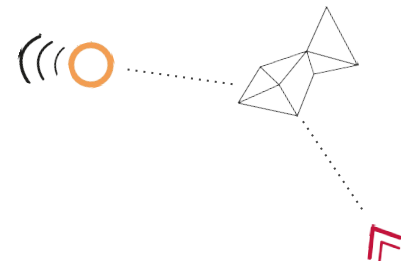https://silven.no

Attentec

ACHIEVEMENT UNLOCKED

Put Rust in Production

Attentec

Attentec

Agenda

- How easy it was to get started
- Benchmarking!!!

Attentec

Some of this might be outdated
You have been warned

Attentec

Code

https://rustwasm.github.io/wasm-bindgen/examples/add.html

```rust
#[wasm_bindgen]
pub fn add(a: u32, b: u32) -> u32 {
    a + b
}
```

Attentec

Cargo.toml

```toml
[lib]
crate-type = ["cdylib"]

[dependencies]
console_error_panic_hook = "..."
wasm-bindgen = "..."
js-sys = "..."
serde = { version = "...", features = ["derive"] }
serde-wasm-bindgen = "..."

[dependencies.web-sys]
version = "..."
features = ["console", "Performance", "Window"]
```
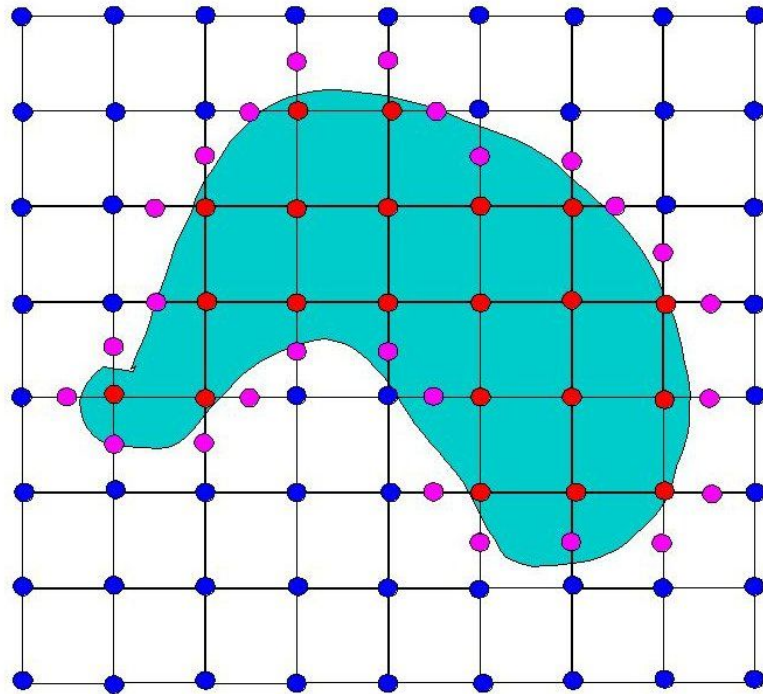
Attentec

Package.json

```
"@wasm-tool/wasm-pack-plugin": "...",
```
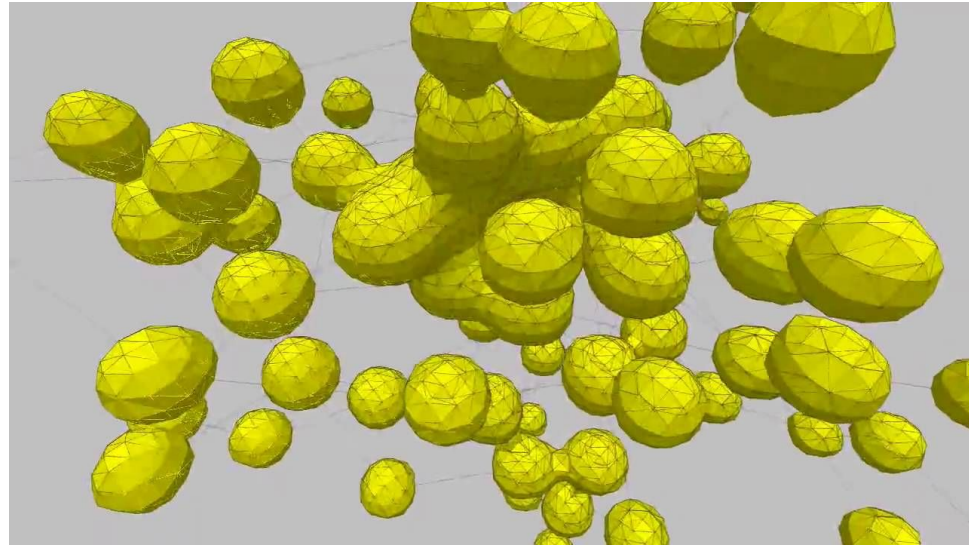
vue.config.js

```
configureWebpack: {
  plugins: [
    ...
    new WasmPackPlugin({
      crateDirectory: `${__dirname}/ruststuff`,
      forceMode: 'production',
      forceWatch: process.env.NODE_ENV === 'production' ? false : undefined,
    }),
    ...
```

Attentec

Marching Cubes

f(x, y, z) = S
if (S > threshold) ....

Benchmarking

Stuff we observed

Vec > HashMap > BTreeMap (2x)

Firefox > Chrome (5x)

Rust(wasm) > JavaScript (10x)

Attentec

Benchcmp

```
cargo benchcmp --regressions a.txt b.txt
```

name	a.txt ns/iter	b.txt ns/iter	diff ns/iter	diff %	speedup
benches::parse_many_variables	165,011	171,154	6,143	3.72%	x 0.96
benches::parse_nested_func	33,594	33,895	301	0.90%	x 0.99
benches::parse_real_code	3,813	3,909	96	2.52%	x 0.98

Attentec