Rust Front-end with Yew

Ciro Nunes 14 Sep 22

Agenda

⁉️ What is Yew? Why Wasm & Rust?

🪄 Simple tutorial

🤩 My impressions

🗺️ Where to go from here

What is Yew? Why Wasm & 🦀?

What is Yew?

Rust / Wasm client web app framework

Yew

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Multi-threaded front-end web apps using WebAssembly 

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- Component-based

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- Great performance

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Multi-threaded front-end web apps using WebAssembly 

- Component-based
- Great performance
- JavaScript interoperability

Why Wasm?

Low-level assembly-like language with a compact binary format that runs with **near-native** performance and provides languages like **Rust** with a compilation target that can run **in modern web browsers.**

WebAssembly

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Not a silver bullet for improving performance of web apps 🤪

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- DOM APIs from Wasm are still slower than directly from JS
- Perfect for heavy computation applications
- Multi-threading via Web Workers

Why Rust?

Helps developers write safer code with its rich type system and ownership model

Rust

Simple tutorial

Let’s build a To-do app


To-do
Add
1. Learn Rust


To-do
Add
1. Learn Rust

```rust
#[derive(Clone)]
struct Todo {
 text: String,
 completed: bool,
}
```

```
struct TodoComponent {
 todos: Vec<Todo>,
 new_todo_txt: String,
}
```

```
enum Msg {
  AddTodo,
  UpdateNewTodo(String),
}
```

```rust
impl Component for TodoComponent {
  type Message = Msg;
  type Properties = ();

  fn create(_ctx: &Context<Self>) -> Self {}

  fn update(&mut self,_ctx, msg: Self::Message) -> bool {}

  fn view(&self, ctx: &Context<Self>) -> Html {}
}
```

```rust
fn create(_ctx: &Context<Self>) -> Self {
 Self {
  todos: vec![Todo {
   text: "Learn Rust".to_string(),
   completed: true,
  }],
  new_todo_txt: "".to_string(),
 }
}
```

```
fn view(&self, ctx: &Context<Self>) -> Html {
    let link = ctx.link();
    let on_cautious_change = link.batch_callback(|e: Event| {
        let input = e.target_dyn_into::<HtmlInputElement>();

        input.map(|input| Msg::UpdateNewTodo(input.value()))
    });

    html! {
        <div>
            <ol>
                { self.todos.iter().map(|todo| html! {
                    <li>
                        <input type="checkbox" checked={todo.completed} />
                        <span>{format!("{}", todo.text)}</span>
                    </li>
                }).collect::<Html>()}
            </ol>

            <div>
                <input type="text" value={self.new_todo_txt.to_string()} onchange={on_cautious_change} />
                <button onclick={link.callback(|_| Msg::AddTodo)}>{ "Add" }</button>
            </div>
        </div>
    }
}
```

```rust
fn update(&mut self, _ctx: &Context<Self>, msg: Self::Message) -> bool {
  match msg {
    Msg::AddTodo => {
      let new_todo = Todo {
        text: self.new_todo_txt.to_string(),
        completed: false,
      };
      self.new_todo_txt = "".to_string();
      self.todos.push(new_todo);
      true
    }
    Msg::UpdateNewTodo(new_txt) => {
      self.new_todo_txt = new_txt;
      true
    }
  }
}
```

```rust
use yew::prelude::*;

fn main() {
 yew::start_app::<TodoComponent>();
}
```

My impressions

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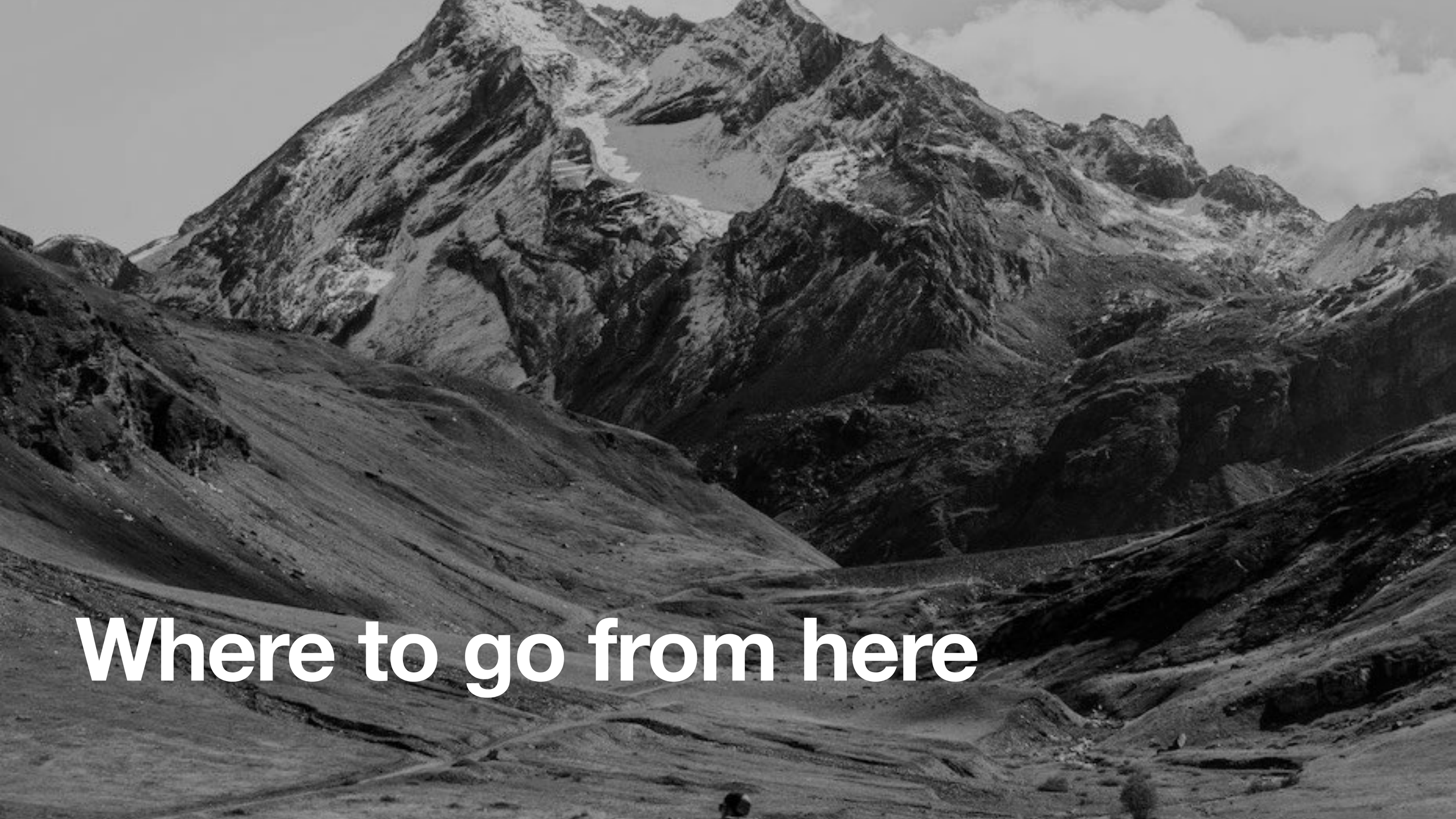
- Good documentation

My impressions

Yew

- Very similar to React, but it’s Rust
- Easy to setup and learn the basics
- Good documentation
- Looks promising



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- Check out the docs yew.rs
- Learn about Properties, Function Components, Hooks, Agents and the Router
- Checkout stylist for CSS-in-Rust
- Take advantage of Rust parallelism in Wasm for heavy computations

Thanks for listening ✌🏻