



# Building Great Search Experiences with Search UI

---

**Jason Stoltzfus**, Software Engineer  
**Diane Tetrault**, Director Product Marketing, Elastic





**Jason Stoltzfus**  
Software Engineer



**Diane Tetrault**  
Director Product Marketing  
Elastic

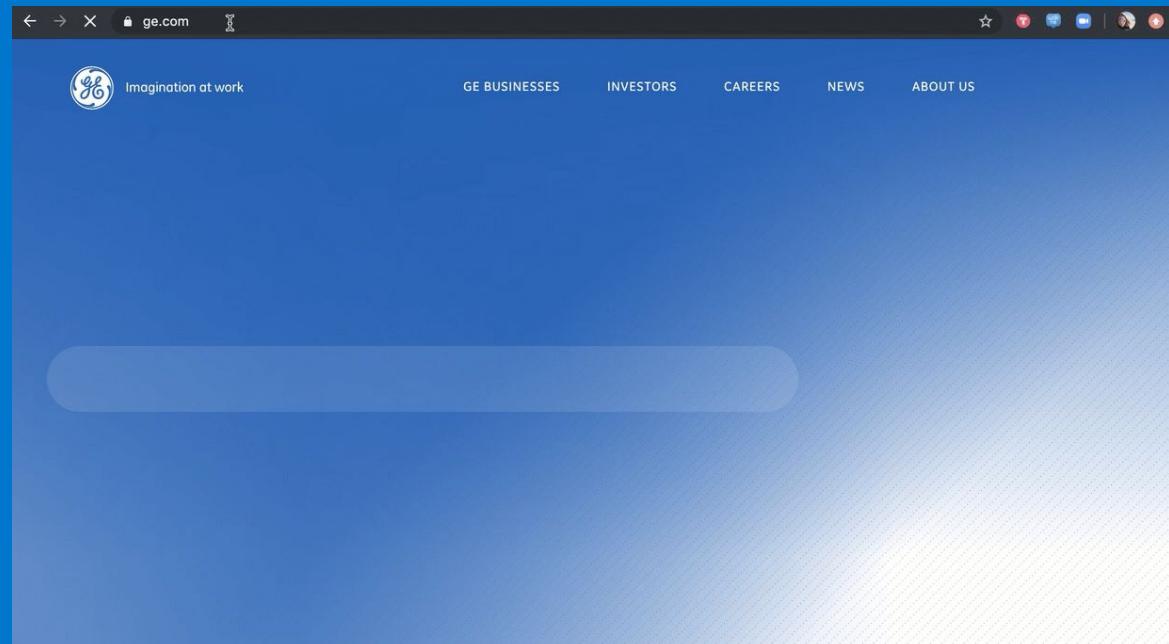
# Housekeeping & Logistics

- Chat with us in the zoom chat
- **Recording** will be available after the webinar
- If you're only seeing part of screen, click "View Options" above the slides and click "Fit to Window"

# Search is no longer an afterthought

**Search has become the primary way for people to interact with your organization**

- Online shopping
- Customer support
- Location finder
- Product information
- Partner portal
- Job search
- Internal workflow



# What does good search look like?

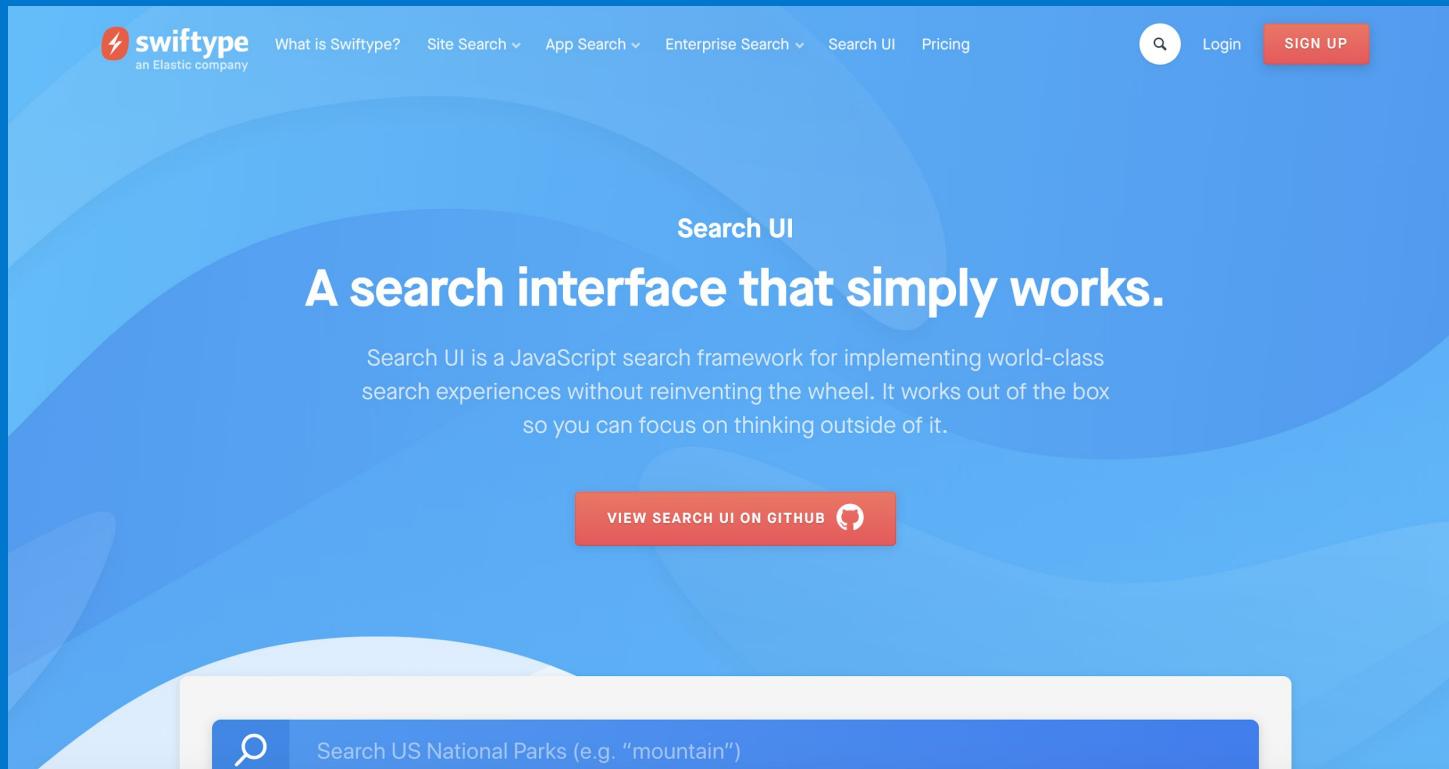
How to deliver an excellent user experience

Users expect search that's **easy to use**, that returns the **most relevant results**, and makes it **simple to filter, preview and act on results**.

But that can be **surprisingly hard to build**



# Make it simpler with Search UI



The image is a screenshot of the Swiftype homepage. The header features the Swiftype logo (a red lightning bolt icon followed by the word "swiftype" in lowercase) and the text "an Elastic company". The navigation bar includes links for "What is Swiftype?", "Site Search", "App Search", "Enterprise Search", "Search UI", and "Pricing", along with a search icon, "Login", and a "SIGN UP" button. The main content area has a blue background with abstract white and blue wavy patterns. The title "Search UI" is centered above the sub-headline "A search interface that simply works." A descriptive paragraph explains that Search UI is a JavaScript search framework for implementing world-class search experiences without reinventing the wheel. It works out of the box so you can focus on thinking outside of it. A red button at the bottom left encourages users to "VIEW SEARCH UI ON GITHUB" with a GitHub icon. At the bottom, there is a search bar with a magnifying glass icon and the placeholder text "Search US National Parks (e.g. 'mountain')". The Elastic logo (a stylized orange and yellow flower-like icon) is located in the bottom right corner.

What is Swiftype? Site Search ▾ App Search ▾ Enterprise Search ▾ Search UI Pricing

Search UI

## A search interface that simply works.

Search UI is a JavaScript search framework for implementing world-class search experiences without reinventing the wheel. It works out of the box so you can focus on thinking outside of it.

[VIEW SEARCH UI ON GITHUB](#)

Search US National Parks (e.g. "mountain")

elastic



## Site Search

Create and manage a tailored search experience for your website with world-class relevance, intuitive customization, and rich analytics.



## Enterprise Search

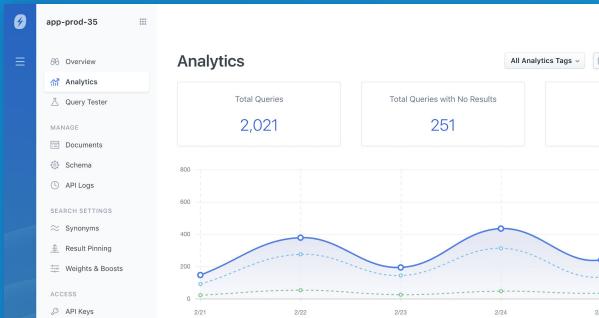
Instantly search across all the tools you use at work, including Dropbox, Salesforce, G Suite, Office 365, Zendesk, and more.



## App Search

A powerful set of APIs and developer tools designed for developers building rich, user-facing search applications.

The image shows the Swiftype Conversion interface. On the left, a sidebar menu includes 'Overview', 'Search Preview', 'Metrics', 'Analytics', and 'Insights'. The main content area displays a search interface with a search bar and a sidebar titled 'Customize your search' containing various icons. Below this is a list of search results: 'Recently Updated by You' (KM World Notes, Google Doc, last updated 5 minutes ago), 'Current Active Accounts' (Imgix - Proposals, Google Doc, last updated 10 minutes ago), and 'Imgix Proposals - Redline For Ag' (Attachment, last updated 5 minutes ago). A sidebar on the right shows 'Sprint Planning' (in 30 minutes) and 'Unexpected Search results' (Submitted by Joshua Valentine). A bottom section titled 'Single letter search analytics' shows a message from Capsule Support.



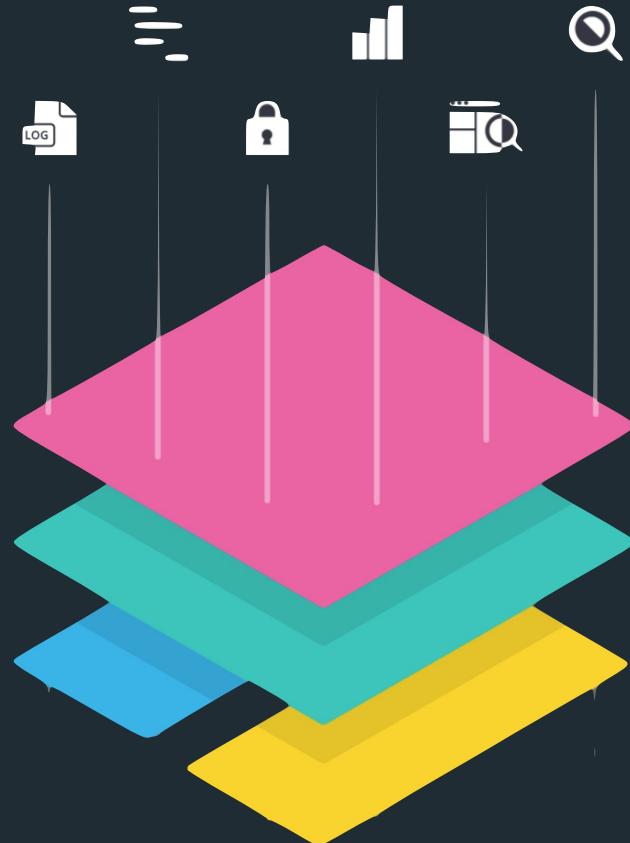
# Search Solutions are a vertical slice through the Elastic Stack

Simple to get started with turn-key features

Channeling the Elastic Stack's power and flexibility in a laser-focused way

Focuses on both out-of-the-box functionality and customizability

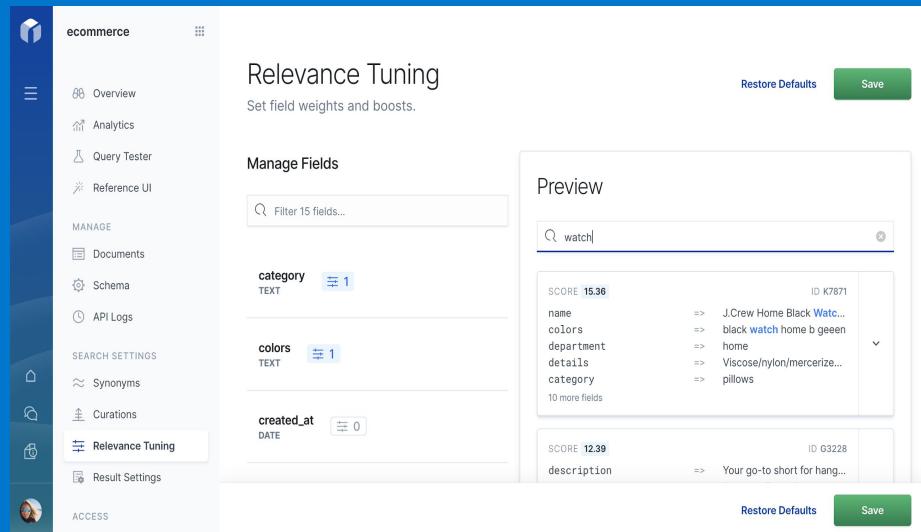
**Adding value by abstracting away optimizations and use case-specific work**



# How do you deliver great search?

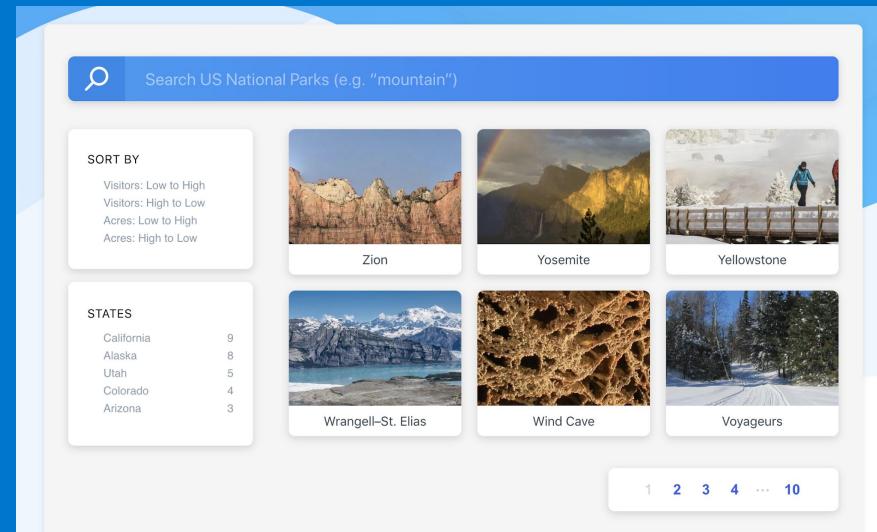
It's not just what goes on behind the scenes

## Relevance, analytics, ingestion and more



The screenshot shows the 'Relevance Tuning' interface in the Elasticsearch UI. The left sidebar includes links for Overview, Analytics, Query Tester, Reference UI, Documents, Schema, API Logs, Synonyms, Curations, and Relevance Tuning (which is currently selected). The main area is titled 'Relevance Tuning' and 'Manage Fields'. It features a search bar for 'Filter 15 fields...' and three sections for 'category', 'colors', and 'created\_at'. Each section has a 'TEXT' label, a count (1, 1, 0), and a 'Manage' button. Below these are 'Preview' sections for 'category' and 'colors'. The 'category' preview shows a search for 'watch' with a score of 15.36 and a list of terms: name, colors, department, details, category, and 10 more fields. The 'colors' preview shows a search for 'watch' with a score of 12.39 and a list of terms: description, and 10 more fields. Both preview sections have 'Restore Defaults' and 'Save' buttons.

## User interface, faceting, results and more



The screenshot shows a search interface for US National Parks. The top bar has a search input 'Search US National Parks (e.g. "mountain")'. Below it is a 'SORT BY' section with options: Visitors: Low to High, Visitors: High to Low, Acres: Low to High, and Acres: High to Low. The main area displays results for three national parks: Zion, Yosemite, and Yellowstone, each with a thumbnail image. Below the results is a 'STATES' section with a table:

STATE	Visitors
California	9
Alaska	8
Utah	5
Colorado	4
Arizona	3

At the bottom, there are navigation links for page 1, 2, 3, 4, ..., 10.

# Which is where Search UI comes in

# Tools for building search experiences

- **Site Search JavaScript snippet**
  - Just drop the snippet on your page and we inject a search experience
- **REST APIs**
  - The engine that powers custom search experiences
- **Language Clients**
  - Libraries that make using REST API easier in various programming languages
- **App Search Reference UI**
  - An out of the box search experience that you can generate and download
- **Search UI**
  - A JavaScript library for building search experiences

← → C [app.swiftype.com/as#/engines/sample-engine/reference\\_application/new](https://app.swiftype.com/as#/engines/sample-engine/reference_application/new) ⋮

sample-engine

ENGLISH

Reset Demo  Query Tester

☰

Overview

Analytics

Query Tester

Reference UI

MANAGE

Documents

Schema

API Logs

SEARCH SETTINGS

Synonyms

Curations

Relevance Tuning

Result Settings

ACCESS

Credentials

# Create a New Reference UI

Preview search or kickstart your next search experience.

The Reference UI is an open source, minimally styled search boilerplate written in React. Fill in the fields below to generate an interactive preview, then download the .zip and build upon it however you'd like.

[Explore the source code](#) | [Read the Reference UI guide](#)

**Title field (Optional)**  
Used as the top-level visual identifier for every rendered result

**Filter fields (Optional)**  
Faceted values rendered as filters and available as query refinement

**Sort fields (Optional)**  
Used to display result sorting options, ascending and descending

**URL field (Optional)**  
Used as a result's link target, if applicable

**Generate a Preview**

athletic shoe

**SORT BY**  
Newest

**Nike Revolution 4**  
 <https://shoes.com/nike-revolution-4>

**FILTER BY**

Men

Athletic

Women

Athletic

**Asics Gel Venture**  
 <https://shoes.com/asics-gel-venture>

**Adidas Speed Trainer**  
 <https://shoes.com/adidas-speed-trainer>

12

# What is Search UI?

**A React JavaScript library that allows you to quickly implement search experiences without re-inventing the wheel.**

# What exactly is React?

<https://reactjs.org/> - A very popular JavaScript library created by Facebook

**React is built on the concept of "components". components are like lego blocks for building web applications. Very similar to HTML.**

## HTML

```
<form>
  <input type="text" />
  <input type="submit" />
</form>
```

## React

```
<form>
  <SearchBox />
  <SearchResults />
</form>
```

# Search UI components are derived from standard search patterns

The screenshot shows a search interface with the following components highlighted:

- <SearchBox />**: Located at the top right, featuring a search input field and a "Search" button.
- <Sorting />**: A dropdown menu set to "Relevance". It includes a "STATES" section with a "Filter states" input and a list of states with counts: California (3), Alaska (2), **Arizona** (2, checked), Florida (2), and South Dakota (2).
- <Facets />**: A section for "VISITORS" with a facet for "500001 - 1000000" and a "(Remove)" link. It also includes facets for "DATE ESTABLISHED" (More than 100 years ago: 0, 50 - 100 years ago: 1, Within the last 50 years: 1), "DISTANCE" (Nearby: 0, A longer drive: 0, Perhaps fly: 2), and "ACRES" (Select... dropdown).
- <Results />**: A results table showing two items. The first item is "Petrified Forest" with the following details:
  - "nps\_link": <https://www.nps.gov/pefo/index.htm>
  - "title": Petrified Forest
  - "date\_established": 1962-12-09T06:00:00+00:00
  - "world\_heritage\_site": false
  - "states": Arizona
  - "description": This portion of the Chinle Formation has a large concentration of 225-million-year-old petrified
  - "visitors": 643274
  - "id": park\_petrified-forest
  - "location": 35.07,-109.78
  - "square\_km": 896
  - "acres": 221415.77
- The second item is "Saguaro" with the following details:
  - "nps\_link": <https://www.nps.gov/sagu/index.htm>
  - "title": Saguaro
  - "date\_established": 1994-10-14T05:00:00+00:00
  - "world\_heritage\_site": false
  - "states": Arizona
  - "description": Split into the separate Rincon Mountain and Tucson Mountain districts, this park is evidence
  - "visitors": 820426
  - "id": park\_saguaro
  - "location": 32.25,-110.5
  - "square\_km": 371.2
  - "acres": 91715.72

**<ResultsPerPage />**: A dropdown menu showing "1000000" and a "Search" button.

**<Paging />**: A paging control with a "1" indicator.

# Easy to get started, deeply customizable

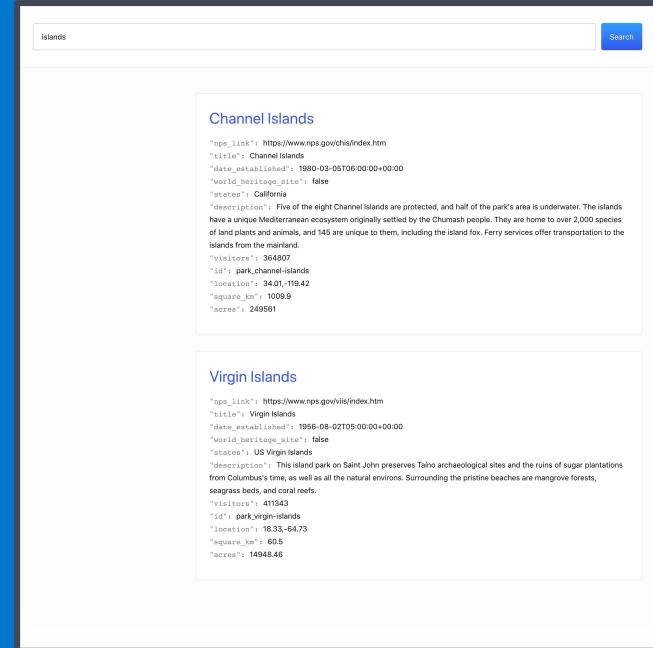
<https://codesandbox.io/s/getting-started-y9tn>

```
import React from "react";
import AppSearchAPIConnector from "@elastic/search-ui-app-search-connector";
import { SearchProvider, Results, SearchBox } from "@elastic/react-search-ui";
import { Layout } from "@elastic/react-search-ui-views";

import "@elastic/react-search-ui-views/lib/styles/styles.css";

const connector = new AppSearchAPIConnector({
  searchKey: "search-371auk61r2bwqtzdzocdgutmg",
  engineName: "search-ui-examples",
  hostIdentifier: "host-2376rb"
});

export default function App() {
  return (
    <SearchProvider
      config={{
        apiConnector: connector
      }}
    >
      <div className="App">
        <Layout
          header={<SearchBox />}
          bodyContent={<Results titleField="title" urlField="nps_link" />}
        />
      </div>
    </SearchProvider>
  );
}
```

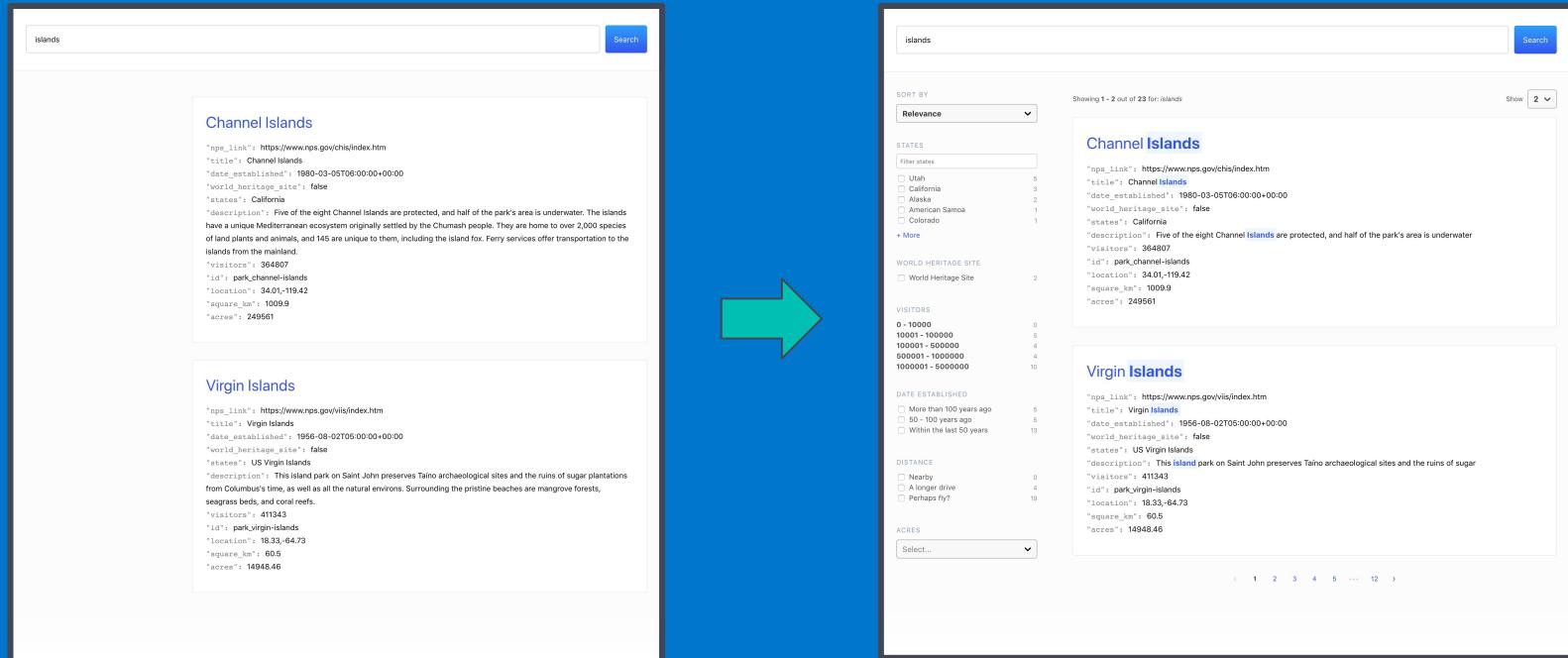


The screenshot shows a search interface with a search bar containing the text "islands" and a "Search" button. Below the search bar, there are two search results cards:

- Channel Islands**  
"nps\_link": <https://www.nps.gov/chn/index.htm>  
"title": Channel Islands  
"date\_established": 1980-03-05T06:00:00+00:00  
"world\_heritage\_site": false  
"states": California  
"description": Five of the eight Channel Islands are protected, and half of the park's area is underwater. The islands have a unique Mediterranean ecosystem originally settled by the Chumash people. They are home to over 2,000 species of land plants and animals, and 145 are unique to them, including the island fox. Ferry services offer transportation to the islands from the mainland.  
"visitors": 364807  
"id": park\_channel-islands  
"location": 34.01,-119.42  
"square\_km": 1009.8  
"acres": 249561
- Virgin Islands**  
"nps\_link": <https://www.nps.gov/viis/index.htm>  
"title": Virgin Islands  
"date\_established": 1956-08-02T05:00:00+00:00  
"world\_heritage\_site": false  
"states": US Virgin Islands  
"description": This island park on Saint John preserves Taíno archaeological sites and the ruins of sugar plantations from Columbus' time as well as all the natural environs. Surrounding the pristine beaches are mangrove forests, seagrass beds, and coral reefs.  
"visitors": 411343  
"id": park\_virgin-islands  
"location": 18.33,-64.73  
"square\_km": 60.5  
"acres": 14948.46

# Many great options right out of the box

<https://codesandbox.io/embed/search-ui-national-parks-example-kdym5>



The image shows a search interface for national parks, specifically for 'islands'. The interface is divided into two main sections by a large green arrow pointing from left to right.

**Left Section (Search Results for 'islands'):**

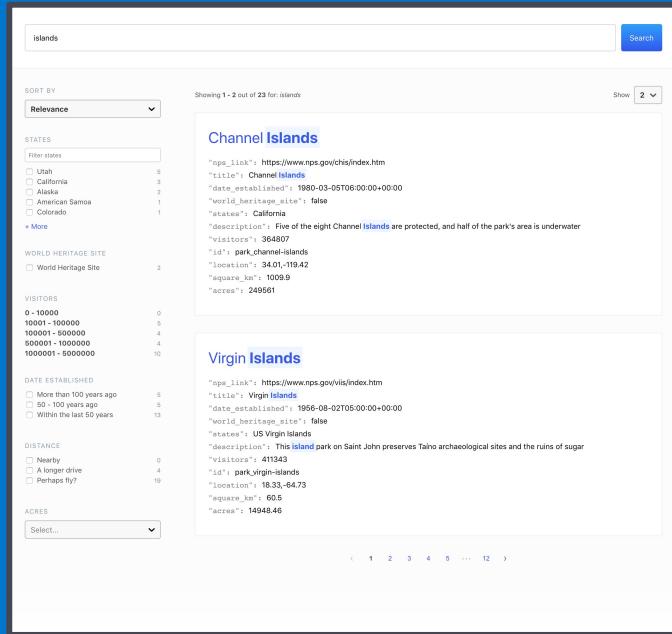
- Channel Islands**
  - `nps_link`: <https://www.nps.gov/chis/index.htm>
  - `title`: Channel Islands
  - `date_established`: 1980-03-05T06:00:00+00:00
  - `world_heritage_site`: false
  - `states`: California
  - `description`: Five of the eight Channel Islands are protected, and half of the park's area is underwater. The islands have a unique Mediterranean ecosystem originally settled by the Chumash people. They are home to over 2,000 species of land plants and animals, and 145 are unique to them, including the island fox. Ferry services offer transportation to the islands from the mainland.
  - `visitors`: 364807
  - `id`: park\_channel-islands
  - `location`: 34.01,-119.42
  - `square_km`: 1009.9
  - `acres`: 249561
- Virgin Islands**
  - `nps_link`: <https://www.nps.gov/vils/index.htm>
  - `title`: Virgin Islands
  - `date_established`: 1956-08-02T05:00:00+00:00
  - `world_heritage_site`: false
  - `states`: US Virgin Islands
  - `description`: This island park on Saint John preserves Taino archaeological sites and the ruins of sugar plantations from Columbus's time, as well as all the natural environs. Surrounding the pristine beaches are mangrove forests, seagrass beds, and coral reefs.
  - `visitors`: 411343
  - `id`: park\_virgin-islands
  - `location`: 18.33,-64.73
  - `square_km`: 60.5
  - `acres`: 14948.46

**Right Section (Search Results for 'islands'):**

- Channel Islands**
  - `nps_link`: <https://www.nps.gov/chis/index.htm>
  - `title`: Channel Islands
  - `date_established`: 1980-03-05T06:00:00+00:00
  - `world_heritage_site`: false
  - `states`: California
  - `description`: Five of the eight Channel Islands are protected, and half of the park's area is underwater
  - `visitors`: 364807
  - `id`: park\_channel-islands
  - `location`: 34.01,-119.42
  - `square_km`: 1009.9
  - `acres`: 249561
- Virgin Islands**
  - `nps_link`: <https://www.nps.gov/vils/index.htm>
  - `title`: Virgin Islands
  - `date_established`: 1956-08-02T05:00:00+00:00
  - `world_heritage_site`: false
  - `states`: US Virgin Islands
  - `description`: This island park on Saint John preserves Taino archaeological sites and the ruins of sugar
  - `visitors`: 411343
  - `id`: park\_virgin-islands
  - `location`: 18.33,-64.73
  - `square_km`: 60.5
  - `acres`: 14948.46

# Everything is customizable

<https://swiftype.com/search-ui>



This screenshot shows the initial search results for 'islands'. The results are sorted by relevance. Each result includes a title, a snippet of description, and a link to the original page. The results are categorized into 'Channel Islands' and 'Virgin Islands'. The interface includes filters for 'STATES', 'WORLD HERITAGE SITE', 'VISITORS', 'DATE ESTABLISHED', 'DISTANCE', and 'ACRES'.

STATES	Count
Utah	5
California	3
Alaska	2
American Samoa	1
Colorado	1
More	1

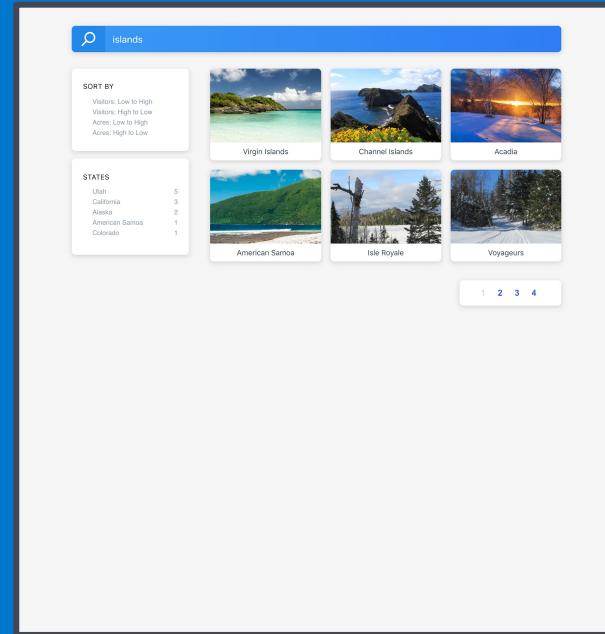
WORLD HERITAGE SITE	Count
World Heritage Site	2

VISITORS	Count
0 - 10000	0
10001 - 100000	5
100001 - 500000	4
500001 - 1000000	4
1000001 - 5000000	10

DATE ESTABLISHED	Count
More than 100 years ago	6
50 - 100 years ago	5
Within the last 50 years	13

DISTANCE	Count
Nearby	0
A longer drive	4
Perhaps fly?	19

ACRES	Count
Select...	1



This screenshot shows the same search results as the first one, but with a different visual style. The results are presented as a grid of cards, each containing a small image, a title, and a snippet of description. The interface includes a 'SORT BY' dropdown and a 'STATES' section.

STATES	Count
Utah	5
California	3
Alaska	2
American Samoa	1
Colorado	1

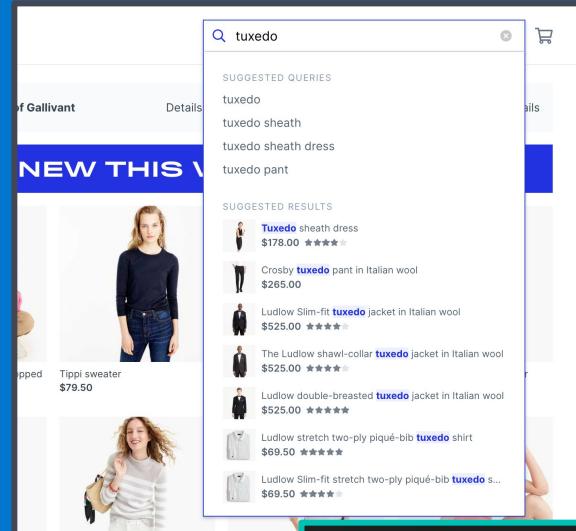
**SORT BY**  
Visitors: Low to High  
Visitors: High to Low  
Acres: Low to High  
Acres: High to Low

# Best practices and advice for building search

- **Don't underestimate search**
- **Follow established patterns**
- **Focus on responsiveness**
- **Avoid "No Results" screens**

# Autocomplete

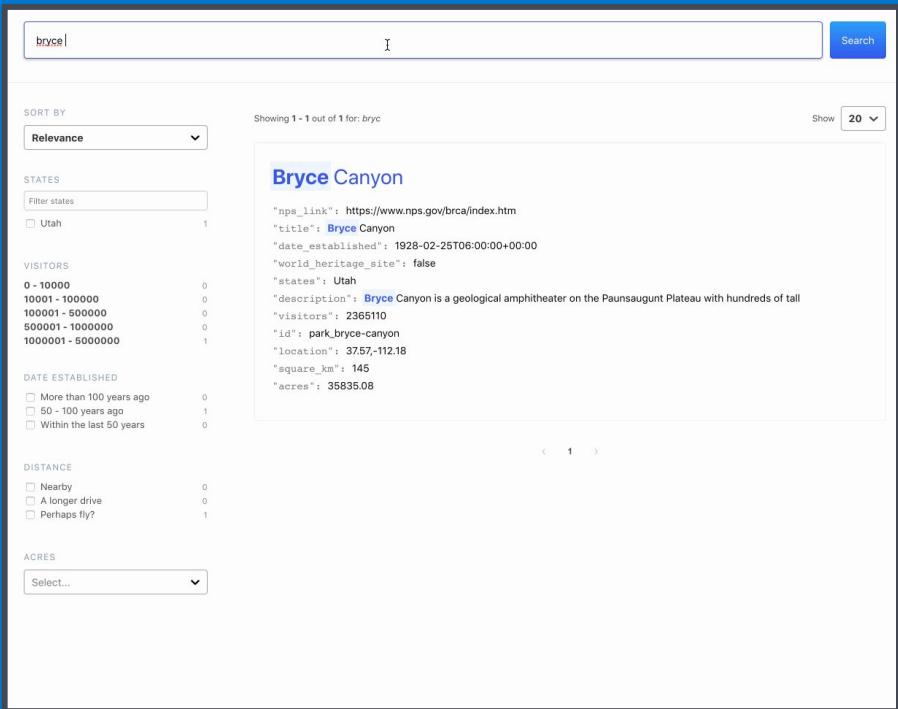
- Get a user to what they're looking for in the least number of steps possible
- Results vs Query Suggestions
- Autocomplete should:
  - Make fast queries
  - Support throttling
  - Have keyboard navigation
  - Support Caching (back button)



```
<SearchBox
  autocompleteMinimumCharacters={3}
  autocompleteResults={[
    {
      sectionTitle: "Results",
      titleField: "title",
      urlField: "nps_link"
    }
  ]}
  autocompleteSuggestions={true}
  debounceLength={100}
/>
```

# Search As You Type

```
<SearchBox searchAsYouType={true} />
```



The screenshot shows a search interface with a search bar containing the text "bryce". The results are displayed in a table format with various filters and sorting options.

**SORT BY**  
Relevance

**STATES**  
Filter states  
 Utah 1

**VISITORS**

Visitors Range	Count
0 - 10000	0
10001 - 100000	0
100001 - 500000	0
500001 - 1000000	0
1000001 - 5000000	1

**DATE ESTABLISHED**

Date Established Range	Count
More than 100 years ago	0
60 - 100 years ago	1
Within the last 50 years	0

**DISTANCE**

Distance Range	Count
Nearby	0
A longer drive	0
Perhaps fly?	1

**ACRES**  
Select...

Showing 1 - 1 out of 1 for: bryc

**Bryce Canyon**

```
"nps_link": "https://www.nps.gov/brca/index.htm",  
"title": "Bryce Canyon",  
"date_established": "1928-02-25T06:00:00+00:00",  
"world_heritage_site": false,  
"states": "Utah",  
"description": "Bryce Canyon is a geological amphitheater on the Paunsaugunt Plateau with hundreds of tall, colorful spires.",  
"visitors": 2365110,  
"id": "park_bryce-canyon",  
"location": "37.57,-112.18",  
"square_km": 145,  
"acres": 35835.08
```

# Incremental Refinement

- Start with large results set
- Apply refinements immediately
- Facets avoid "No Results"
- Don't clear that search box!

The screenshot shows a search interface with a search bar containing 'island'. The results are sorted by relevance, showing 1-20 out of 59. The results are refined into two main sections: Biscayne and Big Bend. Each section includes a list of facets and their counts, and a detailed description of the park.

**Biscayne**

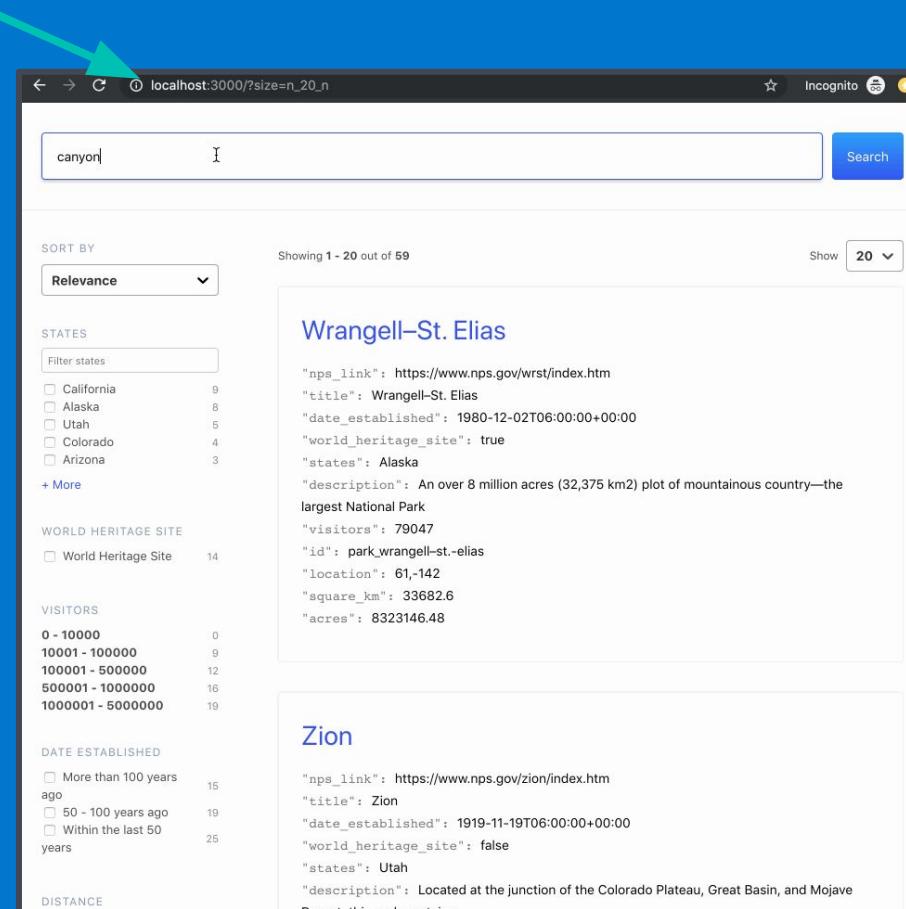
- Facets:
  - STATES: California (9), Alaska (8), Utah (5), Colorado (4), Arizona (3), + More
  - WORLD HERITAGE SITE: World Heritage Site (14)
  - VISITORS: 0 - 10000 (0), 10001 - 100000 (9), 100001 - 500000 (12), 500001 - 1000000 (16), 1000001 - 5000000 (19)
  - DATE ESTABLISHED: More than 100 years ago (15), 50 - 100 years ago (19), Within the last 50 years (25)
  - DISTANCE
- Details:
  - "nps\_link": <https://www.nps.gov/bisc/index.htm>
  - "title": Biscayne
  - "date\_established": 1980-06-28T05:00:00+00:00
  - "world\_heritage\_site": false
  - "states": Florida
  - "description": Located in Biscayne Bay, this park at the north end of the Florida Keys has four interrelated marine
  - "visitors": 514709
  - "id": park\_biscayne
  - "location": 25.65,-80.08
  - "square\_km": 700
  - "acres": 172971.11

**Big Bend**

- Facets:
  - STATES: Texas (15)
  - WORLD HERITAGE SITE: World Heritage Site (19)
  - VISITORS: 0 - 10000 (0), 10001 - 100000 (9), 100001 - 500000 (12), 500001 - 1000000 (16), 1000001 - 5000000 (19)
  - DATE ESTABLISHED: More than 100 years ago (15), 50 - 100 years ago (19), Within the last 50 years (25)
  - DISTANCE
- Details:
  - "nps\_link": <https://www.nps.gov/bibe/index.htm>
  - "title": Big Bend
  - "date\_established": 1944-06-12T05:00:00+00:00
  - "world\_heritage\_site": false
  - "states": Texas
  - "description": Named for the prominent bend in the Rio Grande along the U.S.-Mexico border, this park encompasses

# Shareable URLs

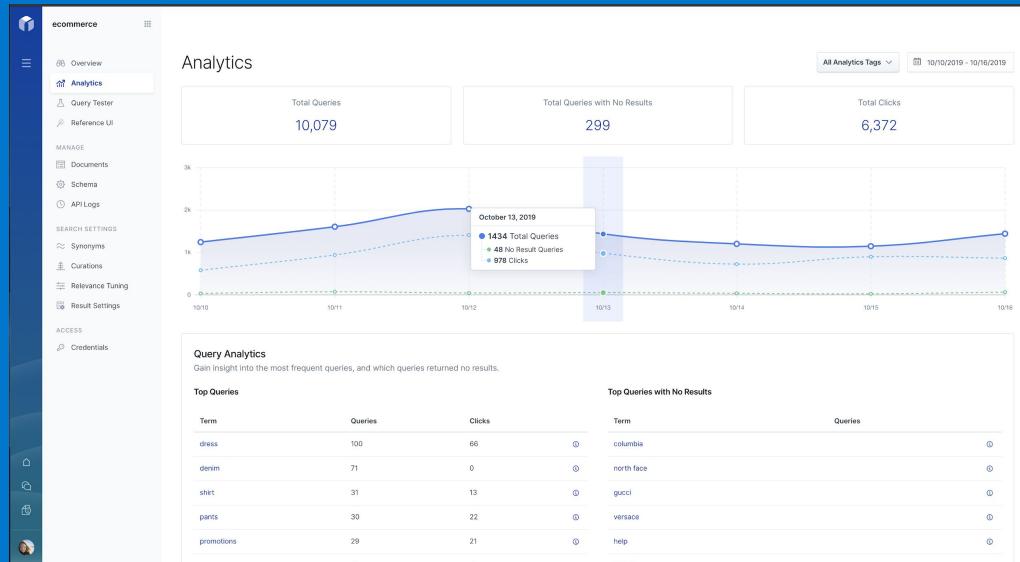
- URL state is tracked by Search UI
- Browser back/forward navigation
- Shareable urls



# Track Result Click Throughs

For a given search term, what result is clicked the most?

Boost the relevance for that result.



# Advanced Features

- **Low - level API for custom components**
- **Don't have to use React**
- **Swappable back-ends**
- **Mobile friendly**

# Some examples of Search UI at work

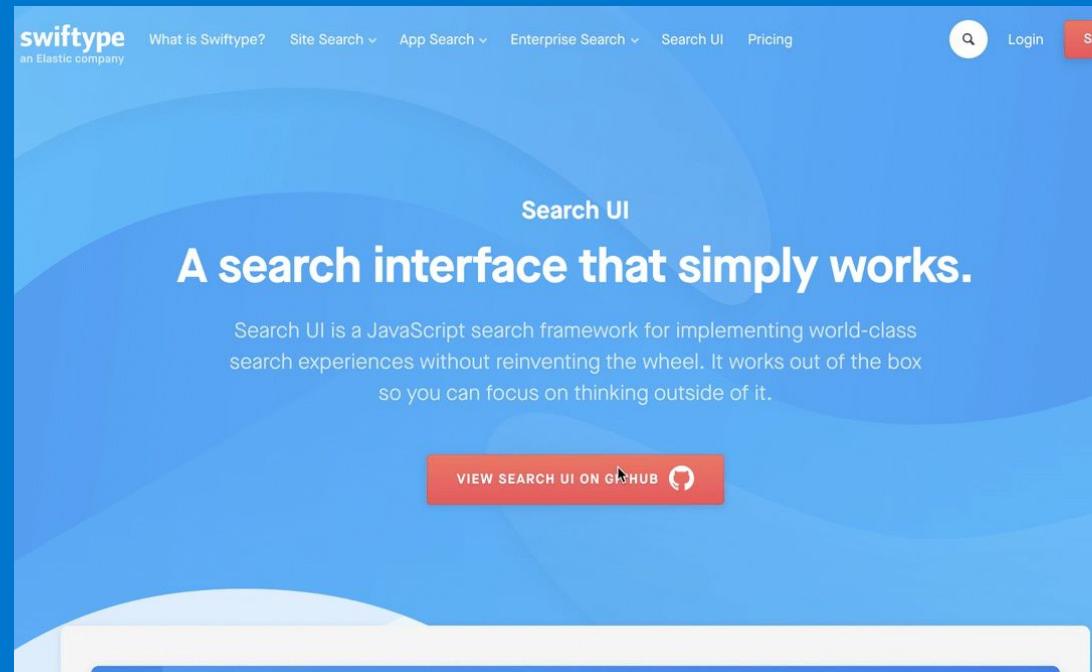
# Get Started with Search UI

See how how easy it can be to create great search experiences

## Leverage Search UI with Elastic App Search

1. Visit Search UI on our website
2. OR head directly to Github:  
<https://github.com/elastic/search-ui>
3. We've got a Getting Started guide
4. Get started!

Not an Elastic App Search user? Start a free trial or download the self-managed version

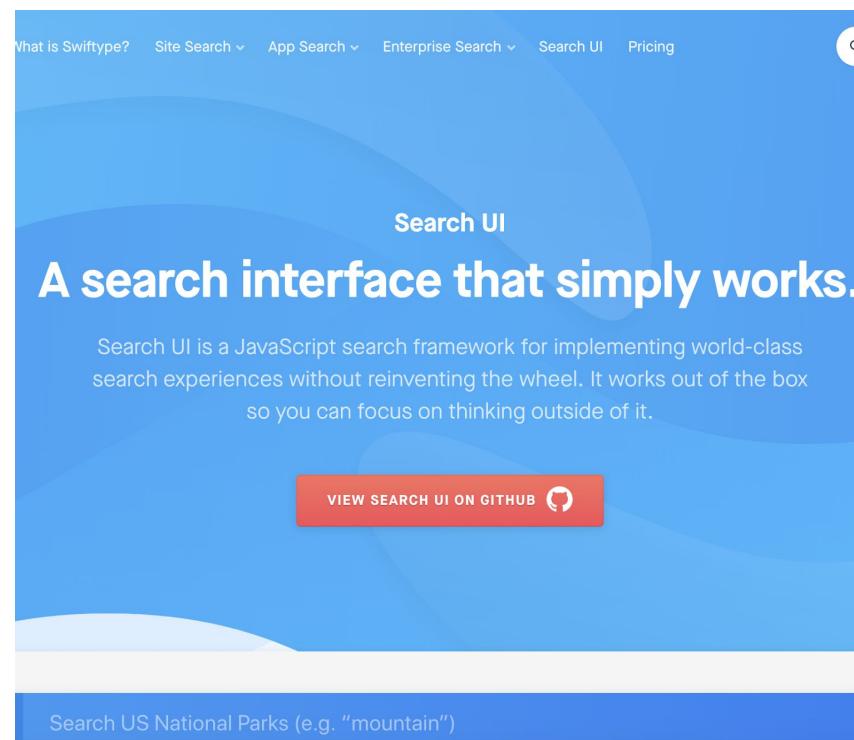


# Additional Resources

Lots of help to get you start

- [swiftype.com/search-ui](http://swiftype.com/search-ui)
- See it directly on Github
- Our GA blog post:  
<https://www.elastic.co/blog/search-ui-1-0-0-released>
- Our latest release blog post:  
<https://www.elastic.co/blog/search-ui-1-2-0-released>
- A vast community of peers

Plus we'll send you a follow-up email with links to all of these and more



The screenshot shows the Swiftype Search UI landing page. At the top, there is a navigation bar with links: 'What is Swiftype?', 'Site Search', 'App Search', 'Enterprise Search', 'Search UI', and 'Pricing'. A magnifying glass icon is also present. The main title 'Search UI' is in bold, followed by the tagline 'A search interface that simply works.' Below this, a description explains that Search UI is a JavaScript search framework for implementing world-class search experiences without reinventing the wheel. It works out of the box so you can focus on thinking outside of it. A red button with the text 'VIEW SEARCH UI ON GITHUB' and a GitHub icon is visible. At the bottom, there is a search bar with the placeholder text 'Search US National Parks (e.g. "mountain")'.

# Q&A