LIKE YOU Search

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Like You Search

by

Gipson Bachman

A capstone project presented to the

Faculty of the Departments of
Computer Science and System Engineering
Loyola Marymount University

In partial fulfillment of the
Requirements for the Degree
Master of Science in Computer Science

April 28, 2022
Find social media influencers that look like you.
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Executive Summary

Background
• 49% of consumers rely on trusted social media influencers for recommendations when making purchase decisions.
• Majority of consumers prefer following influencers who look and act like them, instead of celebrities.

Problem
There’s currently no online destination where consumers can easily find social media influencers that look like them.

Methodology
Software Development Life Cycle (SDLC) Waterfall Model

Opportunity
Building a website that fills gap in the market by providing users with an easy way to find social media influencers using customizable search parameters.

Conclusion
• Design: all design decisions to be geared towards consumer.
• Format: website format best for initial MVP due to time constraints.
Methodology

- Define MOE’s
- Establish Baseline
- Market Analysis
- Trade Study
- Stakeholders Analysis
Measures of Effectiveness

Timeliness
There’s currently no website where users can easily find influencers that look like you. A central MOE relies on being the first product to answer this gap in the market.

Ease of Use
Website must be intuitive and easy for users to find influencers that look like them.

Cost of Implementation
The MVP must utilize tools that are free and/or low-cost as budget is minimal.
• Values given on scale from 1 to 5, 5 being greatest value
• Values given based on professional experience and industry metrics
Background
Personal

Experience

• 6+ years in influencer marketing

Motivation

• Not a standard body type, big and tall.
• Hard to shop for clothing, in-person and online.
• Personal sizing can range from XL to 4XL depending on brand, product line and/or supplier.
• Need for one-stop-shop to find models/influencers that looked like me using products online.

Picture: Cousin, myself, grandmother
Marketing

82%
Of consumers trust social networks to guide purchasing decisions

49%
Of consumers rely on social media influencer recommendations for these decisions

$13.8\,bn
The amount marketers spent within the influencer space in 2021

ROI
Influencer marketing campaigns earn $5.78 for every dollar spent

Source: Digital Marketing Institute, Influencer Marketing Hub, HuffPost
Fashion Industry

2022 metrics

36% of total fashion sales will be online

911 mm global online consumers

$765 bn global online fashion market

Source: Entrepreneur.com, MediaKix
Are there any companies currently speaking to this unique problem?

Market Gap
True Fit is the only platform that solves online apparel fit at scale.

**Pros**
- Consumer-driven
- Easy to find your size across a broad range of brands/suppliers
- Serves 17K brands, $250 billion in cross market buying behavior, and first party preference data from over 200 million registered True Fit members.

**Cons**
- Zero tie-in with the growing influencer market
- Focus on fit only, limited applications to fashion/clothing industries
- Only available to paying brands, high barrier of entry cost
- Hard to visualize fit, consumer must trust TrueFit’s proprietary algorithm.

Source: TrueFit
Pros
• Great for PR and brands to identify strong performing influencers within an array of broad categories (beauty, fashion, regions, etc.)
• Get content engagement, audience and performance data behind each influencer
• Campaign integration for easy influencer outreach campaigns

Cons
• Not consumer driven
• Only available to subscribers, high barrier of entry cost ($189/month)
• AI/ML claims questionable
• Cannot search based on appearance/fit

Source: Izea
How can you currently find influencers online?

Current Baseline
Organic Discovery

When consumers find influencers through their own discovery on the internet.

Increasingly becoming more paid, either directly through paid search or indirectly through earned media (e.g. Digital Promotions, Public Relations).

Explore Tab

from the main page or “Explore” tab of a social network

Keyword Search

from a user’s own keyword searches on the network itself or search engine like Google/Bing.
Influencer PR Lists

Searching the web for "lists" of a type of influencer.

These outlets lack search customization (if any) and are geared towards professionals within public relations and digital publicity circles, not consumers themselves.
Problem
There’s currently no online destination where consumers can easily find social media influencers that look like them.
Solution/Objective

Building a website that fills gap in market by providing users with an easy way to find social media influencers using customizable search parameters.
Caveats and Limitations

- MVP to be consumer-driven as it answers immediate gap in market
- Limited time and resources for Spring 2022 Capstone project, choose features and tools based on development window
  - **Data:** scraped manually, wrangled and cleaned for inclusion into static database, will not be dynamic
  - **Users:** to focus on general consumer and backend admin, will not support additional users (influencers, PR, brands) at this time
  - **Ecosystem:** must limit size of ecosystem due to cost, will only support one social network
  - **Format:** must choose most time/cost efficient format that the broadest consumer age demographic finds easy to use
Scope

Ecosystem/Social Networks

In Scope

Frontend/Backend Tools
- Softr
- AirTable

Out of Scope

Format
- Embedded application
- Website

Data/API tools
- Static Data
- API tools
- Dynamic Data
- Scrapy

Users
- Consumers Admin
- Administration

Influencers, PR, Brands

21
Stakeholder Analysis

1. **Consumers**: product success requires consumer adoption en masse, all design decisions to be based on value added within online customer shopping journey

2. **Admin**: viable products depends on developer/admin to create working, sustainable product

3. **Financial**: leverage key milestones to secure funding

4. **Influencers**: create space that is influencer positive, as influencers themselves can make or break platform

5. **PR/Brands**: integrate opportunities where brands can gain access to network/conversation

Most Important
## User Analysis

<table>
<thead>
<tr>
<th>User (Actor)</th>
<th>Actions (Jobs)</th>
<th>Story Ending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer</td>
<td>• Populate search parameters</td>
<td>• Click-thru to influencer on platform</td>
</tr>
<tr>
<td></td>
<td>• Find influencers</td>
<td></td>
</tr>
<tr>
<td>Influencers</td>
<td>• Populate search parameters</td>
<td>• Find competition, gaps in market</td>
</tr>
<tr>
<td></td>
<td>• Find influencers (or lack thereof)</td>
<td>• Access to brand sponsorship(s)</td>
</tr>
<tr>
<td></td>
<td>• Create profile, enter self-reported parameter data, contact info</td>
<td></td>
</tr>
<tr>
<td>PR/Marketing/Brands</td>
<td>• Populate search parameters</td>
<td>• Influencer introduction</td>
</tr>
<tr>
<td></td>
<td>• Find influencers</td>
<td>• Brand spotlight within feature/slideshow</td>
</tr>
<tr>
<td></td>
<td>• Pay for influencer introduction</td>
<td></td>
</tr>
<tr>
<td>Admin</td>
<td>• Easily manage issues</td>
<td>• Issue resolved</td>
</tr>
<tr>
<td></td>
<td>• Easily update data</td>
<td>• Data updated</td>
</tr>
<tr>
<td></td>
<td>• Design that easily supports future build out with additional features</td>
<td>• Features added</td>
</tr>
</tbody>
</table>
User Analysis

WEB USER

- Questionnaire
- Search database
- View search results
- Click-thru to influencer social

ADMIN

- Maintain Database of Influencer profiles
- Profile Management
- Export data
- Claim Existing Profile
- Maintain Website

PR/MARKETING/BRANDS

INFLUENCER

- Create profile
- Update profile
Trade Study
Format

Website
Scale Value: High, 5

Pros
• Most easily used and recognized format across broadest age demographic
• Complete ownership of full experience, can easily pivot to meet consumer/market needs

Cons
• Retailers/POS as after-thought, harder to directly correlate purchase decisions as experience leaves holes for organic migration

Embedded Application
Scale Value: Below Average, 2

Pros
• Great when success metrics/MOEs directly correlated to driving purchase decisions

Cons
• Do not own full experience, as it requires third-party to embed on website/POS
• Retailer/brand driven, not consumer-focused
• Requires more time/resources to implement
• Requires participation from select online retailers
API Tools, Scraping

**Scrapy**
*Scale Value: Below Average, 2*

**Pros**
- Free, Open Source Tool.
- Extremely well documented.
- Easily Extensible.
- Portable Python.
- Deployment is simple and reliable.

**Cons**
- Time consuming to inspect and develop the crawler to simulate AJAX/PJAX requests.

**Parsehub**
*Scale Value: Average, 3*

**Pros**
- ParseHub allows you to collect and store data on servers automatically.
- Automatic IP rotation.
- Scraping behind logic walls allowed.
- Scaleable.

**Cons**
- Not free, pay service

Source: GitHub, Stackshare
Is scraping publicly accessible data legal?

Yes, it is!

On April 18, 2022, the Ninth Circuit reaffirmed its original decision and found that scraping data that is publicly accessible on the internet and not copyrighted is not a violation of the Computer Fraud and Abuse Act, or CFAA, which governs what constitutes computer hacking under U.S. law.

Source: TechCrunch
Management Tools

**Frontend, Softr**  
*Scale Value: Above Average, 4*

**Pros**  
- easy backend integration with Backend/Airtable via RESTful API calls
- responsive design

**Cons**  
- limited design features

**Backend, Airtable**  
*Scale Value: Above Average, 4*

**Pros**  
- easy database management
- multi-user capabilities
- easy integration with other applications via RESTful API calls

**Cons**  
- does not auto-refresh

Source: Product Hunt
# Solution Space

<table>
<thead>
<tr>
<th>Format</th>
<th>Techniques or Tools Used</th>
<th>Pros</th>
<th>Cons</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website <strong>High, 5</strong> vs. <strong>Embedded App Below Avg, 2</strong></td>
<td><strong>Website</strong> easy start, responsive design that lends itself to desktop/mobile</td>
<td>Website consumer-driven, retailer as after-thought</td>
<td><strong>Website</strong></td>
<td>Most easily used and recognized format across broadest age demographic • Complete ownership of full experience, can easily pivot to meet consumer/market needs</td>
</tr>
<tr>
<td><strong>Embedded app retailer-driven</strong></td>
<td><strong>Embedded app</strong> best for later-stage retailer-driven rollouts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>API Tools</strong></td>
<td><strong>Scrapy Below Avg, 2</strong> vs. <strong>Parsehub Avg, 3</strong></td>
<td><strong>Scrapy</strong> Free, Open Source Tool. • Extremely well documented. • Easily Extensible. • Portable Python. • Deployment is simple and reliable.</td>
<td><strong>Scrapy</strong> Time consuming to inspect and develop the crawler to simulate AJAX/PJAX requests. <strong>Parsehub</strong> Not free, pay service</td>
<td><strong>Parsehub</strong></td>
</tr>
<tr>
<td><strong>Parsehub allows you to collect and store data on servers automatically. • Automatic IP rotation. • Scraping behind logic walls allowed.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Frontend/Backend Management</strong></td>
<td><strong>Softr Above Avg, 4</strong> vs. <strong>Airtable Above Avg, 4</strong></td>
<td><strong>Softr</strong> easy backend integration with Airtable via RESTful API calls responsive design</td>
<td><strong>Frontend, Softr</strong> limited design features</td>
<td><strong>Softr and AirTable</strong></td>
</tr>
<tr>
<td><strong>Airtable easy database management, multi-user capabilities, easy to scale in future, easy integration with other applications via RESTful API calls</strong></td>
<td><strong>Backend, AirTable</strong> does not auto-refresh</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Requirements
Requirements

Software Requirements Specifications (SRS)
The SRS outlines project purpose, scope, definitions, acronyms, abbreviations, and references. The aim here is to gather and analyze requirements while giving an in-depth playbook on how I intend to plan, design, implement and test the website project.

- Website itself – an easy-to-follow GUI geared towards general web users
  - Website shall provide a uniform look for all webpages
  - Website shall provide a digital image of each influencer and links to their respective social media platforms
  - Types of GUI interfaces we will use:
    - Menus
    - Dialog boxes for search parameters
- Backend – Database Interface for administrators
  - Form-fill Interface
- Hardware/Software Interface
  - Requires internet connection.
  - Operating System: Windows (Vista/Windows 7) or MAC OS
  - Web Browser: Internet Explorer (8.0 and above), Mozilla Firefox (3.0 and above), or Google Chrome
## Functional Requirements

<table>
<thead>
<tr>
<th>ID: User Story</th>
<th>Epic</th>
<th>As a &lt;type of user&gt;</th>
<th>I want to &lt;perform some task&gt;</th>
<th>So that I can &lt;achieve some goal&gt;</th>
<th>Acceptance Criteria</th>
</tr>
</thead>
</table>
| 1             | Website | web user           | visit a website where I can describe how I look | find influencers that look like me | - build working website  
- build all pages that meet design guidelines  
- ensure website connects to backend database |
| 1.1           | Search Parameters | web user         | use easy search parameters | be easily guided through my LIKE YOU search | - search parameters successfully guides user throughout search process  
- if user does not complete search parameters, user will be notified of missing fields  
- user can successfully answer each question with check box(es) |
| 1.1.1         | Search Parameters | web user         | check boxes that correspond to tags within influencer database | easily retrieve results with those tags | - Each individual check box corresponds with a unique tag in database  
- each check box successfully retrieves influencer listings in database with respective tag/parameter |
| 1.1.2         | Search Parameters | web user         | be pointed towards an advanced search when there are no results | tailor how broad/narrow my search should be | - when there are no results on results page, user is directed to advanced search page |
## Functional Requirements

<table>
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<tr>
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<th>Acceptance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Search</td>
<td>web user</td>
<td>search for influencers</td>
<td>retrieve a list of influencers based on a series of search tags/parameters</td>
<td>- uses SQL AND operator exclusively&lt;br&gt;- if multiple tags, search results would show only those that meet tag1 AND tag2 AND tagN</td>
</tr>
<tr>
<td>2.1</td>
<td>Search</td>
<td>web user</td>
<td>search based on social media platform (e.g. YouTube)</td>
<td>find platform-specific influencers</td>
<td>- ensure check box in questionnaire successfully matches with tag/parameter in influencer database</td>
</tr>
<tr>
<td>2.2</td>
<td>Search</td>
<td>web user</td>
<td>search based on genre/industry (e.g. beauty, fashion, etc.)</td>
<td>find genre/industry specific influencers</td>
<td>- ensure check box in questionnaire successfully matches with tag/parameter in influencer database</td>
</tr>
<tr>
<td>2.3</td>
<td>Search</td>
<td>web user</td>
<td>search based on skin tone (e.g. fair, light, medium, deep, etc.)</td>
<td>find influencers that have the same skin tone as me</td>
<td>- ensure check box in questionnaire successfully matches with tag/parameter in influencer database</td>
</tr>
<tr>
<td>2.4</td>
<td>Search</td>
<td>web user</td>
<td>search based on skin type (e.g. dry, oily, combo, sensitive, etc.)</td>
<td>find influencers that have the same skin type as me</td>
<td>- ensure check box in questionnaire successfully matches with tag/parameter in influencer database</td>
</tr>
<tr>
<td>2.5</td>
<td>Search</td>
<td>web user</td>
<td>search based on eye color (e.g. blue, brown, hazel, green, etc.)</td>
<td>find influencers that have the same eye color as me</td>
<td>- ensure check box in questionnaire successfully matches with tag/parameter in influencer database</td>
</tr>
<tr>
<td>2.6</td>
<td>Search</td>
<td>web user</td>
<td>search based on hair color (e.g. blonde, brown, red, black)</td>
<td>find influencers that have the same hair color as me</td>
<td>- ensure check box in questionnaire successfully matches with tag/parameter in influencer database</td>
</tr>
<tr>
<td>2.7</td>
<td>Search</td>
<td>web user</td>
<td>search based on age range (teens, 20s, 30s, 40s, 50s, 60+)</td>
<td>find influencers that have the same age range as me</td>
<td>- ensure check box in questionnaire successfully matches with tag/parameter in influencer database</td>
</tr>
</tbody>
</table>
Requirements

Functional Requirements

<table>
<thead>
<tr>
<th>ID: User Story</th>
<th>Epic</th>
<th>As a &lt;type of user&gt;</th>
<th>I want to &lt;perform some task&gt;</th>
<th>So that I can &lt;achieve some goal&gt;</th>
<th>Acceptance Criteria</th>
</tr>
</thead>
</table>
| 3              | Search Parameters     | web user            | know the number of influencers that meet my search tags/parameters | tailor how broad/narrow my search should be | - with each check box/tag clicked, refresh # of influencers that meet those tags/parameters at the top of search page  
- ensure that # provided correctly corresponds with those tagged in database  
- this would be located on search parameters page AND advanced search page |
| 4              | Search                | web user            | have an advanced search feature | custom tailor my search without the search parameters pipeline | - advanced search page which all grouped parameters located on one page |
| 5              | Backend               | admin               | easily update database        | keep data as fresh as possible    | - data can be changed/updated easily on backend via web interface                |

Non-Functional Requirements

- Secure access
- 24x7 Availability
Design
Intuitive Design

The website is an intuitive design housing:
• intro with call-to-action
• about section
• search/filters with real-time results
• Each influencer result can be expanded for item_detail
Architectural View
# Work Plan

<table>
<thead>
<tr>
<th>Task Name</th>
<th>Duration</th>
<th>Start</th>
<th>Finish</th>
<th>% Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIKE YOU Website</td>
<td>94d</td>
<td>12/16/21</td>
<td>04/26/22</td>
<td>100%</td>
</tr>
<tr>
<td>Phase 1 Initial Research</td>
<td>22d</td>
<td>12/16/21</td>
<td>01/14/22</td>
<td>100%</td>
</tr>
<tr>
<td>Research project idea</td>
<td>22d</td>
<td>12/16/21</td>
<td>01/14/22</td>
<td>100%</td>
</tr>
<tr>
<td>Competitor analysis</td>
<td>5d</td>
<td>01/10/22</td>
<td>01/14/22</td>
<td>100%</td>
</tr>
<tr>
<td>Phase 2 Data Acquisition</td>
<td>21d</td>
<td>01/18/22</td>
<td>02/15/22</td>
<td>100%</td>
</tr>
<tr>
<td>Acquire data</td>
<td>21d</td>
<td>01/18/22</td>
<td>02/15/22</td>
<td>100%</td>
</tr>
<tr>
<td>Phase 3 Build Website</td>
<td>15d</td>
<td>02/23/22</td>
<td>03/15/22</td>
<td>100%</td>
</tr>
<tr>
<td>Design</td>
<td>5d</td>
<td>02/23/22</td>
<td>03/01/22</td>
<td>100%</td>
</tr>
<tr>
<td>Implement</td>
<td>5d</td>
<td>03/02/22</td>
<td>03/08/22</td>
<td>100%</td>
</tr>
<tr>
<td>Test</td>
<td>5d</td>
<td>03/09/22</td>
<td>03/15/22</td>
<td>100%</td>
</tr>
<tr>
<td>Phase 4 - Deliverables</td>
<td>16d</td>
<td>03/16/22</td>
<td>04/06/22</td>
<td>100%</td>
</tr>
<tr>
<td>Improvements</td>
<td>5d</td>
<td>03/16/22</td>
<td>03/22/22</td>
<td>100%</td>
</tr>
<tr>
<td>Project Report</td>
<td>11d</td>
<td>03/23/22</td>
<td>04/06/22</td>
<td>100%</td>
</tr>
<tr>
<td>Phase 5 - Feedback/Correct</td>
<td>10d</td>
<td>04/13/22</td>
<td>04/26/22</td>
<td>100%</td>
</tr>
<tr>
<td>Corrections</td>
<td>5d</td>
<td>04/13/22</td>
<td>04/19/22</td>
<td>100%</td>
</tr>
<tr>
<td>Finalized Project Report</td>
<td>5d</td>
<td>04/20/22</td>
<td>04/26/22</td>
<td>100%</td>
</tr>
</tbody>
</table>
Recommendations to Client

- Most important stakeholder is consumer
  - Market ready for consumer-driven influencer search hub
  - Value resides in consumer trust in influencers
  - Majority of consumers prefer following influencers who look and act like them, instead of celebrities.

- Ease of use key MOE
  - As consumers are key stakeholders, adoption relies heavily on ease of use across broad age demographic

- Suggest clients complement existing services with consumer-driven features
Demonstration
Future Work
Future Work

Data
• Add additional social network data for inclusion into Like You
• Expand search parameters to include fit
• Make data dynamic, real-time search

Users
• **Influencers**: Add capability for influencers to add themselves to database, claim profiles, add self-reported data and contact info
• **PR/Brands**: Monetize database with PR/marketing/brand teams by facilitating influencer sponsorship and product releases/campaigns
Future Work

Embedded Application, Brand/POS Focus

- Create embedded application (similar to TrueFit) for brands to embed within POS websites
- After taking a quick questionnaire consumers are shown images of pre-selected brand influencers wearing/using product in suggested size.
Future Work

Influencer & PR/Brand Monetization
  • Build out opportunities for LIKE YOU to connect influencers with PR/Brands
Scholarly References


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<th>Page</th>
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<td>5</td>
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<td>Scale</td>
<td>6</td>
</tr>
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<td>Background</td>
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</tr>
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<td>Market Gap</td>
<td>11</td>
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<td>Current Baseline</td>
<td>14</td>
</tr>
<tr>
<td>Problem</td>
<td>17</td>
</tr>
<tr>
<td>Solution</td>
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</tr>
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<td>Trade Study</td>
<td>24</td>
</tr>
<tr>
<td>Requirements</td>
<td>30</td>
</tr>
<tr>
<td>Design</td>
<td>35</td>
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<tr>
<td>Recommendations</td>
<td>39</td>
</tr>
<tr>
<td>Demonstration</td>
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<td>Future Work</td>
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<td>Scholarly References</td>
<td>45</td>
</tr>
<tr>
<td><strong>Appendix</strong></td>
<td>46</td>
</tr>
</tbody>
</table>
Design

Frontend

**Softr** was used because:

- easy backend integration with Airtable via RESTful API calls
- responsive design
Airtable was chosen because:

- easy database management
- multi-user capabilities
- easy integration with other applications via RESTful API calls