

Early Stage Startup Product Development

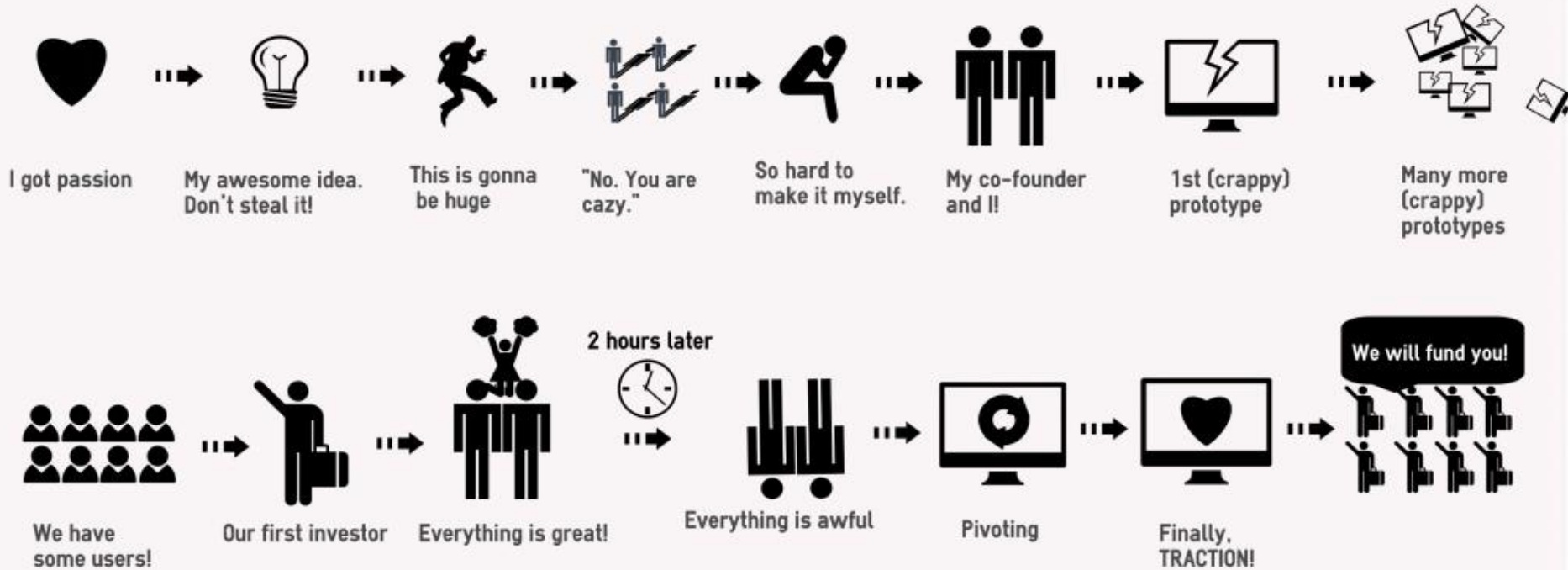
Vladan Petrović

CTO/Co-founder @Pubsonic

- Full stack senior software developer
- Entrepreneur
- Marathon runner
- ICT Hub Mentor, Blackbox Ambassador



THE **LIFE** OF A **STARTUP** by Anna Vital





StartUp

- What its product is?
- Who its customers are?
- How to make money?

As soon as it figures out all 3 things, it ceases being a startup and becomes a real business.

Except most times, that doesn't happen...



Dave McClure

Top 5 Mistakes in Product Development

1. Focus on “your solution”, not “their problems”
2. Not talking to customers and basing features on their needs
3. Chasing the competition
4. Not measuring results; AARRR metrics; collecting feedback
5. Develop too many features, say NO to features!

...Dave McClure on Early Stage Product Development

- *Find as tight niche as possible!*
- *Experiment with very define demographics that has very specific need you can test you product against!*
- *Minimally solve it as quick as possible!*

Because you're probably going to be wrong!

Product Development Methodology

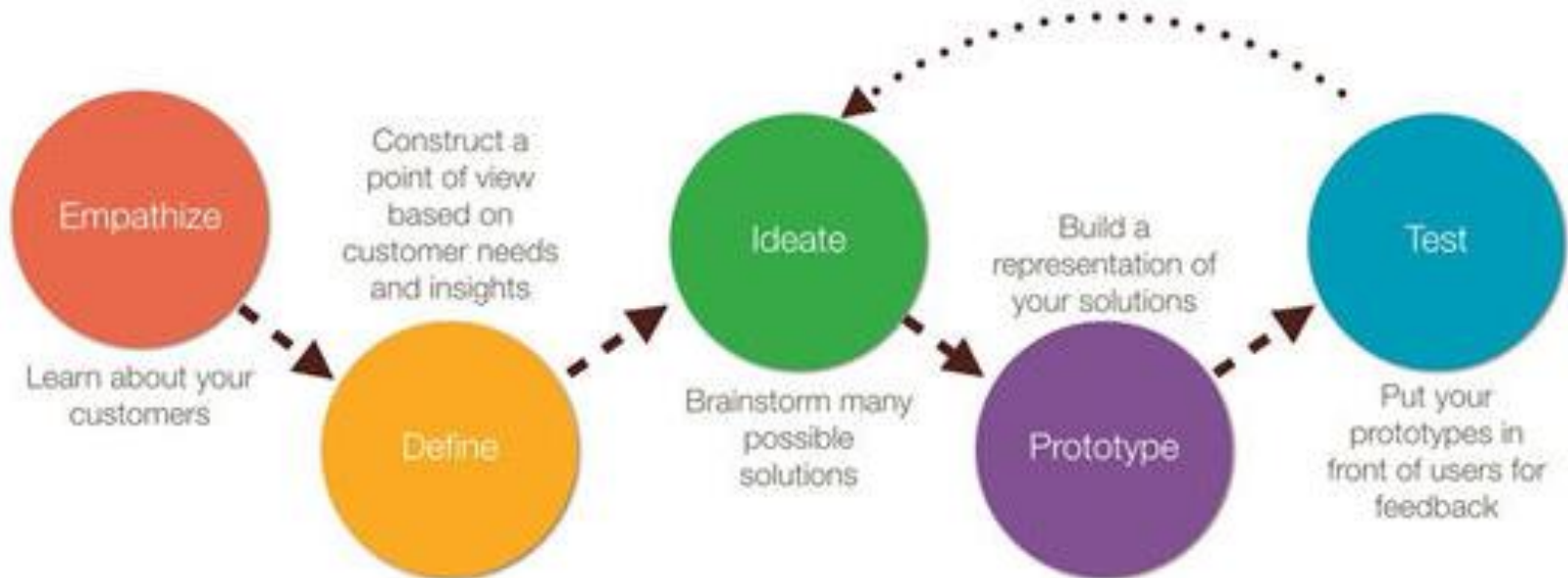


Product Development PRINCIPLES

1. Talk to your customers!
2. Choose features from **top customer suggestions**
3. Use **UI/UX design process** to define features
4. Build the features in **iterations**
5. Discover problems by talking to customers
6. Determine **Product Market Fit** with an **MVP**
7. **Measure** results! **AARRR** metrics
8. Talk to customers, build, iterate, improve, **SELL!**

Design Process

the ux design process



effective

“I've learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel.”

Maya Angelou

MVP Questions / Planning

- 1. Who are the early adopters with high impact?**
-> Define their personas
- 2. What are “all” features you can think of?**
-> Identify Epic features
- 3. What is an objective with MVP release?**
-> Document hypothesis you’re testing
- 4. Which Epic features are required for MVP?**
-> Prioritize Epic features

Product / Market Fit

Market Fit

Discovery > Validation

> Efficiency > Scaling

Problem Fit

Product Fit

Build in fully functional iterations

HOW TO BUILD A MINIMUM VIABLE PRODUCT

NOT LIKE THIS

1 2 3 4

LIKE THIS

1 2 3 4 5

**Product should always impress customers,
while back-end doesn't need to be work of art**



Agile Sprint Iterations

1. Break tasks into “**half a day**” size
2. Define full **backlog** of tasks / stories
3. Organize next tasks into **2-3 week(s)** Sprints
4. **Prioritize** development
5. **Check daily** progress
6. Do **Sprint Demo** at the end of Sprint
7. **Release, Get Feedback, Repeat**

Deployment

- Your engineers must have a deployment process in place
- Roll back to previous version should be possible
- Use continuous integration (CI) and source control system
- Make sure it works
- Always deploy product before marketing / PR

MVP Launch

“The best launch is if you have a product that other people like using so much that they tell other people about it.”

Robert Scoble



MVP Facts

- It will have bugs and rough edges
- If it doesn't, you've waited too long
- If it takes too long, CUT features, DON'T think of hiring more engineers
- It will impress customers if you've done your validation right

Pirate Metrics - AARRR

- 1. Acquisition** – *How do users find you?*
- 2. Activation** – *Do users have a great experience?*
- 3. Retention** – *Do users come back?*
- 4. Referral** – *Do users like us to tell others?*
- 5. Revenue** – *Do users pay for it?*

Customer Support - SDD

Support

Driven

Development

Everyone should do customer support

Creator ↔ Supporters



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TURNING SEARCH INTO RESEARCH

Example

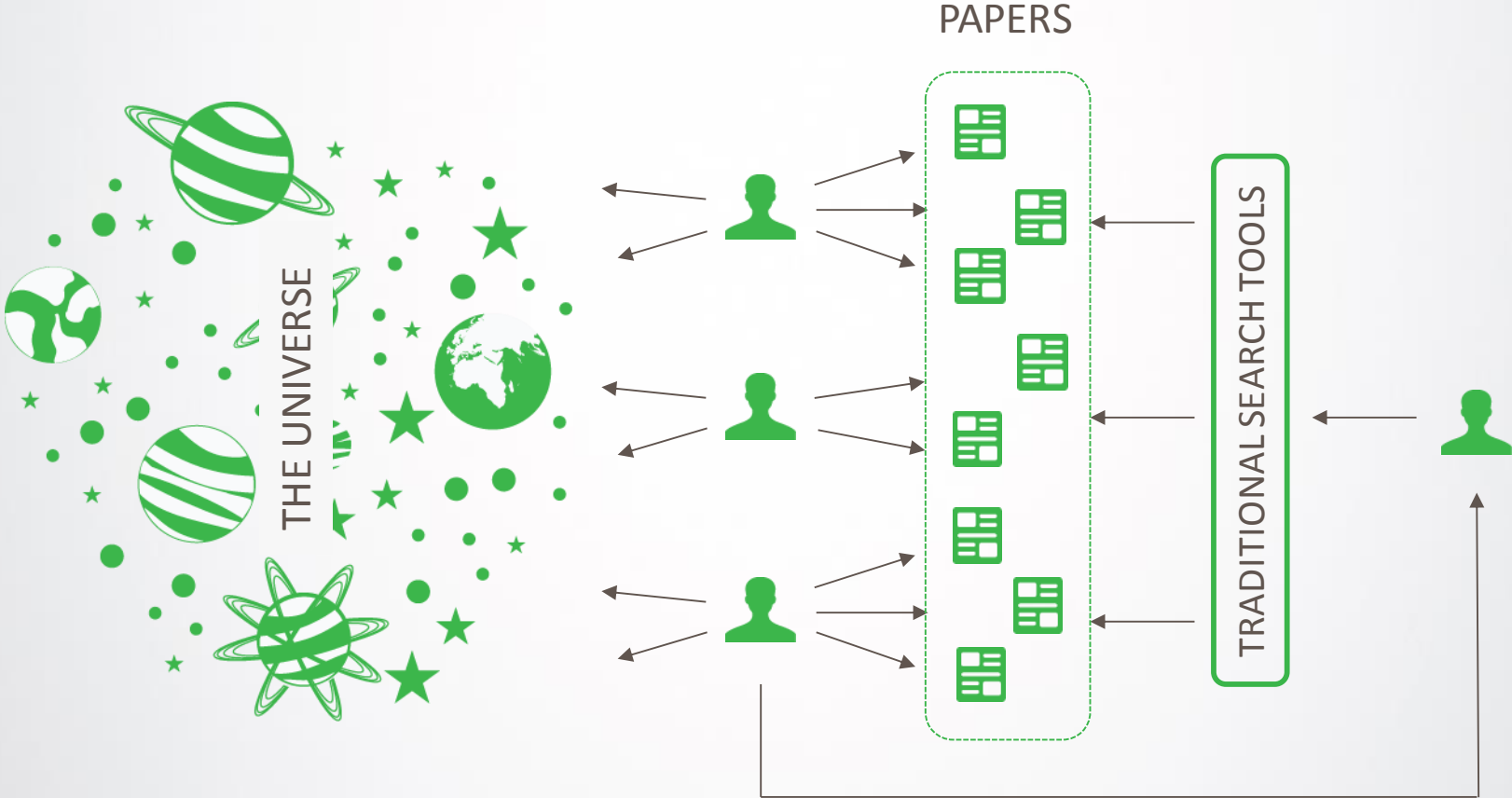


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TURNING SEARCH INTO RESEARCH

**Accelerating research through
revolutionary search technology
and workflow tools**

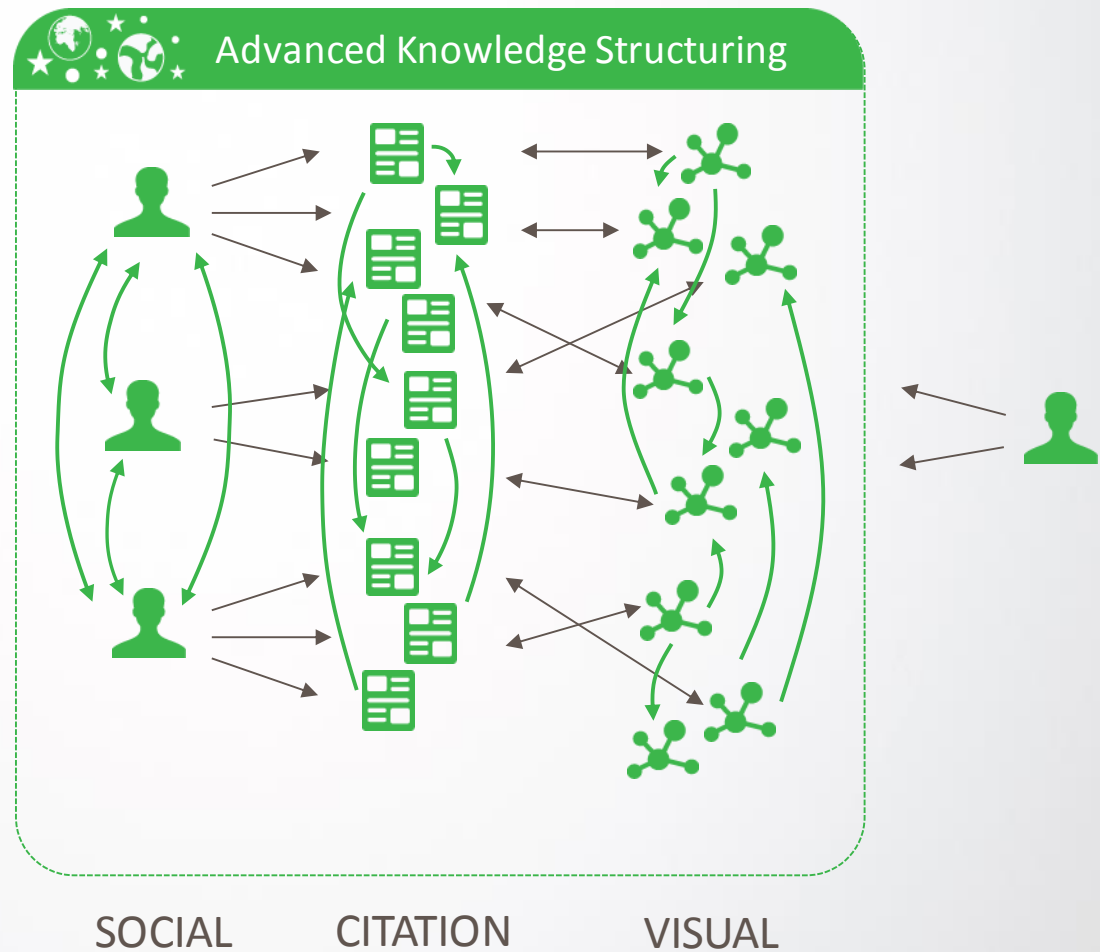
Academic Search



Much more is possible



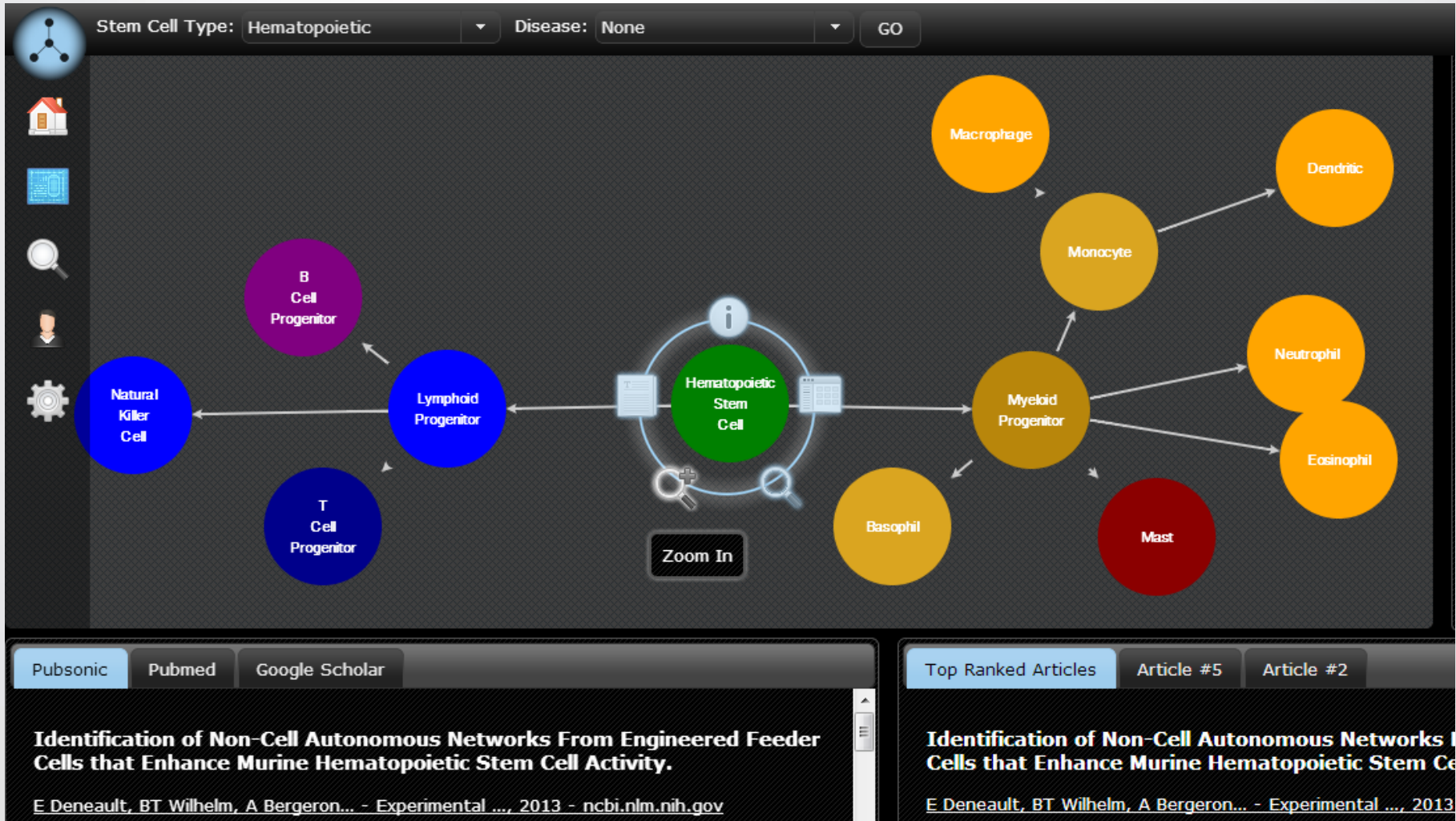
PUBSONIC SEARCH



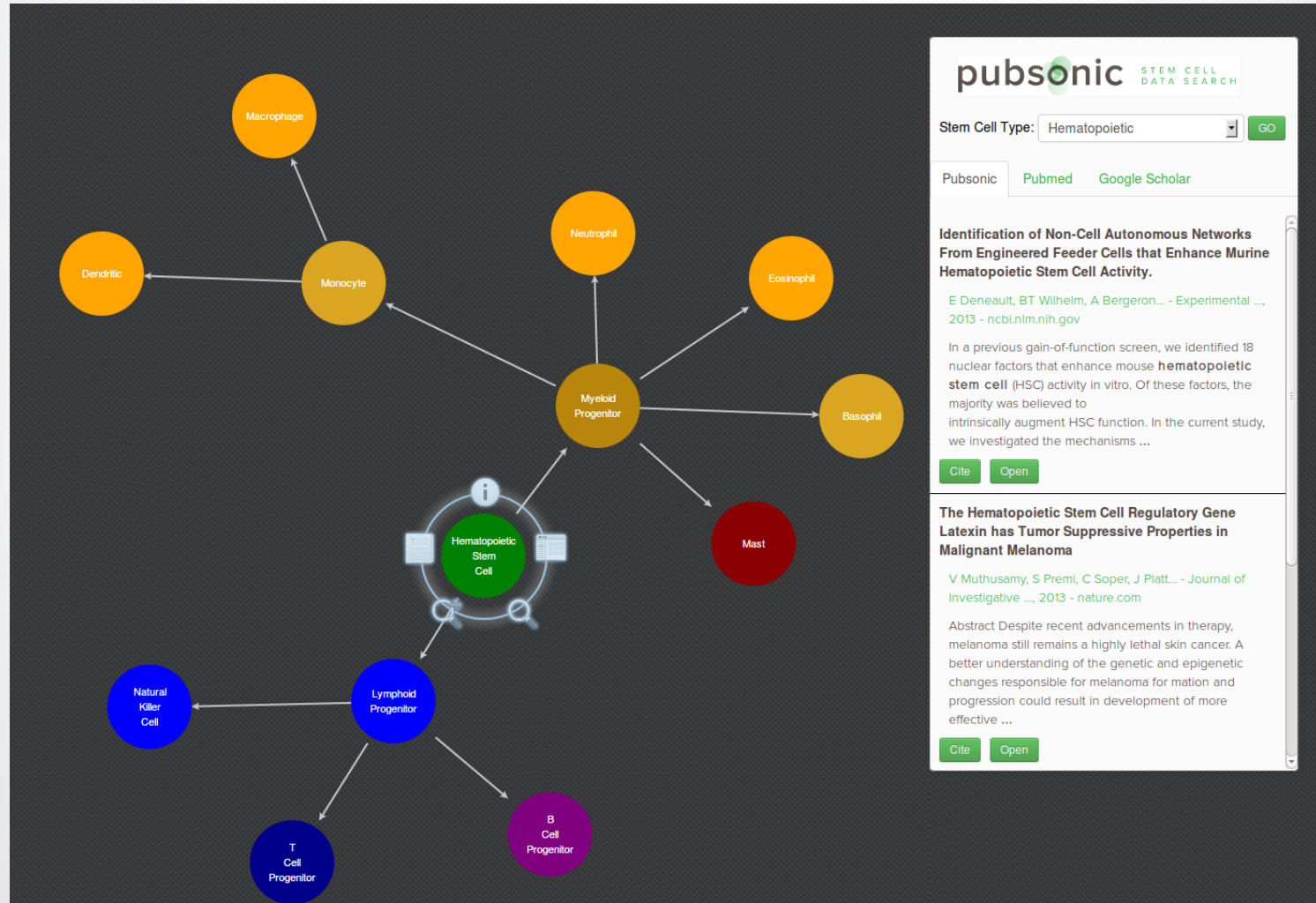


Prototype Development

Prototype version 0.0.1



Prototype version 0.0.2



Prototype version 0.1



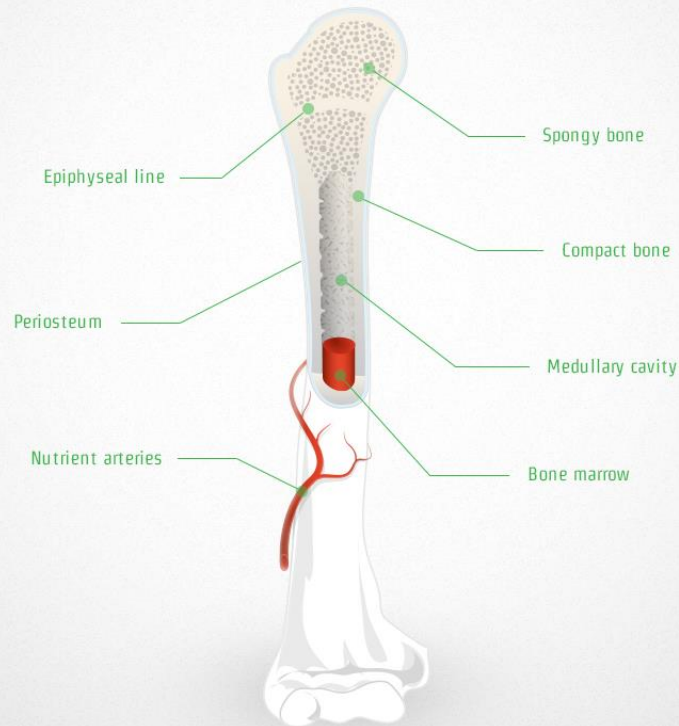
Humerus

Long bone in the arm or forelimb that runs from the shoulder to the elbow.

Anatomically, in modern humans, it connects the scapula and the lower arm (consisting of the radius and ulna), and consists of three sections.

The upper extremity consists of a rounded head, a narrow neck, and two short processes (tubercles, sometimes called tuberosities.) Its body is cylindrical in its upper portion, and more prismatic below.

The lower extremity consists of 2 epicondyles, 2 processes (trochlea & capitulum), and 3 fossae (radial fossa, coronoid fossa, and olecranon fossa).



Humerus

15074 results (0.05 seconds)

Arterial thrombosis after vehicular trauma and humeral fracture in a dog.

Depaula KM, Delafourcade AM, King RG, Hughs H, Boudrieau RI. J Am Vet Med Assoc. 2013 Aug 1;243(3):394-8. doi: 10.2460/javma.243.3.394. PMID: 23865882 [PubMed - in process]

A Method for Estimating Sex Using the Clavicle, Humerus, Radius, and Ulna.

Albanese J. J Forensic Sci. 2013 Jul 18. doi: 10.1111/1556-4029.12188. [Epub ahead of print] PMID: 23865634 [PubMed - as supplied by publisher]

Evaluating Practices and Developing Tools for Comparative Effectiveness Reviews of Diagnostic Test Accuracy: Methods for the Joint Meta-Analysis of Multiple Tests [Internet].

Trikalinos TA, Hoaglin DC, Small KM, Schmid CH. Rockville (MD): Agency for Healthcare Research and Quality (US); 2013 Jan. PMID: 23865097 [PubMed] Books & Documents

The Silicone Ring Tourniquet in Orthopaedic Operations of the Extremities.

Drosos GI, Ververidis A, Mavropoulos R, Vastardis G, Tsioros KI, Kazakos K. Surg Technol Int. 2013 Jul 17;XXIII. doi:pil: sti23/12. [Epub ahead of print] PMID: 23860930 [PubMed - as supplied by publisher]

Avulsion fracture of the supinator crest of the proximal ulna in the context of elbow joint injuries.

Schmidt-Horlohé K, Wilde P, Kim YI, Bank A, Hoffmann R. Int Orthop. 2013 Jul 17. [Epub ahead of print] PMID: 23860788 [PubMed - as supplied by publisher]

load more



Human +



Help & Contact ^

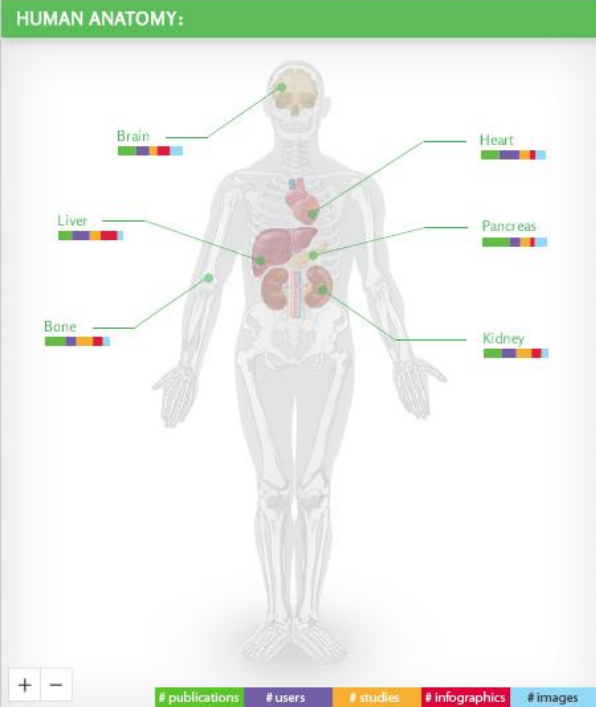
Team & About ^

Prototype version 0.2

INFOGRAPHICS:

- Hot Spots
- Human Anatomy
- Bone Marrow Stem Cells
- Angiosperm life cycle
- Virus lytic cycle
- Generalized reproduction in fungi

HUMAN ANATOMY:








publications # users # studies # infographics # images

SEARCH:


Stem cells

FILTER Terms (0)

12235 Results found (0.5 sec)

- Comparative analysis of human mesenchymal stem cells from bone marrow, adipose tissue, and umbilical cord blood...**
Jin HJ, Bae YK, Kim M, Kwon SJ, Jeon HB, Choi SJ, Kim SW, +3
Recommended by 14 scientists: 
- The emerging use of bone marrow-derived mesenchymal stem cells in the treatment of human chronic wounds.**
Dabiri G, Heiner D, Falanga V.
Recommended by 10 scientists: 
- Engineering bone tissue substitutes from human induced pluripotent stem cells.**
de Peppo GM, Marcos-Campos I, Kahler DJ, Alsaman D, +3
Recommended by 6 scientists: 
- Time-dependent processes in stem cell-based tissue engineering of articular cartilage.**
Gadjanski I, Spiller K, Vunjak-Novakovic G.
Recommended by 6 scientists: 
- MicroRNA-based discovery of barriers to dedifferentiation of fibroblasts to pluripotent stem cells.**
Judson RL, Greve TS, Parchem RJ, Billeloch R.
Recommended by 6 scientists: 

Load more



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Username or Email

Password

Remember me

or connect using

NEW TO PUBSONIC:

Full name

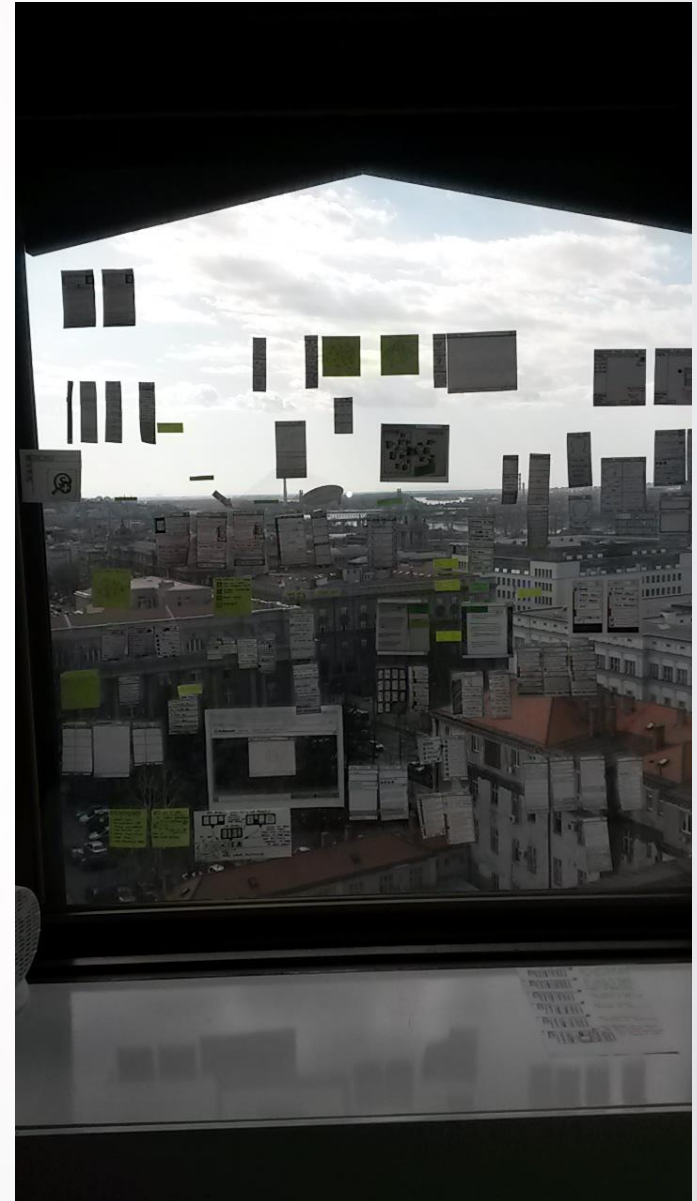
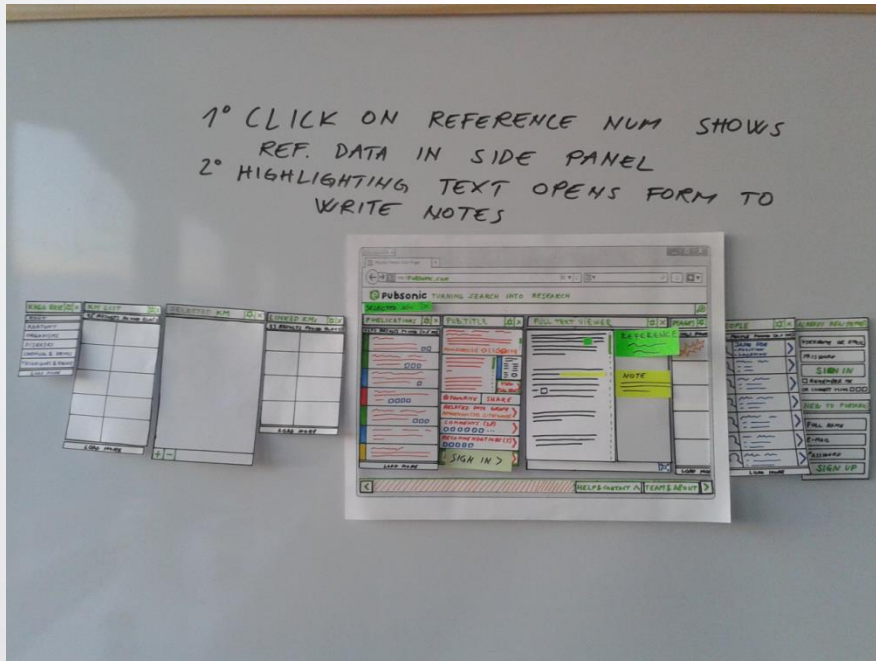
E-mail

Password

Help & Contact

Team & About

Prototype version 1.0 sketching



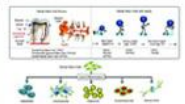
Prototype version 1.0

SELECTED KM 



LINKED KMs

23 results found (0.04 sec)



Dental stem cell sources and their multilineage differentiation capability



Dental stem cell-based tissue engineering



Schematic representation of the stem-cell based therapies for type 1 or 2 diabetes mellitus

LOAD MORE

PUBLICATIONS

1224 results found (0.5 sec)

Comparative analysis of human mesenchymal stem cells from bone marrow, adipose tissue, and umbilical cord ...

Jin HJ, Bae YK, Kim M, Kwon SJ, Jeon HB, Choi SJ, +4

Recommended by 14 scientists: 

The emerging use of bone marrow-derived mesenchymal stem cells in the treatment of human chronic wounds,

Dabiri G, Heiner D, Falanga V.

Recommended by 10 scientists: 

Engineering bone tissue substitutes from human induced pluripotent stem cells.

de Peppo GM, Marcos-Campos I, Kahler DJ, Alsalmán D, +3

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Gadjanski I, Spiller K, Vunjak-Novakovic G.

Recommended by 6 scientists: 

MicroRNA-based discovery of barriers to dedifferentiation of fibroblasts to pluripotent stem cells.

Judson RL, Greve TS, Parchem RJ, Blelloch R.

Recommended by 6 scientists: 

The emerging use of bone marrow-derived mesenchymal stem cells in the treatment of human chronic wounds,

Dabiri G, Heiner D, Falanga V.

Recommended by 10 scientists: 

LOAD MORE

IMAGES

72 images found



LOAD MORE

PEOPLE

256 people found (0.1 sec)



STEVEN THOMPSON

- Lorem ipsum dolor
- Sit amet, consectetur



LILY FORD

- Adipiscing elit
- Sed do eiusmod tempor



JACOB HENDERSON

- Lorem ipsum dolor
- Sit amet, consectetur



JULIAN ADAMS

- Lorem ipsum dolor
- Sit amet, consectetur



JACKIE GRAHAM

- Adipiscing elit
- Sed do eiusmod tempor



SOFIA BAKER

- Adipiscing elit
- Sed do eiusmod tempor



ROSE STEWART

- Lorem ipsum dolor
- Sit amet, consectetur

LOAD MORE

ALREADY REGISTERED?

Username or email

Password

SIGN IN

Remember me - Forgot password?

or connect using:



NEW TO PUBSONIC?

Full name

E-mail

Password

SIGN UP



Help & Contact 

About 



The Pubsonic Solution

Fast, intuitive visual exploration of crowd sourced infographic knowledge base

Multidimensional search :
text + visual + citation graph + social

Continuous real time updates

Integrated science information management, writing & collaboration tools

The screenshot displays the Pubsonic interface, which is designed for multidimensional search and visual exploration of scientific knowledge. The interface is organized into several panels:

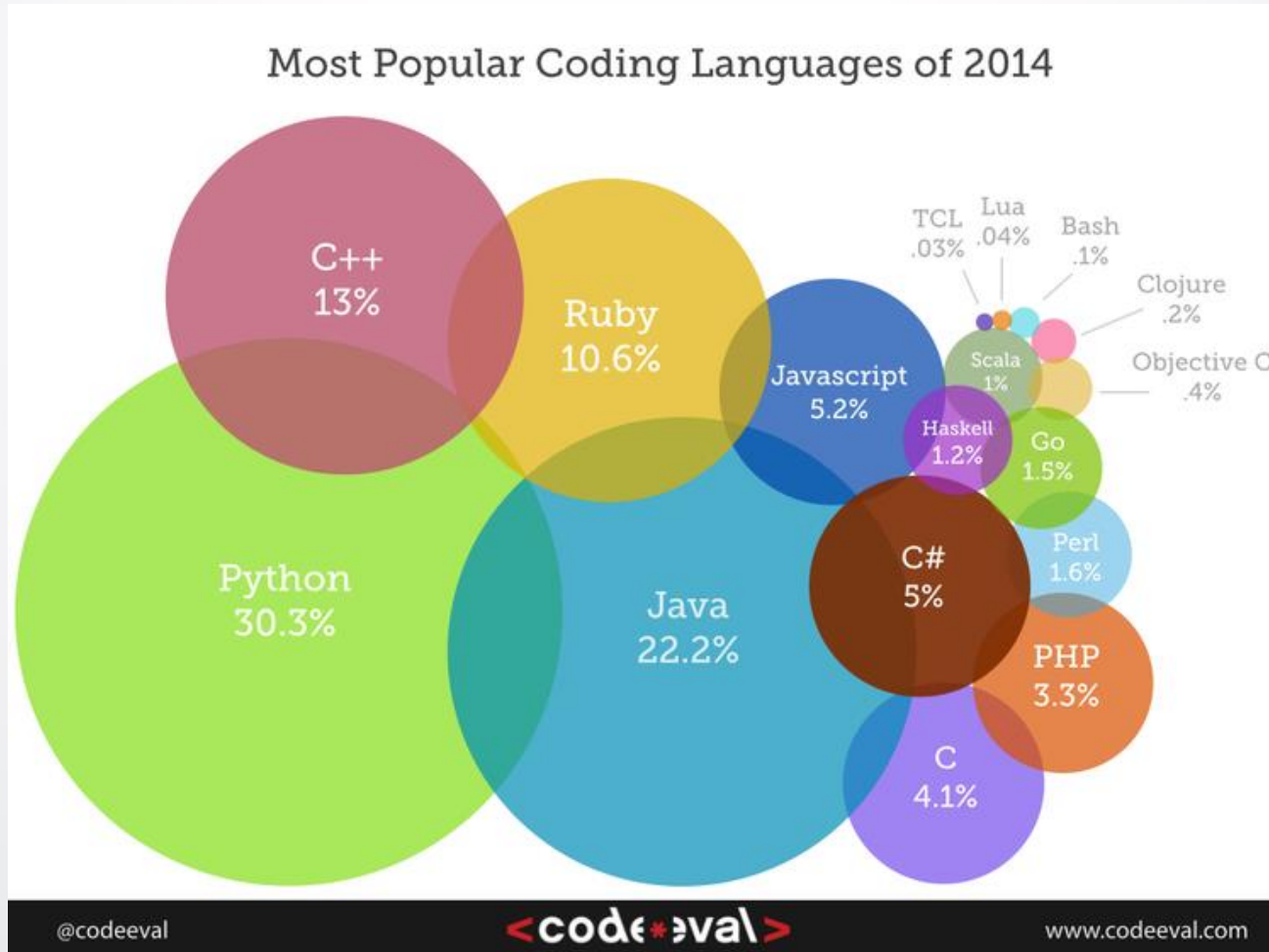
- KM LIST:** Shows 45 results found (0.05 sec) with a grid of infographic knowledge maps.
- SELECTED KM:** Displays a detailed infographic showing the differentiation potential of stem cells (ESC, iPS, MSC, fibroblast) over time, leading to precartilaginous condensations and chondrocytes.
- LINKED KMs:** Shows 23 results found (0.04 sec) with a grid of related infographic knowledge maps.
- PUBLICATIONS:** Lists 1224 results found (0.5 sec) with a list of scientific papers, including titles like "Comparative analysis of human mesenchymal stem cells..." and "Engineering bone tissue substitutes from human induced pluripotent stem cells."
- PUBLICATION TITLE:** Provides a detailed view of a selected publication, including the title, authors, and abstract.
- FULL TEXT VIEW:** Shows the full text of the selected publication.

The Pubsonic logo and tagline "TURNING SEARCH INTO RESEARCH" are visible at the top left of the interface.



Product Development Toolbox

Best Programming Languages for Product Development



Which tool to choose?



HTML



GitHub



ORACLE®



mongoDB



JavaScript



Which Tech Stack to choose?

- **MEAN Stack?** (Node.JS / JavaScript / MongoDB / Express / Linux)
- **RAD Stack?** (Ruby On Rails / JavaScript / Linux)
- **Big Data Stack?** (Java / NoSQL / Linux)
- **Linux Enterprise?** (Java EE / Oracle / Linux)
- **Windows Enterprise?** (.NET / C# / Windows)
- **iOS native?** (Objective-C / Swift)
- **Android native?** (Java)

Factors in Selecting a Tech Stack

- **Developers availability**

Do you know any developers that can help?
Can you get them as consultant or full-time?

- **Infrastructure Requirements**

Some stacks are “heavier” and more expensive than others

Some are better for earlier stage and some for late stage

StackShare – best dev tools & services


stackshare.io

stackshare

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Discover, discuss, and share the best dev tools and services

Browse Share my stack

New  **The Tech Behind Homejoy's Cleaning Servi...**
Python + Flask + PostgreSQL + AWS

Discover what top companies are using

Learn about the tech stack behind some

-  **Twitter** 
Apache Mesos + Framer.js + HAProxy + Docker + Akamai
-  **Soundcloud** 
New Relic + Scala + Clojure + JRuby + Elasticsearch

StackShare examples

Facebook



Facebook

http://facebook.com

Networking Communities Identity Social Media

The world's largest social utility, 1.3 billion active users as of June 2014.

Stack Details

Application and Data

- PHP (Languages)
- React (Javascript UI Libraries)
- Memcached (Databases)
- Cassandra (Databases)
- Flux (Javascript UI Libraries)
- HHVM (HipHop Virtual Machine) (Virtual Machine)
- Tornado (Frameworks (Full stack))
- Hack (Languages)
- RocksDB (Databases)
- Presto (Big Data Tools)
- Stetho (Mobile Runtime Inspe...)

Utilities

- Framer (Mobile Prototyping & ...)
- Testdroid (Mobile Test Automation)
- Origami (Mobile Prototyping & ...)
- Pop (Mobile Prototyping & ...)

DevOps

- Jenkins (Continuous Integration)
- Chef (Server Configuration ...)
- Datadog (Performance Monitor...)
- Phabricator (Code Review)

Uber



Uber

uber.com

Peer-to-Peer Collaborative Consumption Transportation

Uber's dispatch software provides licensed, professional drivers the ability to receive and fulfill on-demand car service reservations as private drivers.

Stack Details

Application and Data

- Node.js (Frameworks (Full Stack))
- Redis (In-Memory Databases)
- MongoDB (Databases)
- MySQL (Databases)
- Python (Languages)
- Java (Languages)
- Backbone.js (Javascript MVC Frame...)
- Objective-C (Languages)

Utilities

- Google Analytics (General Analytics)
- SendGrid (Transactional Email)
- Twilio (Voice and SMS)
- Heap (Funnel Analysis Analy...)
- BT (Payment Services)

Netflix



Netflix

netflix.com

Games Consumer Electronics Entertainment

Netflix is the world's leading Internet television network with more than 33 million members in 40 countries enjoying more than one billion hours of TV shows and movies per month, including Netflix original series.

Stack Details

Application and Data

- Node.js (Frameworks (Full Stack))
- MySQL (Databases)
- Python (Languages)
- Amazon EC2 (Cloud Hosting)
- Java (Languages)
- React (Javascript UI Libraries)
- Amazon RDS (SQL Database as a Se...)
- Cassandra (Databases)
- Oracle (Databases)
- Amazon DynamoDB (NoSQL Database as a ...)
- Dynomite (Database Tools)

Utilities

- Amazon SES (Transactional Email)
- Urban Airship (Mobile Push Messaging)
- Sumo Logic (Log Management)

DevOps

- GitHub (Code Collaboration & ...)
- Jenkins (Continuous Integration)
- Apache Mesos (Server Management ...)
- Critterism (Mobile Error Monitoring)

Startup Business Tools?

Essential Tools for Your Startup Business

	<p>Blogging</p>	<p>Hosting</p>	
	<p>Email Marketing</p>	<p>Social Media</p>	
	<p>File Hosting</p>	<p>Sales Funnel</p>	
	<p>E-Commerce</p>	<p>Analytics</p>	
	<p>Automation</p>	<p>Collaboration</p>	
	<p>Legal</p>	<p>Client Relationship Management</p>	

Discover the Tools the Big Guys Don't Want You to Know About



Tools, Environment & Technology value

Web Application Hosting



Google Cloud Platform

Compute

Storage

Big Data/Analysis

Services



App Engine

Compute Engine

Cloud Storage

Cloud Datastore

Cloud SQL

BigQuery

Cloud Endpoints

Google App Engine

What is App Engine?

App Engine Features

· Pricing and Quotas

Downloads

· Python

· Java

Runtime Environment

▶ Managed VMs Beta

Handling Requests

▶ Java Tutorial

▶ Modules

▶ Storing Data

▼ Services

Overview

▶ App Identity

▶ Capabilities

▶ Channel

▶ Google Cloud Endpoints

▶ Images

▶ Logs

▶ Mail

▶ Memcache

▶ Multitenancy

▶ OAuth

▶ Prospective Search Alpha

▶ Search

▶ SMS and Voice

Sockets

▶ Task Queues

▶ URL Fetch

▶ Users

▶ XMPP

Google App Engine: Platform as a Service

Google App Engine lets you build and run applications on Google's infrastructure. App Engine applications are easy to create, easy to maintain, and easy to scale as your traffic and data storage needs change. With App Engine, there are no servers for you to maintain. You simply upload your application and it's ready to go.

Guided Quickstart

Immediately create and run a sample app in the cloud immediately using our guided quickstart. Starter code is offered in Python, Java, PHP, and Go, highlighting popular frameworks like Flask, Django, and Bottle.

[Begin Quickstart](#)

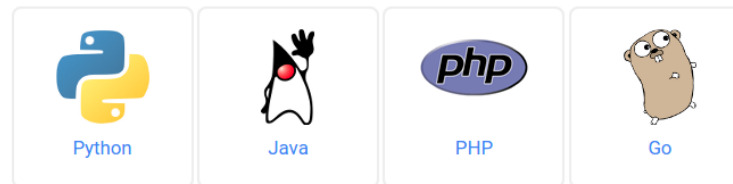
Try a tutorial

Once you have tried the quickstart, try building a guest book application on App Engine. This tutorial highlights core App Engine features.

- In [Python](#) with webapp2 and Jinja2.
- In [Java](#) with maven.
- In [PHP](#) with Cloud SQL.
- In [Go](#) with the html/template package.

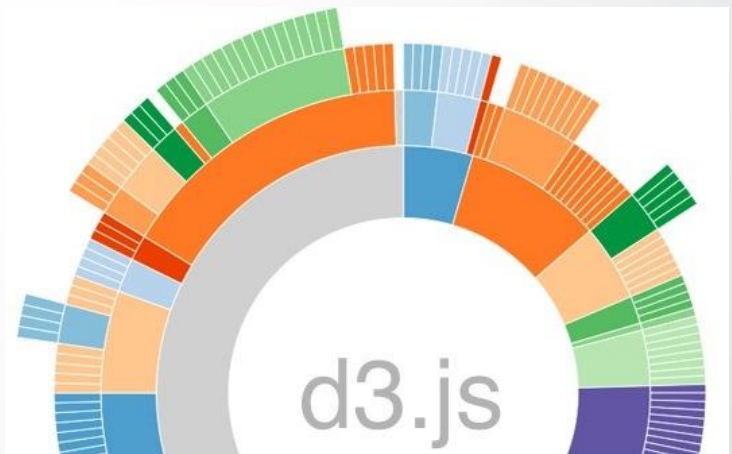
Start your engine!

Click on your favorite language and go right to the developer's guide, where you'll find everything you need to know about creating, deploying and managing an app in the cloud.

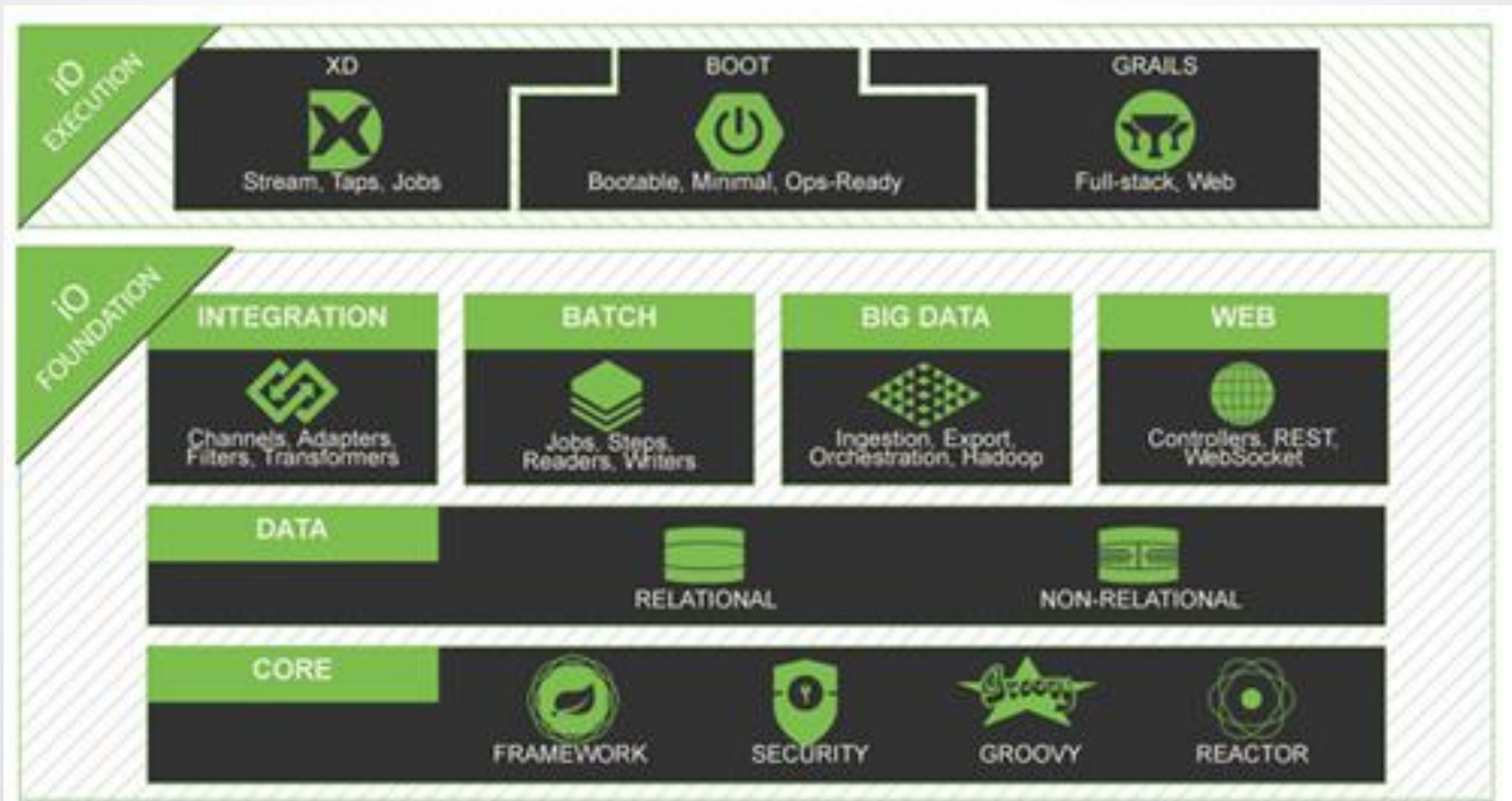


The logos associated with the programming languages above are the trademarks or registered trademarks of their respective owners.

Frontend Tools



Backend Tools



Technology Value

“Any sufficiently advanced technology is indistinguishable from magic.”

Arthur C. Clarke

Product Development Summary

1. Start lean (and mean)
2. Get to MVP as soon as possible
3. Iterate, measure, talk to customers
4. Don't over-engineer
5. Prioritize always, your plan will change
6. Spend investment money like you're spending your money



“Life’s too short to build something
nobody wants”

Ash Maurya, Running Lean

Thank You!

Any questions?

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@vladanpetrovic

rs.linkedin.com/in/vladanpetrovic