Technology Startups:
How to start as an immigrant academic

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Co-founder and COO of PediaMetrix Inc.

Agenda

- My story (Personal and PediaMetrix)
- Different stages of company formation
- Lesson learned
- Q/A

Why?

- More than 50% of people are not happy with their jobs

- **Finding** a dream job is difficult, if not impossible

- **Creating** your dream job might be a solution, but it is challenging, especially if

- You have family obligations (kids)

- Financial obligations (mortgage, debt, etc)

- Lack family members to support you financially/emotionally

- Lack of experience (e.g. being academic)

My journey

- ✓ **1983-1986**: Ahvaz – Iran/Iraq war
- ✓ **1987-2000** Lorestan – stayed till 18
- ✓ **2001-2008** Tehran Polytechnique: 2 BSc degrees, 1 MSC
- ✓ **2009-10**: Queens University - Canada
- ✓ **2010-2013:** Johns Hopkins University
- ✓ **2013-2014**: Children's Hospital of Washington, DC.
- ✓ **2014-2019**: NIH – Clinical Center
- ✓ **2018-present:** PediaMetrix

PediaMetrix Inc.

- Founded in 2018
- 8 employees (FT&PT)

Mission

Bring <u>AI</u> & <u>computer vision</u> to pediatric care driving <u>patient outcome</u> and <u>lowering the cost</u>.

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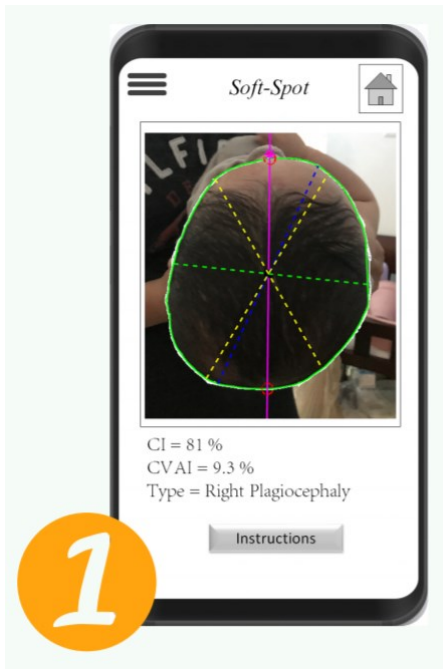First smart tool for infants' head screening
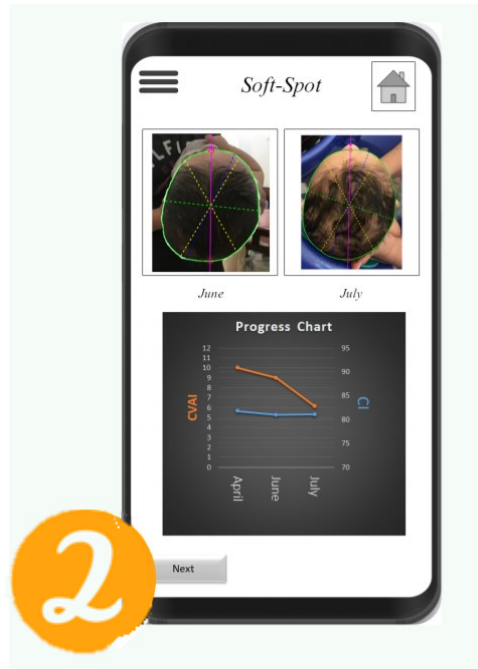

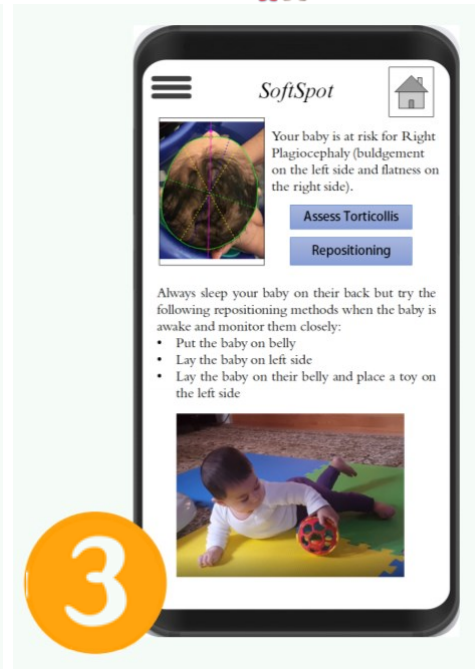Plagiocephaly   Brachycephaly   Scaphocephaly
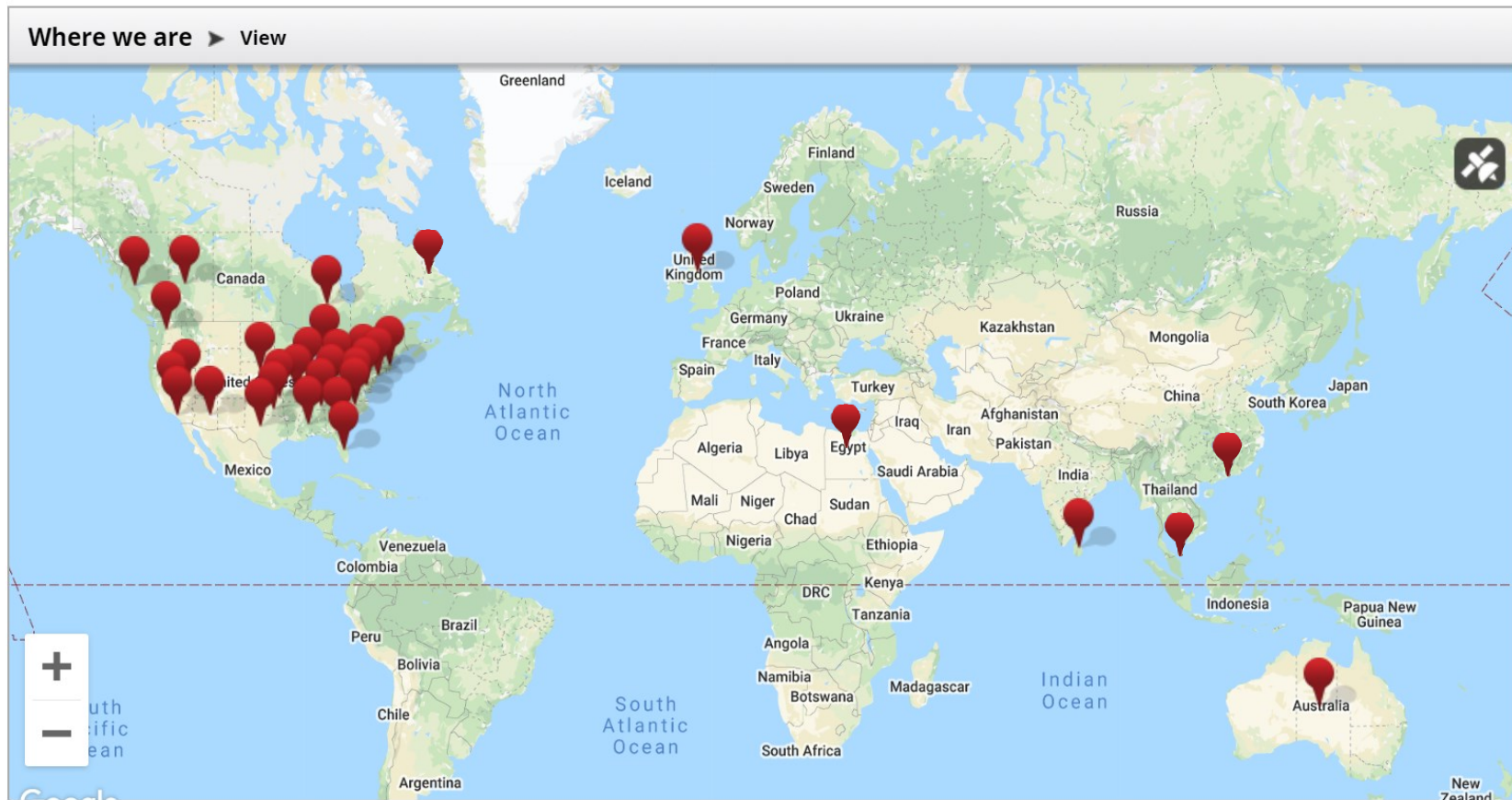
SoftSpot™

① Detect

② Monitor

③ Treat

Signups Map

Traction

✓ NSF SBIR Phase II ($1M) - recommended for funding

✓ NSF SBIR Phase I ($225K)

✓ National I-Corps ($50K)

✓ TEDCO Builder Fund ($50K)

✓ BHI, Medica, Open DC, Regional I-Corps ($11k)

✓ PitcHer competition finalist ($5K)

✓ Maryland Internship Fund (up to $12K/y)

✓ MD Export Grant ($5K)

✓ Invited to pitch as top 10 apps in Pediatrics AAP

✓ Finalist: InnoSTAR, Brinc, SPIE Photonics, MedTech
   Innovator, MICCAI 2020 Impact Award

FOUNDERTRAC
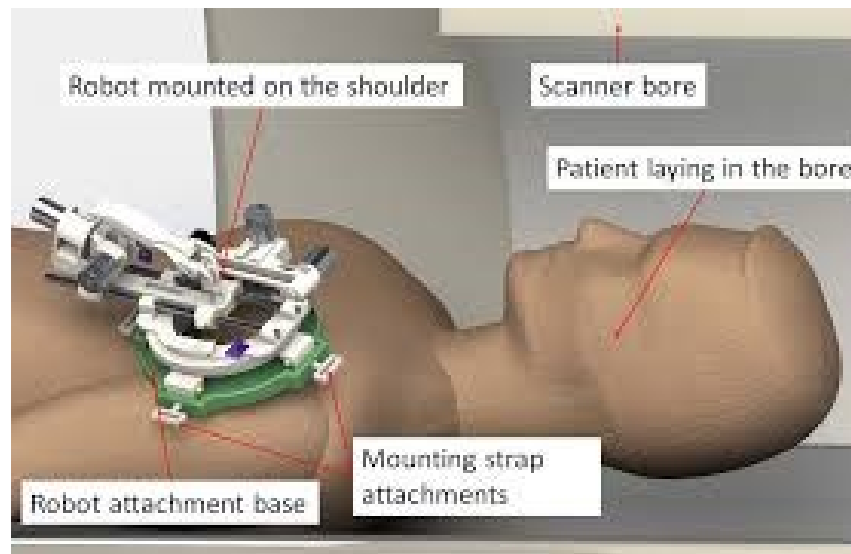LAUNCH YOUR STARTUP WITH FOUNDERTRAC

STARTUPS IGNITE
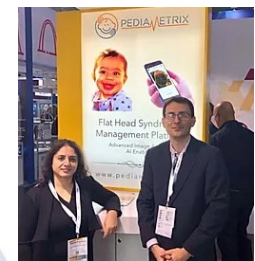
Entrepreneurial journey begins

✓ **2013-2014:** Joseph E. Robert Fellow in Pediatric innovation

Entrepreneurial journey begins

✓ **Idea 1:** DC i-Corps: 52 customer discovery - **pivot**

Idea 1

Lesson 1: A great research project may not necessarily be ready for commercialization yet.

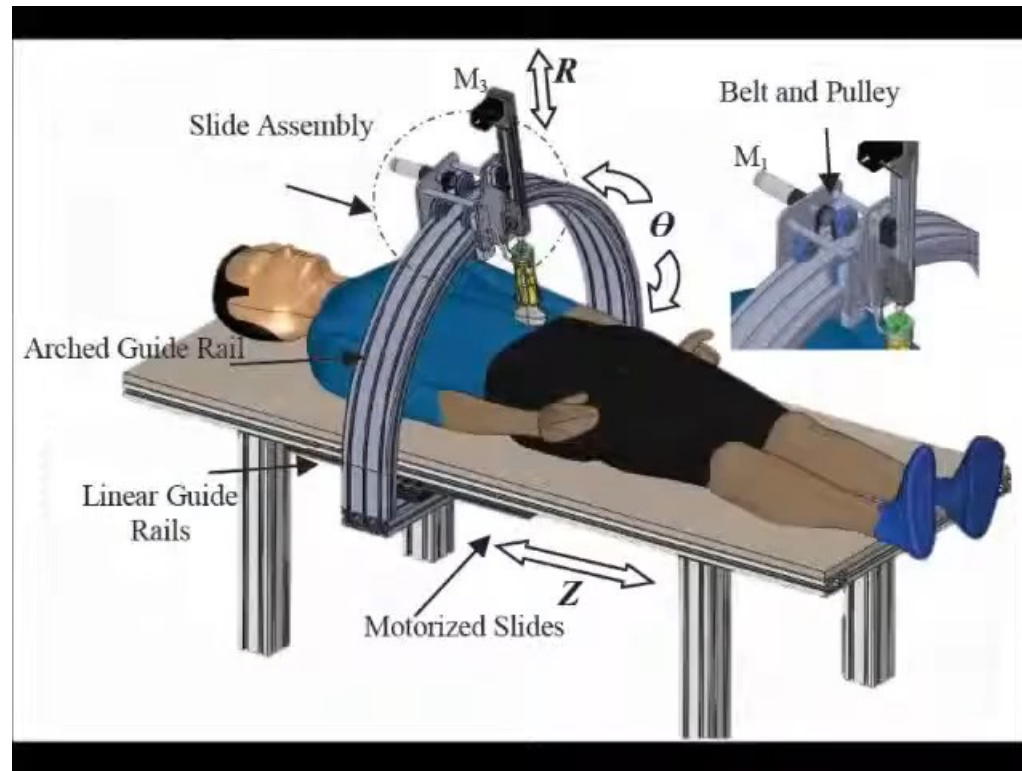# i-Corps: customer discovery

- **NSF** funded
- **Lean Startup** Methodology
- Designed for **academicians**
- Get out of the building: validate your hypothesis
- Evaluate **the need** NOT **the solution**!

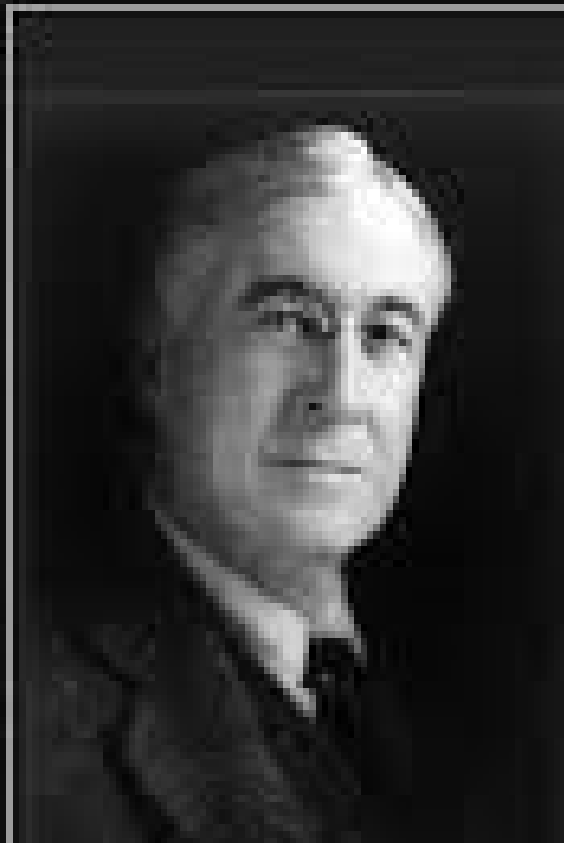|	Mini i-Corps	National i-Corps
Funding	$3,000	$50,000
# of Interviews	20	100
Duration	2 weeks	6 weeks

Entrepreneurial journey

- **Idea 2: ARUS:** Automatic Renal Ultrasound Machine

Idea 2

Entrepreneurial journey

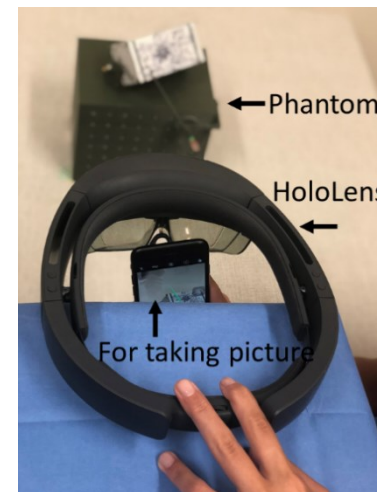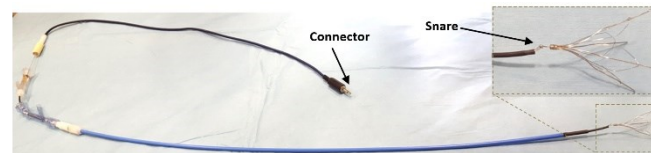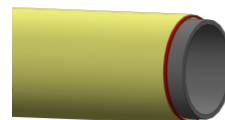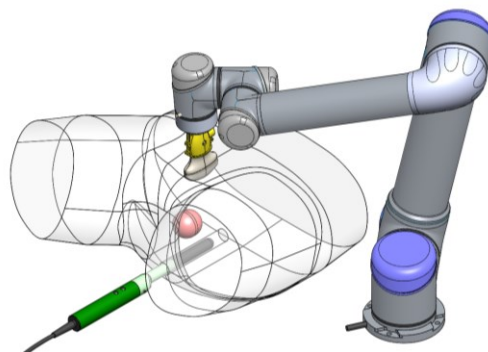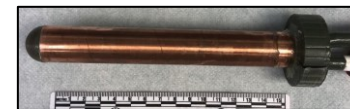If all you have is a hammer, everything looks like a nail.

(Bernard Baruch)

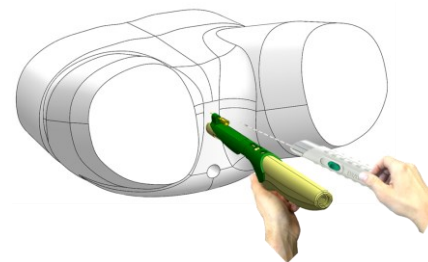# Solve an unmet need

- **80-90%** of startups **fail**
- **Primary reason: NOT** addressing a **genuine unmet need**
- Second reason: they run out of cash
- **Technology innovators are more prone**

NIH (2014-2019): tried to start with the end in mind
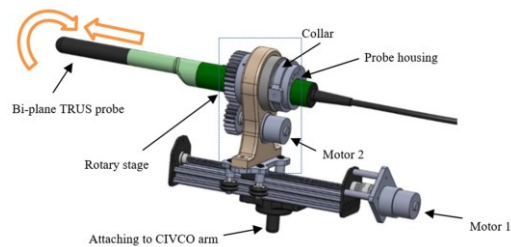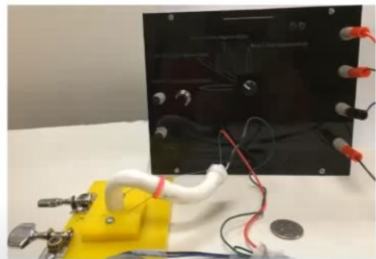
2017: personal experience

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First smart tool for infants' head screening

Plagiocephaly   Brachycephaly   Scaphocephaly

User anxiety

- 2 month to see a **neurosurgeon**
- One month to see an **orthotist**
- Anxiety of going through helmet therapy
- Helmet: **$2,000-$5,000**, 3-6 months, 23hrs/day

SoftSpot™

30% develop moderate to severe head deformity

$1B

620,000 infants remain untreated annually in US
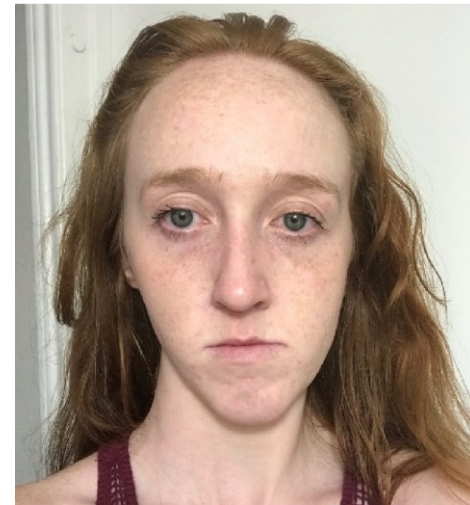
Current tool available to pediatricians

Incorporated in Jan 2018

- Started with $2,000 saving
- My wife was FT at PediaMetrix (CEO)
- I stayed at NIH

Oct 2018: Mini i-Corps

- 32 interviews
- AAP 2018 - > Go!

April-May 2019

National i-Corps: $50K

SBIR Phase I ($225K)

When to leave your job?

Fear setting

Regret minimization

Jeff Bezos - Regret Minimization Framework
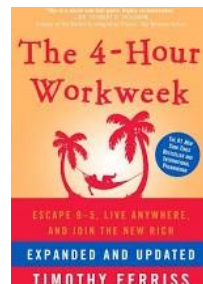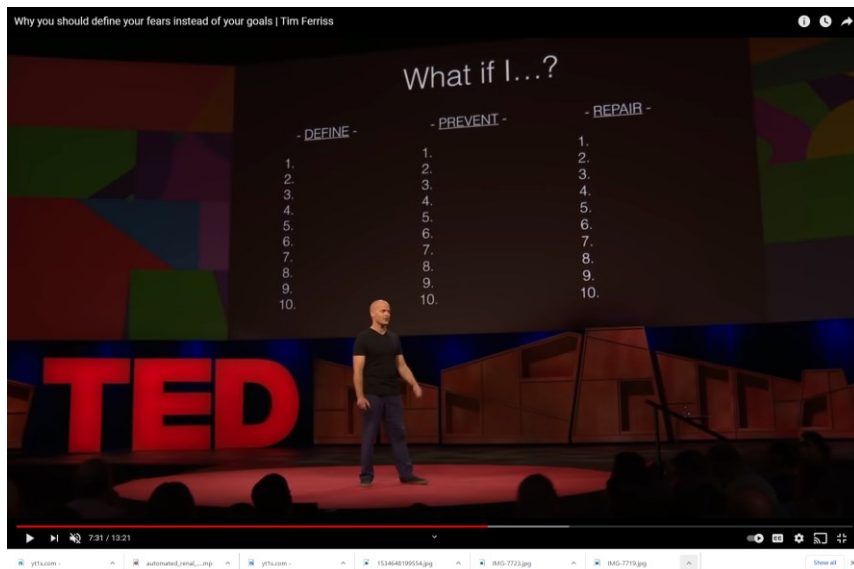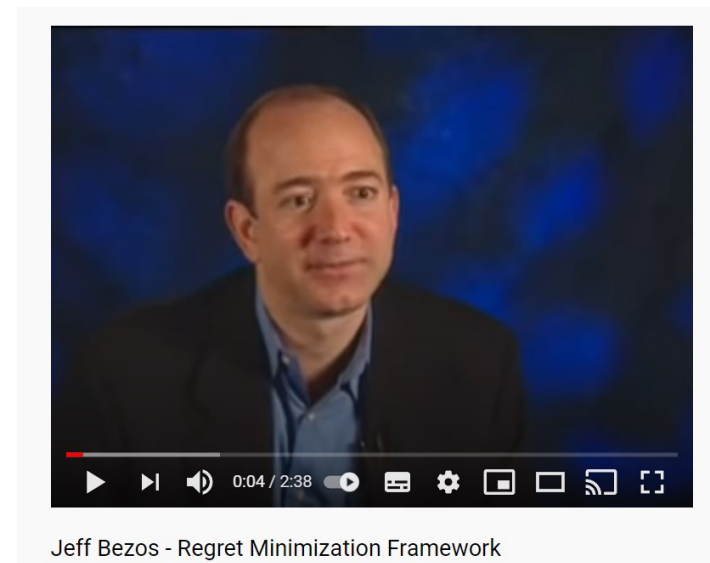
When to leave your job?

- Set aside **6-12 months of runway**
- A concrete plan
- Be flexible: Uber, Doordash, rent your basement, stock trading, Amazon selling, etc
- Move to your mom/a friend's basement (!)
- Take a step back before you take a few steps forward

Emotional rollercoaster
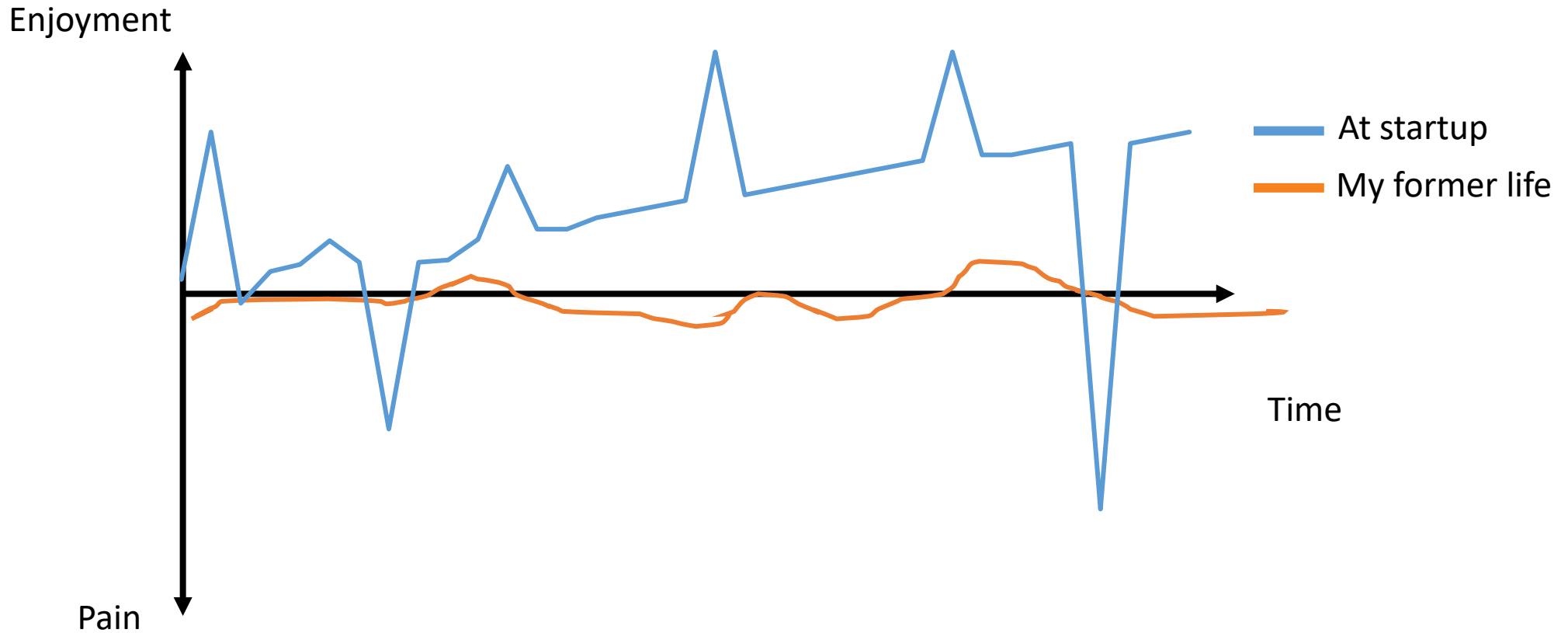
Lesson 3: Pain teaches

- Study shows that people brain wiring doesn't change after 25 unless they experience pain

- Pain means you are pushing your boundaries/learning new skills

- Be comfortable to endure pain

https://coachthemind.com/brain-wiring-test

Lesson 3: Pain teaches

Being an entrepreneur is like eating glass and staring into the abyss

Elon Musk

quotefancy

Lesson 4: don't be afraid to share your idea

- Ideation is easy – execution is hard
- Ideas are fragile – be mindful whom to share them with

https://www.myhubintranet.com/idea-sharing-in-the-workplace/

https://www.spreadshirt.com/shop/design/

Startup risks and mitigations

Risks	Mitigations
Business model (need)	customer discovery
Technology: feasibility	Federal funding (SBIR)
Regulatory: (FDA)	Be patient
Competition	Differentiate

First-mover advantages and disadvantages

Pros:

- Less competition
- Chance to capture larger market share (Tesla case)

Cons:

- De-risk technology
- De-risk business model
- De-risk regulatory path

https://blog.influenceandco.com/why-a-first-mover-advantage-pays-off-in-content-marketing

Accelerators

- Teach you basics: legal, accounting, company formation, etc

- Clarify your business model

- Get you in touch with early-stage investors

- Can be free, cash-based or equity based (provide funding)

- Usually invest expensive money

- **National**: YC, 500 Startups, TechStars, Plug and Play, etc

- **Local**: i-Corps, Accelerate Baltimore, FounderTrack, Startup Ignite, etc

https://www.menabytes.com/questions-before-applying-accelerator/
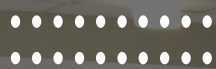
Incubators

- Provide office space
- Can provide you with legal, regulatory supports
- Can get you in touch with early-stage investors
- You pay a modest rent
- **Local**: RIC, GIC, Launch Workplaces, etc

Different ways for fundraising

- Friends and family
- Crowd funding: Kickstarter, IndieGoGo, etc
- Grants: Federal (SBIR/STTR), state, etc
- Angel investors (individuals)
- Accelerators/incubators
- Angel groups (Seed money)
- VC firms (Series A, B, C, D, E)

Patent

- Provisional: 1 year, will not be published, can be filed with $140

- Utility: $10-20K

- International Filing: $20-$50K

- Will be published after 18 months

- Will be granted in a few years

Lesson 5: Don't take patents too seriously!

Accounting/Legal/payroll

- Accountant
- Lawyer
- Payroll system
- Admin

Company formation

- LLC
- C-Corps
- Delaware – MD

Lesson 6: conversion from LLC to Inc can be very painful – not worth the early saving!

Starting at university vs in your garage?

 + No need to spend $50K on IP protection

+ Get space, legal, accounting advice

+ Get seed money

+ Get access to equipment, wet lab, etc

 - Give up equity

- Licensing the IP is challenging

- Remember: 100% of 0 is 0!

Federal funding

- SBIR Phase I: $250K

- SBIR Phase II: $1M (NSF) or $1.6M (NIH)

- Phase IIB: up to $750K (certain rules apply)

- i-Corps (mini and national)

- Participating agencies: NIH, NSF, DoD, etc

- Eligibility: 51% of the company should be owned by a permanent resident or a US citizen

Soft skills: dealing with people

- How to win friends and influence people: 80% of success in career comes from soft skills

- The ability to work with different people (your team, customers, advisors, collaborators, contractors, government, etc)
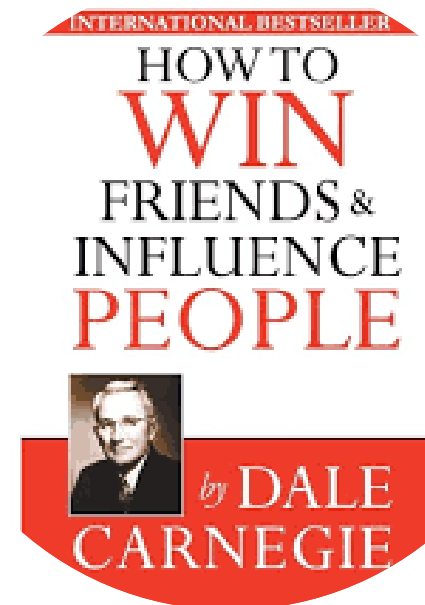
Hiring/Firing

- Hire for **purpose** not compensation
- Hire young people: they are flexible, ambitious and want to change the world

https://www.shutterstock.com/search/hiring+firing

- Good companies are not only good in hiring, but also in firing.

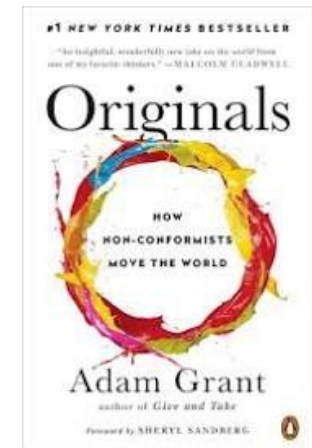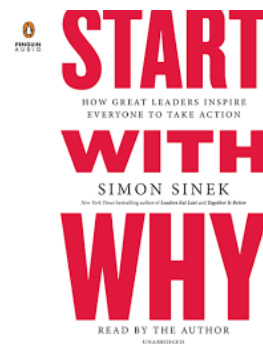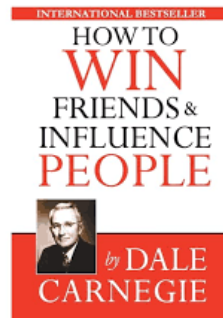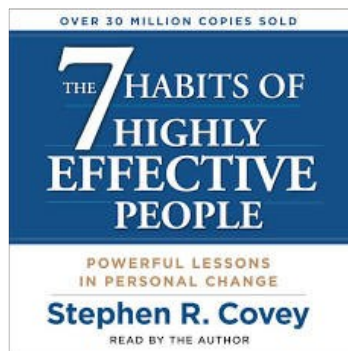- Hire the first 10 people and then they will guard the company's values/culture

Good reads

- How to win friends and influence people
- 7 habits
- Start with why
- Give and Take
- Originals

Last word

- Following your passion is risky
- But, you will survive and may even thrive
- But at least learn a lot, become a better person, and have lots of fun!

- So, … I encourage you to follow your passion!

https://woundcareadvisor.com/condemning-patients-to-a-leap-of-faith/

A meeting in Bethesda Library (early days)

Making first video in 2018

First PediaMetrix's BD party in Jan 2019

Medica, Germany, 2019

Startup Ignite Demo Day, 2019

National i-Coprs

Thank you!

Let's make the world a better place!

Q &A

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NIH/Children's'	AI – computer vision expert	Johns Hopkins/	CareFirst/Zulily	for pediatrics
	PI: Children's Hospital of DC	Children's/NIH		

PEDIAMETRIX
SoftSpot™

Terminology

Entrepreneur: a risk *mitigator*

Technology company

Startup vs. lifestyle business

Invention vs innovation

Where to find ideas

Your own problem

MBA

Tech Transfers

Join a startup