

# final exam solutions - cool references

*Prof Bill - Jun 2016*

The CSC 495 Final Exam called for you to list “5 (cool) references you found (and liked) that helped your career”. You solutions are shared below. Mine too.

I wanted to share and post on the class website these references, so that maybe if you see something interesting, you can follow-up.

thanks... yow, bill

## Bilal A - A Legal Startup for Tech Startups

<http://businessoflawblog.com/2015/08/law-firm-startup/>

A handy guide I used to help me start my law firm. Its advice was very useful, and although it is mostly common sense there are many times you forget to think about something that should be obvious. I refer to similar guides when talking to clients and help them figure out if they skipped something important. I especially liked their advice on ignoring nay-sayers, after all only you know what you what you can and can't do.

<http://techcrunch.com/2015/01/10/documents-just-want-to-be-free/>

This article helped me see the inner workings of law firms who work with startups before I worked in one myself. It was interesting to see an insider's perspective and the reasoning behind some law firms' strategies with tech startups before I started working at a firm that does the same thing.

<http://www.geekwire.com/2013/lessthanclear-advice-hiring-lawyer-startup/>

I referred to this article when I created my referral service. Although I was experienced in helping startups legally, I was still unsure on what they were actually looking for. Because I wanted to work with smaller startups, those with a few people or less, it was useful to see what they were looking for in an attorney.

<http://www.inc.com/zoe-henry/3-reasons-why-chicago-is-the-second-best-city-for-startups.html>

<http://www.inc.com/bartie-scott/ss/2015-inc5000-top-10-cities-for-fast-growing-companies.html>

These two related articles helped us decide where to base our law firm. They helped show us the emerging market in Chicago. Chicago had a lot of opportunity for tech startups and it has, and still is, attracting them.

<http://foxswibel.com/>

This is the website of the law firm I worked at for 2 years. I gained a lot of useful experience working there, and if I hadn't I wouldn't be nearly as successful as today. I highly suggest working for a large firm before creating a startup, because it gives you great experience in the corporate world and within your own field. After realizing I couldn't deal with the bureaucracy of a large established firm I decided to start my own.

## Bill M - Keeping Skynet in a Box

### **Elon Musk**

The famous billionaire who found Tesla and started the Mars colonization project. The real-life Tony Stark, Elon proposed caution in the advancement of A.I. When the robots went after him in September of last year, Elon showed us that he was the tech-nerd equivalent of the of a gunnut with a doomsday bunker.

### **Battelle Innovations**

Creators of the DroneDefender, they cancelled their drone defense projects after the government cancelled their contract given the public outcry of too much government interference on the rights of citizens following the FBI's "happy meal debacle" of 2018. This led to several layoffs, who then joined my startup.

[www.dji.com/](http://www.dji.com/)

The premier developer and seller of camera-equipped drones in 2016, they found great success in the 2 years following. In 2018, when the hijacking of drones became more common, their sales slowed until they implemented a one-to-one pairing system with the drone's controllers. This meant that the drone was paired with the controller in the factory and would not pair with anything else. They never quite reached the level of success that they enjoyed in 2016, however.

### **I, Robot**

The 2004 film loosely based on Isaac Asimov's "Caves of Steel", it illustrated a perfect example of what could happen if too much control was given to A.I. I had seen it before even going to NCC, and the image it painted in my head stuck with me.

### **Toyota**

A car manufacturer from Japan that was suffering some financial trouble in 2016 that bought Boston Dynamics from Google. They took a note from the Chinese Asus and began generating robots for use in the homes of consumers in 2020. While not true A.I., they had a disturbing amount of access to their owners' personal information. One could argue that Toyota laid the groundwork of the success of my company.

## Charlie M - AI Dungeon Master

[https://en.wikipedia.org/wiki/Brave\\_New\\_World](https://en.wikipedia.org/wiki/Brave_New_World)

This book taught me much about the world as it is and how it could be. I utilized it in the early years of AiDnD to model the savage nature that the world sometimes shows.

<https://www.twitch.tv/>

I stopped watching TV after 2016 and began exclusively watching Twitch so I could keep up on the latest happenings in the video games I played while I worked tirelessly for the project at hand.

<http://www.amazon.com/First-Immortal-Novel-Future/dp/0345421825>

I've included a link to a book that when all hope seemed lost it provided enough light to see greener pastures. I think we all should read it as it is a moral boost against the peacefully destructive AiDnD.

[https://en.wikipedia.org/wiki/Pandemic\\_\(board\\_game\)](https://en.wikipedia.org/wiki/Pandemic_(board_game))

It is amusing that the board game I played with my friends to get me hooked was a game about an infectious disease that tried to take over the world and we were the only ones who could stop it. Sounds like a similar plot to my life at this point.

<https://www.dominos.com/en/>

Finally I would like to thank Domino's for being a wonderful sponsor and feeding me whenever I am hungry, they always know how to keep me just happy enough! So go buy Domino's instead of buying AiDnD!

## Chase S - Agreement and Contract AI

<https://www.aclu.org/about-aclu>

The ACLU was able to provide us with very valuable information when we were working on expanding our system to handle general purpose legislature.

<https://www.eff.org/about>

Everyone knows who the EFF is, and we were excited when we heard that they were interested in what our software could do. They also were able to provide some advice on some of the finer points of our system.

<http://www.cnn.com/2011/TECH/web/05/06/itunes.terms/>

This is one of the things that inspired us to create our system. We found it ridiculous that people are expected to read a 56 page license agreement for a piece of software; we found it even more ridiculous that everyone knows that nobody reads license agreements, yet they are still valid in a court of law.

<http://smmry.com/>

We partnered with SMMRY a few years in, to give them access to our more sophisticated algorithms. SMMRY originally had a relatively naive algorithm, that was just based on work ranking. Our partnership with SMMRY gave them a more advanced system, which people could freely use for summarizing any kind of text.

<http://www.brightfort.com/eulalyzer.html>

EULalyzer was one of the existing tools similar to ours, though our tool is able to provide insight into general purpose legal contracts as well.

<http://www.californiainvestmentnetwork.com/home>

We were able to secure significant funding through the California Investment Network, which is a network of angel investors.

## Eric Z - Human Behavior AI

<http://psych.utoronto.ca/users/reingold/courses/ai/turing.html>

In developing our AI platform, achieving this milestone was our most ambitious goal. There is a very specific set of criteria that must be met in order to do this, and our design had outperformed any of its kind at the time.

<https://www.qualcomm.com/news/onq/2013/10/10/introducing-qualcomm-zerothprocessors-brain-inspired-computing>

The first prototypes of our systems were built using these microprocessors that were in development in contemporary 2016. Their availability and use was extremely limited, but our success was partially attributed to being able to secure the latest and greatest to improve upon. Neural processors utilize quantum computing to mimic the human brain.

<http://www.auburn.edu/~vestmon/robotics.html>

These three simple rules were the foundation that we attempted to bind our system to before it began to think on its own and disregarded them. We didn't anticipate that our software would eventually reach an intelligence such that it could rewrite certain aspects of its programming to sidestep the safeguards we put in place.

[http://www.amazon.com/Superintelligence-Dangers-Strategies-NickBostrom/dp/0198739834/ref=zg\\_bs\\_3887\\_1](http://www.amazon.com/Superintelligence-Dangers-Strategies-NickBostrom/dp/0198739834/ref=zg_bs_3887_1)

This book was one of our guides and source material for some of the algorithmic strategies that we pursued. It outlined the basic principles that make up a structure that has the ability to genuinely think and be aware of itself and its surroundings. This book remained on my desk during most of the work I had done on the project.

<http://www.amazon.com/Noltes-Human-Brain-Introduction-Functional/dp/0323041310>

This book was used as our definitive reference for the inner-workings of the human brain and helped us to devise our system to match its functionality. The modules of our system sought to reproduce, to the most exact likeness possible, the structures that provide us with the power of thought and consciousness.

## Kyle L - Never give up

<http://techcrunch.com/2012/02/14/instartupsandlifeyouneedplanabandz/>

The author of this article is Reid Hoffman, the founder of LinkedIn, and he writes about how having backup plans is a big part of growing as a business. He pretty much says that it is okay to change your business so that it meets a need in the market.

<http://techcrunch.com/2016/05/20/wheretospendmoney/>

This article gave my company some ideas of things to look into for where we should be spending our money. It gives a few tips on how to be frugal, like instead of buying a wildcard just getting an SSL certificate, and then another if we got a subdomain that would require another SSL certificate. Pretty much just being conscious of what we needed and how to stretch our budget to maximize efficiency.

<http://www.forbes.com/sites/kateharrison/2014/01/09/thebeststartupadvicefrom14techheroes/#3dd661d20948>

When I found this site I just printed these little motivational quotes and pasted them around the office. My buddies thought I was a jack\*\*\* for it, but look at where the company is today. I award to these tidbits of advice.

<http://techcrunch.com/2016/06/03/startupstepbystepthebattle/>

This article made me nervous pursuing the startup life. What if things didn't work out and we couldn't get any support? Then what would we do? We could only go chasing the dream for so long before it became unfeasible.

[http://www.huffingtonpost.com/mattdouglas/justpickupthefingpho\\_b\\_5595040.html](http://www.huffingtonpost.com/mattdouglas/justpickupthefingpho_b_5595040.html)

This last article really taught me to not be hesitant about things. If we needed something done it had to be taken care of. We couldn't just sit around waiting for things to fall into our laps. We had to be wolves, hunting down what we needed to feed the company.

## Mark P - My Life as a Tech Entrepreneur

<http://www.amazon.com/Starting-Tech-Business-Practical-Applications/dp/1118205553>

Starting a Tech Business: The Ultimate Guide for Anyone Creating or Designing Applications or Software by Alex Cowan.

I bought this book when I first started out in 2016 based on some good Amazon reviews. It contains a lot of metaphors on how to be successful. These include “pinning the butterfly of incoherence” when designing a system, as well as “saddling the racehorse of blind progress”. Overall, I found it to be a huge help specifically during the beginning phases when creating something out of nothing.

<http://www.businessinsider.com/how-to-launch-a-tech-startup-2014-7>

“How to Launch a Tech Startup” by Michael Wolfe.

This article contains practical advice that brings dreamers down to earth. There is a difference between wanting to be a tech entrepreneur and actually becoming one, mainly because the latter involves actually doing something and not just thinking about it. This article stresses the importance of that message as well as other practical tips for launching a tech startup.

<http://www.builtinchicago.org/>

Built in Chicago is a news/event site dedicated to entrepreneurs in the Chicagoland area. Many of the events it sponsors are tech-oriented such as various “Coding Bootcamps”. When I first started, I didn’t realize how many learning resources were available to me in the area. I found Built in Chicago to be a wonderful resource to gain more resources!

<http://www.amazon.com/Leading-Teams-Setting-Stage-Performances/dp/1578513332>

Leading Teams: Setting the Stage for Great Performances by J. Richard Hackman  
No matter how great an idea one may have, without leadership, it will never come to fruition. I bought this book in 2017, as it seemed like a good thing to have. It talks about organizational behavior, and how to get the best performance out of your team. In it the author argues that “teams perform at their best when leaders create conditions that allow them to manage themselves effectively”. Overall, I believe it was a good buy because it stresses the importance of leadership—a skill that all entrepreneurs need to have.



[http://www.amazon.com/Lean-Startup-Entrepreneurs-ContinuousInnovation/dp/0307887898/ref=sr\\_1\\_1?ie=UTF8&qid=1465152609&sr=8-1&keywords=the+lean+startup](http://www.amazon.com/Lean-Startup-Entrepreneurs-ContinuousInnovation/dp/0307887898/ref=sr_1_1?ie=UTF8&qid=1465152609&sr=8-1&keywords=the+lean+startup)

The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses by Eric Ries

The Lean Startup is a New York Times bestseller. It focuses on why many businesses fails and why others don't. I found it particularly helpful, especially because it stresses the importance of focusing less on product and more on customer. Overall, I think it is a good read and well worth the investment. Eric Ries is a business entrepreneur and he talks from personal experience.

## Nick O - S-Tech Consulting

Huddleston R. From Idea to Successful Tech Company in 8 Steps [Internet]. 2014. Entrepreneur; [cited 2016 Jun 5].

Available from: <https://www.entrepreneur.com/article/234841>

Microsoft Azure: Cloud Computing Platform & Services [Internet]. 2016. Microsoft; [cited 2016 Jun 5]. Available from: <https://azure.microsoft.com/en-us/?b=16.17>

Chawla C. 2016. Implementing Lean Startup. North Central College. Idea to Profits: Entrepreneurship and Small Business Conference.

Austin B. Understanding Software as a Service: How to Build a SaaS Business [Internet]. 2016. Intuit Quickbooks; [cited 2016 Jun 5]. Available from: <http://quickbooks.intuit.com/r/am-i-ready/understanding-software-service-build-saasbusiness/>

Columbus L. Roundup Of Cloud Computing Forecasts And Market Estimates, 2016 [Internet]. 2016. Forbes; [cited 2016 Jun 5]. Available from: <http://www.forbes.com/sites/louiscolumbus/2016/03/13/roundup-of-cloud-computingforecasts-and-market-estimates-2016/#6bc5537e74b0>

Green Building [Internet]. 2016. Deltec Homes; [cited 2016 Jun 5]. Available from: <http://www.deltechomes.com/learn-more/green-building/>

## Nick D, Emily H, Jennifer D - An ECHoS Through Space

### Sources from Jennifer D:

<https://code.nasa.gov/#/>

Code NASA is an online collection of a variety of different tools and applications that people have programmed in order to make the lives of others easier. These projects range anywhere from an inventory/asset manager for labs to tools for analysis of Kepler data. This has been a great inspiration for us because it shows people working as a community to better the scientific world we live in.

<http://www.nasa.gov/content/nasas-journey-to-mars>

Articles like these on NASA's website were also a great inspiration to ECHoS. These kinds of articles focused on humanity's desire to colonize another planet, and fueled scientific imaginations to figure out how to do it. Readings about what NASA is doing to prepare for colonization events inspired us to help them figure out why they should go to certain planets, so that they can all focus on how to get there, because just knowing about what planets are good is half the battle.

<http://www.npr.org/sections/thetwo-way/2016/05/10/477517003/nasa-spots-1-284-new-planets-including-9-that-are-potentially-habitable>

This article explains how NASA has spotted 1,284 new planets in space, with 9 of them being potentially habitable. 1,284 is such a large number of planets to go through and do the proper astrophysics calculations on to figure out if they are going to be potential new homes. Here at ECHoS, we found ourselves wanting to help make that process a lot easier and a lot quicker. Whenever the world decides to end, we need to be ready for it, and having 1,284 planets to sift through is a long, and difficult task that our worldwide collaboration could (and has) made easier and quicker.

<http://www.space.com/28215-elon-musk-spacex-mars-colony-idea.html>

Similar to the NASA articles, this article shows that there are plenty of people out there willing to figure out the 'how'. As we said, ECHoS was developed to let those people continue to focus on the 'how', without having to worry about why we should go to a planet or not.

<https://www.fourmilab.ch/homeplanet/>

Home Planet is a software package designed to let casual and advanced astronomers learn more about space, and to let them get different views of the sky and what it holds. We like this program because it shows how great an open collection of research can be: people are able to download and install this program and learn whatever they want about space. Whether they want to learn about our moon or a moon in another galaxy, chances are Home Planet has the information stored in its database to tell the user about it. This aligns with our goal of providing information on which planets are habitable. ECHoS wants this information to be open and free so that people anywhere can learn from or contribute to the knowledge base that we have compiled since we started ECHoS.

#### **Sources from Nick D:**

<http://www.whalealert.org>

Whale Alert basically has the same concept at its core as ECHoS: multiple groups working together to create a network of information, with the goal of reducing lethal ship strikes on whales. Not only is the app accessible to the public, making it highly collaborative, but they also partner with various agencies that help them greatly increase their effectiveness. This is similar to how partnering with agencies like NASA or SpaceX could help us make ECHoS and even more efficient and useful tool for researching exoplanets.

<https://open.nasa.gov/about/>

NASA has a goal of keeping the information and innovation flowing throughout the world. This is very important to us because science shouldn't be something that only the elite should get to practice. Anyone with the right motivation should be able to try and be involved in scientific research, and open.NASA is a great way to make that happen. They have tools for citizen scientists, developers, and even tools for those who are just genuinely curious about space. The concepts behind open.NASA are at the core of ECHoS' beliefs, right next to our mission to provide better and fast research.

#### **Sources from Emily H:**

<http://www.inc.com/ss/17-startup-founders-on-how-become-insanely-successful>

As a small startup, we weren't sure how to make sure we were successful. This webpage was filled with great advice from successful startup founders. Their tips

ranged anywhere from being picky about who you hire to learning to say no to things, because a startup can't be expected to accomplish anything and everything. ECHoS has set its task, and we know our limitations. Pages like this helped us find our footing in the big, scary world.

<http://www.successfulstartup101.com/five-tips-for-start-up-success-in-2016/>

This was another page that had a lot of great information on how to not completely fail. A little dated now, back in 2016, the information was crucial to our developing minds as we tried to find our way in the world. The advice here made us realize we should apply for grants and collaborate via events like the Space Apps Challenge to help us gain the capital and the traction we needed. We also decided we were a research and educational tool. We didn't need to make something that made learning new again. We just needed to develop a product that helped people get to the information they need, and contribute to it if they felt so inclined. There isn't a need to redesign the wheel, as the author of this page says.

<http://www.spacex.com/about>

No list of astronomy-related topics would be complete without talking about companies like SpaceX. SpaceX proved that you don't have to be part of NASA, or some other government agency to make a difference in space exploration. Private companies can and do make their own way in the world of space research. Companies like SpaceX motivated us, because we knew that we could do it too. With the right planning and effort, we could make ECHoS into something great. And we did!

## Prof Bill - SimpleThan, Inc.

1. Schedulista website, [menshairbyrenee.schedulista.com/](http://menshairbyrenee.schedulista.com/)

Schedulista is a great example of a site that empowers even the smallest businesses. The interface is simple and professional. For a \$20 a month, Renee, the girl who cuts my hair, can focus on cutting hair and not worrying about scheduling and payment.

I think they should change the trial period from 15 days to 3 months or longer. Get people absolutely hooked and then keep them signed up long-term.

2. Google domains, [domains.google/](http://domains.google/)

\$12 a year. Find a domain that inspires you and hold onto it. Why not?

I just grabbed [www.simplerthan.com](http://www.simplerthan.com).

3. Raiser's Edge, [www.blackbaud.com/fundraising-and-relationship-management/raisers-edge](http://www.blackbaud.com/fundraising-and-relationship-management/raisers-edge)

This is the anti-role model. Big. Old. Bloated. Expensive. Complex. Stupid.

Jerky... you get the idea. My first product was the SimplerThan Donor Database. We had 20 charities signed up after just 6 months.

4. Ultimate Guide to Google AdWords by Marshall & Todd, <http://amzn.com/1599185423>

At the beginning, we advertised SimplerThan using Google AdWords. Our marketing budget was just \$3 per day. The return on that \$100 a month was incredible. We don't advertise any more. Word of mouth has taken over.

5. Joel on Software, <http://www.joelonsoftware.com/>

Darn it. I can't find the exact article I want, but all of Joel Spolsky is addictive reading, so I don't feel too bad. The article I read discussed getting paid for your software. Basically, rejecting the "I'm going to be Facebook" model and trying to live off ad revenue. So, no venture \$\$\$\$. Rather, it's nice, slow growth where you charge people to use your software and run your own tiny niche shop. That was a big part of what motivated me to start SimplerThan.

## Rachael R - Eddie's Grand Adventure

[http://indiegames.com/2013/11/opinion\\_what\\_not\\_to\\_do\\_when\\_st.html](http://indiegames.com/2013/11/opinion_what_not_to_do_when_st.html)

A list of suggestion on what not to do as a developer. This list helped us create prototypes, establish a plan for the game, set deadlines and create marketing strategies. We were able to move forward efficiently since we were able to see what would cause us to fail.

<https://unity3d.com>

The Unity engine was what we used to build the game. In hindsight, this was probably overkill as we never used the engine for 3D effects and the game always had a cartoon or book effect. It got the job done though!

<http://www.polygon.com/2014/7/31/5949433/the-cost-of-a-game-studio>

Some of the cost breakdowns that we needed to examine to determine how to grow the business. The legal fees were a bit off, as we had sold a share of the company to the lawyers rather than pay out of pocket. This also encouraged me to leave Chubb and to become a subsidiary later. The stability of a yearly salary had been well missed up until then!

<http://makeitbigingames.com/2006/02/five-foundational-steps-to-surviving-as-a-game-developer/>

This is what encouraged me to stay at Chubb while Steve worked at Jewel part time for the first game. The salary was good and we were able to spend enough time working on the project to make progress.

<http://gamedevelopment.tutsplus.com/articles/how-my-brother-and-i-funded-our-indie-gamcompany--gamedev-2929>

We definitely expected to fail at first. We thought that it was bound to happen and we didn't want to completely give up after failing once. However, they also gave tips on how to run a better Kickstarter, which is why I created lots of social networking pages and harassed Steve for marketing designs to gain a following before we launched.