

Maxim's 2014

This is a yearly update letter I send out to close friends and mentors. This installment is from March 2015.

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Overall, this past year has gone very well. I'm consistently getting 9 hours of sleep, working on exciting projects, and having a great time at Princeton.

Academics

Spring classes

- **"Advanced Programming Techniques"**, with Brian Kernighan. We covered the history and evolution of programming languages, and got our feet wet in a number of fun languages (Awk became my new favorite tool). Interesting guest lectures, too: Prof Kernighan hosted a fascinating round-table discussion with Bjarne Stroustrup, creator of C++.

I was PM on a team with a few friends for our final project. We built a group calendar system for classwork. The first pain point we addressed is that finding office hours usually requires tiresome searching through course pages and email for information that may not be up-to-date. Second, we thought it was inefficient for classmates to individually spend time looking up homework due-dates, exam locations and dates, etc. and recording them on their personal calendars. Instead, we allow everyone in a class to add to a common agenda, a sort-of glorified Google Calendar automatically shared with every student in the class and tailored to Princeton data. We award points for good contributions and edits, and automatically weed out spam. And the website is sleek and fast — we took some inspiration from Trello's UI goodness. Finally, we have a mobile app that lets you see your agenda on the go, and a Chrome extension that spruces up your New Tab page with upcoming classes, precepts, and deadlines. We called the project ReCal, short for "Rethinking Calendar". The site is live at <http://recal.io>.

- **"Economics of Health and Health Care"**, with Uwe Reinhardt. This class gave me a fascinating overview of what's involved in American and European healthcare systems, and really impressed me with the importance of solving systemic healthcare issues. From speaking with the professor later, it seems that there is little to be done on the theoretical side of things here — but working to solve healthcare problems in practice would be very interesting. I'm now looking to understand how computer science and healthcare are intersecting in this day and age, and hope to work on some project related to this.

- A music class called “**Techniques of Conducting**”, taught by the conductor of the Princeton U. Orchestra. While my personal music trajectory had me focusing almost exclusively on jazz for the last year, I noticed this class and remembered how much I had always wanted to understand conducting. This was a thorough high-level overview to conducting, and I had a great time. My classmates were from all walks of musical life: orchestra players, a capella singers, marching band players, etc. We brought our instruments to class (I started on piano, but switched to sax since we had an excess of piano players), and took turns conducting each other.

At the end of the semester, we recruited a 25-piece orchestra composed of Princeton students and conducted full pieces. Here’s a video of me conducting the 1st and 2nd movements of Grieg’s *Holberg Suite* (just the 15-piece string section here):

<https://www.youtube.com/watch?v=jce21nBY94Y>



- Useful prerequisites: multivariable calculus and physics: electricity and magnetism (partially a repeat of my high school physics classes, but more rigorous).

Fall classes

- **Computer Vision**: a high-level overview of the methods of CV, with assignments that had us stitching panoramas, doing object detection, making 3D reconstructions of our faces, and more.
- **Probability and Stochastic Systems/Random Processes**: an amazingly well-taught course at Princeton. I’ve learned chunks of probability theory before, but never understood it as well as it was taught here. My favorite course of the semester probably.

- **High-Tech Entrepreneurship:** we would prepare for each class by reading a Harvard Business School case study, and then the class would run like a company meeting where we have to evaluate strategic options to resolve the issue at hand. I especially enjoyed the case studies about breaking into an ecosystem. Our midterm and final projects involved interviewing the founders or CEOs of well-established companies (I chose Eventbrite and Automatic) and analyzing their business strategy or pitching them for funding.
- **20th-Century Japanese History:** this was my first history class, and I found it fascinating — Especially interesting things: how Japan replicated European modernization in years, not centuries, and without bloodshed; and how Japan orchestrated its two rises in the 20th-century. I wrote my final research paper about Prime Ministerial visits to the Yasukuni shrine: if they know these are massively controversial domestically and internationally, why do they continue to visit, and what message are they hoping to send?

Career

I moved to the Bay Area a week after the school year ended to **intern at Nest**, the smart home company Google bought recently. The process had been a bit difficult: I had to get emancipated for Google to hire me since I was still 16 at the time and my NDA would not be legally binding otherwise. I prepared the court documents and the judge approved my emancipation a few weeks later without a hearing. The last remaining puzzle: I arrived on June 1st without any housing set up, but Shannon, our friend from school and now my girlfriend, rescued my roommate Andrew (who was doing research at Stanford) and me until we found a small room in Mountain View. (Our backup plan was to rent an RV on Airbnb...)

At Nest, I worked on data, in terms of services management and analysis. You can imagine how central data is at a company like this, and I really enjoyed collaborating with lots of other teams within Nest, since it gave me a peek into work all the way from algorithms to marketing. I mostly worked 1:1 with my “intern buddy”, a recent Princeton graduate who had plenty of wisdom and experience to dispense. The projects were a great fit.

I spruced up the already-thrilling work towards the end of the summer by **shadowing a Princeton alum who runs Product Management for Google Apps** and had earlier given me some very good advice about dev vs PM at big companies. I was curious what PM was like on a day-to-day level and how he makes decisions, anticipates roadblocks, manages relationships, and more. I asked if I could extend my internship and move over to his team to shadow him for a week. He loved the idea, so I spent a week with him and his colleague on the Apps and Cardboard teams, and took on a special project of my own to get an even better taste of PM.

Projects

- I was selected as an **organizer of this year’s TigerTrek, the trip that brings Princeton’s top 20 engineers and entrepreneurially-minded students** (selected from 220+ applications) **to Silicon Valley for a week of off-the-record Q&A with the legends of the Valley.** We were very lucky to meet with Peter Thiel, Meg Whitman, John Doerr, and other iconic folks from the entrepreneurship community. And we visited a number of small startups, big companies, and investors. We chartered a bus to take us from meeting to meeting, and filled the day with discussing the trip’s conversations. One evening, we invited Princeton alumni in the Bay Area to

join us for a large alumni reception and for a smaller mentoring event.

This was my first time handling logistics and fundraising. We charged students only \$500 for the entirety of the trip, with significant financial aid given, and in all **we raised \$35K for the trip**, with a little left over to spread the lessons of TigerTrek on campus. I worked very closely with my friend and co-organizer Daniel Toro, whose primary focus was booking our excellent speakers. While TigerTrek took a lot of our time to organize, I'm so glad I put in this time and effort — the trip taught me a lot, and I now have a great new set of friends at Princeton.

- After my internship ended, my long-term mentor Professor Mohan Paturi generously invited me to **give a talk at UCSD's Summer Program for Incoming Students in the "Facets of Computer Science and Engineering" series**. This was my first public talk. I figured that the most helpful things I could share with new CS students would be why I enjoy the field, my stories of getting started, and some tips that have helped me to find meaningful and exciting projects to work on. Here's the video: <https://www.youtube.com/watch?v=HDlInQMVAeU>

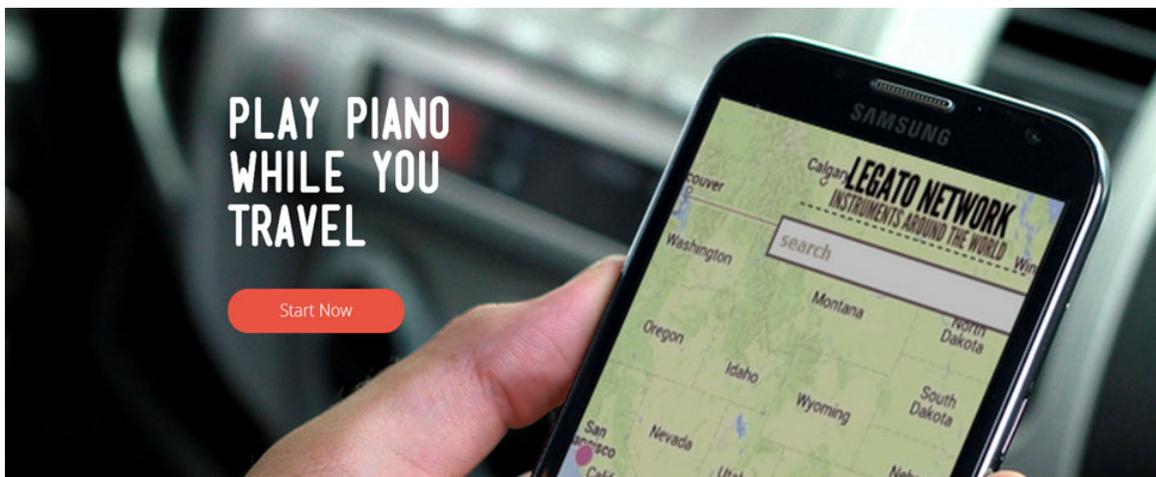


- Over Spring Break, I returned to a project I had previously shelved: **Legato Network, which is like Couchsurfing for pianos**: Legato lets you find pianos to play on when traveling abroad. Years ago, I had built a piano mapping portal on a hunch that this would be useful for both amateur and professional musicians, and it would definitely help me out. Back then I had a "build it and they will come" mentality, but of course that didn't quite work, and I stepped away from the project before seeding it with enough data and users for network effects to kick in.

In March 2014, I returned to Legato and scrapped the earlier mapping portal in favor of a simple new landing page to help me validate the demand for the service and quickly make some matchings manually. Here's the landing page I set up: <http://legatonetwork.com>. The idea was to collect people's travel destinations, then find them a piano there manually. Afterwards I would ask them to write a little story about their experience, and publish these to attract more attention and users.

I posted the site to a relatively quiet piano community on Reddit, and received a huge outpouring of positive responses. That one post produced 150 piano requests — way more than I could handle. It was great to see that this service was useful for many more people than just me, and I was learning a good lesson in my quest to understand the context of getting users, traction, and sales.

My plan was to make some matchings manually, then to hire a virtual assistant to take over and grow our database of pianos worldwide. By building a community of musicians around a useful service for them, I could then expand into other areas I wish someone had tackled earlier: a new way to find music teachers, or to find fellow musicians nearby to jam with, and more. I am hard-pressed to find companies providing these sorts of services to musicians, and online musician communities are very scattered and have little use. Legato, on the other hand, would start with a useful piano database and build out the community organically from there. Unfortunately, I decided to put away the project again after Spring Break ended.



**PLAY PIANO
WHILE YOU
TRAVEL**

Start Now

I'LL FIND YOU A PIANO - WHEREVER YOU TRAVEL.

I'm offering this service for free. It's kind of my thing.
All I ask for is one week's notice and a little story about your experience after.

Like Share

Hobbies and Travel

- I continued **playing in the Princeton Pianists Ensemble**, known for 5-piano arrangements of classical music. We hosted a “piano battle” against the Harvard Piano Society, with “battles” played by the Harvard and Princeton groups together as in these movie clips: <https://www.youtube.com/watch?v=G-FdX1D5hVg> and <https://www.youtube.com/watch?v=NOi9K7yZ6QA>

I’ve also been performing in **several jazz combos** in the Princeton jazz program – unfortunately we don’t have any videos online.

- One other hobby I picked up: **playing organ**. Back in high school, we had a beautiful organ in our school chapel, and I was given access to play there in my free time – and eventually managed to incorporate the organ into a jazz performance in the chapel! The main Princeton chapel organ is off-limits unless you are taking lessons from the chapel organist, but I reached out to the music director at the Princeton Theological Seminary, who generously allowed me to play on their organ. They have a beautiful, purple-tinted chapel, and from time to time I hang out there and fool around on the keys and pedal (Bach and jazz on organ are my favorites). I’m a huge fan of gospel music, and I was thrilled to be invited to a gospel service at the Seminary when I first started playing organ there – that was one of the best concerts I’ve seen! I really **miss my music lessons from before college** and am so grateful that my teachers instilled such an enjoyment of music in me – it’s a very satisfying hobby that I should spend more time on.
- This summer, I **fell in love with the Bay Area**. In the mornings I would bike to Nest, a 15-minute ride. At the end of the day, I would take the shuttle from Nest to Google, have dinner in one of Google’s many cafes, read, relax, or explore, then bike back home (a 10-minute ride). Andrew and I would hop on Caltrain on the weekends and explore the Bay Area. The SF Pride parade was a big hit: Andrew and I rode with Nest’s blue firetruck in the parade. After Shannon returned to town from studying abroad in Geneva, we road-tripped all together to Monterey, the redwood forests, and more.
- In December, my girlfriend Shannon and I returned to the Bay Area to attend the American Geophysical Union’s Fall Meeting. She’s pursuing an independent major at Princeton that combines climatology with environmental studies, and she’s really interested in understanding the ties between the environment and geopolitics. To dive even further she’s working at a non-profit called Climate Central this summer. She’s also an accomplished, published poet, an ex-rock-climber, and an all-in-all terrific conversation and life partner. Speaking of her poetry, we have been setting it to music: at a recent Open Mic Night, she read and I improvised around the text – it works surprisingly well!

We had an “intersession” break between finals in January and the start of second semester, so Shannon and I also traveled to **Kauai, Hawaii**. It was a very relaxing break (and can’t find better weather to recover from flu!)

Progress on 2014 Goals

I spent a lot of time this year thinking about my habits and my daily routine. Right now I feel like I have all the right habits in place:

- I’ve reversed the trend of atrocious sleep and caffeine from my high school days. **Today I consistently get 9 hours of sleep a night**, with a “wind down” hour beforehand to clock out of work, relax, and read, especially thanks to Shannon doing this with me. I’m energetic, happy, and doing my best work.
- **I have a great reading list and am working through it steadily**. It’s very important to me to use my time at Princeton to become more cultured and have a stronger perception of what the

most important problems are in different fields. That said, fiction is fun to read, too. Here are some favorite books of 2014:

- Snow Crash (Neal Stephenson)
 - Bright Lights, Big City (Jay McInerney) – an old favorite
 - Warrior of the Light (Paolo Coehlo)
 - Made to Stick (Chip and Dan Heath)
 - How to Win Friends and Influence People (Dale Carnegie)
 - Richard Branson’s autobiography
 - A Wild Sheep Chase (Haruki Murakami)
 - A Heartbreaking Work of Staggering Genius (Dave Eggers)
 - I, Robot (Isaac Asimov)
 - Foundation (Isaac Asimov)
 - The Blind Watchmaker (Richard Dawkins)
 - Lessons of Hope: How to Fix Our Schools (Joel Klein)
- I haven’t focused enough of health and fitness in recent years, so I started following the 5x5/Stronglifts program with my friend Andrew in the spring. Towards the end of the year, I’m returning to this theme and **working on basic endurance training** through biking and swimming instead.

I think the reason I’ve been this successful in setting habits consciously is that **my Mastermind group, with my friends Andrew and Fiz, is still going strong**. Participating in our group forces me to do reflection exercises, if you will, to keep the thoughts about goals and routines in my mind as I live.

We started the group a year ago when we noticed that our long-term college goals were falling away as we got caught in the day-to-day of college life and work. As I explained in my last update, we meet about once a week and each present an update on the progress we are making. We keep spreadsheets to track our routines and monitor our weeks. This process keeps me accountable and was very helpful in improving my sleep, in focusing on fitness, and in spending lots of time reading. Let me clarify that this is just a very helpful mindset and toolkit — I think along the lines of Mastermind once a week, but otherwise I live my life normally. That is, I make sure to embrace unstructured time; Mastermind is not an obsessive planning system. I believe there is a lot of value in keeping track, doing reflections, and living in a very organized fashion, and it’s certainly come through in the good progress I am making towards my goals for my time at Princeton.

Besides this daily progress towards my reading and fitness goals, I also tailored my experiences over the past year to **understand the context of the tech and startup ecosystems**. In my last yearly review, I spoke a lot about “learning to sell / get users”, but this idea expanded into validating the Legato idea, trying out PM at Google, organizing logistics and fundraising for TigerTrek, learning from the conversations on TigerTrek, and taking the high-tech entrepreneurship class.

New Goals and Changes for 2015

In December, I was catching up with Arnold Mandell, an old friend in San Diego. He’s a renowned neuroscientist and psychiatrist who I met by chance at a jazz concert several years ago and who has

imparted much wisdom since. I spoke with him about the changes in my life in my last year, and he said something that got me thinking: “You’ve checked all the boxes!”

Looking at the daily routines I’ve set up over the last year, and the resulting progress I made towards my goal, this rings true to me. I’m in a perfect academic environment, I have my goals at the front of my mind. I have tools like Mastermind at my disposal, I’m dating a slightly older girl who is infinitely wiser... This means I can go a lot farther here. That is, it’s time to crank up the levers and get some real meaningful work done over the next two years here at Princeton.

That means a renewed focus on reading and fitness, which I mentioned above will make me more cultured, mentally active, and healthy.

More importantly, it means **finding a specialty** for myself. For the past few years I have described my interest as “applying computer science to other fields”. I have tried to experience a breadth of other fields — neuroscience, evolutionary biology and psychology — and I need to continue doing this to find the intersection that I want to focus on further.

One eternal question is **what to do after Princeton ends**. I am not fully satisfied with the option of going into industry and working for a tech company, which many Princeton students do. TigerTrek convinced me that there is no risk: I would much rather try to find a combination where I can work on an exciting problem using the skills I have (back to the “applying CS to other fields” idea), and if this doesn’t work, move to a job at a company like Google. I’m also divided about whether grad school would be a good fit for me. Both options obviously require narrowing down the intersection before I’m done with Princeton.

For now, my approach to this problem has been: first, to pay much more attention to what topics I find interesting in my reading, and “go down the rabbit hole” with these topics to see where my excitement takes me. Second, I am seeking out and meeting with professors at Princeton to ask them **what they believe are the most interesting and important problems in their fields**, and to see if I can contribute. I spent some time this semester thinking about the intersection of CS and healthcare, for example. And just last week, I met with a neuroscience professor who works on election statistics for fun, and we are discussing a project about gerrymandering that I find very interesting. I don’t know where these individual steps will lead, but I think that keeping this at the front of my mind will make it straightforward to find something I care about deeply.

As I engage in this maximum-entropy process of “turning over rocks and seeing what’s under them”, as one professor I spoke with termed it, I have a **parallel focus of mastering statistics, data analysis, and machine learning**. I think these skills will be most applicable in the intersections I am considering. This summer I am **working on The New York Times’s new data science team** under Chris Wiggins (also physics PhD from Princeton, professor at Columbia, and co-founder of HackNY), who I met a year ago and has been a very helpful mentor. Our goal: save the newspaper industry; our tools: data science. This seemed like a great fit in my search for a summer job where I would work with great people on exciting problems to hone my skills.

I originally thought it would be useful to have a third parallel focus of **honing my operational skills**. I had been building these gradually through organizing TigerTrek, for example, and that experience suggested to me that I have an understanding of the context of operations and can learn the rest on a case-by-case basis when I need to use these skills. I think it’d be very helpful to shadow at a startup and observe

aggressive negotiation and deal making there. And I'd love to go through the APM program at Google to look at this more.

Wrapping up

I'm so happy to be where I am now, and I can't wait to get back to work on my parallel quests of becoming more cultured, more fit, finding my specialty, and honing my CS skills. I am very grateful to all my close friends and mentors for their kind support and advice. If you have any feedback, I would appreciate it if you could please send it my way!

Thank you for being a part of this chapter of my life, and all the best.

— Maxim

P.S. Here are some pictures from 2014: <https://www.flickr.com/gp/115566482@N02/5p5041/>