



I was a first year high school student when the Cultural Revolution broke out in 1966. In 1969, like millions of young people my age, I went with a few classmates to a little village in Northeastern China to farm with the peasants there. In 1971, I was recruited to work in a near-by oil field. I worked as an oil worker for seven years till 1978, after taking the entrance exam for graduate programs I started my graduate study at Tianjin University. In 1981, after receiving my MS degree in Electrical Engineering I became an instructor at Peking University, where my parents had taught for decades. In 1985, I was admitted into the graduate program at Rutgers University in the US. After receiving my PhD degree in Electrical and Computer Engineering in 1990, I joined the Engineering faculty at Harvey Mudd College in California, where I have been a professor for 26 years till this day.

My University Dream

My friends, do you still remember 1977, the year that turned out to be the turning point of so many people's lives in China? You may have guessed that I am talking about the first national college entrance examinations after the Cultural Revolution (CR). But if you also guessed I was one of those lucky ones who entered colleges that year, read on!

Attending university was my childhood dream. Both of my parents were professors at Peking University, the most prestigious university in China, and I spent a lot of good time in my childhood on its beautiful campus. I also attended the elementary school and high school both affiliated with the university. It might seem only natural for me to attend the university once I graduate from high school. Of course I also knew that it would be very difficult to get into a college, let alone one of those well-known schools such as Peking University, due to the very competitive entrance examinations and the extremely low acceptance rate.



But when the CR broke out in 1966, the entire country became a chaos. All universities were shut down; the higher education of the country became virtually non-existent. My university dream was completely shattered. Having completed only the first year of high school, I, together with many millions of youth in the country, was sent to the countryside. We became the "sentdown students", to be "reeducated" by the peasants. I first spent three years in a remote village in Northeast of China, doing all kinds of hard manual work in the field together with the peasants in the village, and then I spent some seven more years working as a drilling worker in an oil field. In 1973, the universities started to operate again, but only admitting those "worker-peasant-soldier students" with favored political background. Although I also took the entrance examinations and did well, I

stood no chance because of my family background, with my parents, both western educated, criticized of being “bourgeois intellectuals”. When I came home for a short visit to my parents in Beijing, I saw those lucky college students on the university campus I considered my childhood paradise; I felt the fire of envy burning in my eyes!

Finally, after ten long years, Mao was dead and the CR was over. Another opportunity came with the news that all universities were to admit students based on a national entrance examination. At that time I was working as an electrician in a computer center of the oil field. I became very much interested in computers and had read a few books on the subject. However, without a formal college education, I could only enter the computer room to change the light bulbs instead of working in either hardware or software. One more time I felt the burning desire to get my college education. I would never let my last opportunity slip away.

河北省一九七七年高等学校招生准考证

考区保定地区涿县(市)

报名号 0932理
(试场座号)

姓名 王沁辉
(选考外语)

高等学校招生统一考试时间表

日期	星期	时间	科目	日期	星期	时间	科目
上	8:00	语	8:00	数	8:00	外	
午	11:00	文	11:00	学	11:00	语	
下	1:00	政	1:00	理	史		
午	4:00	治	4:00	化	地		

Preparation for the entrance examinations was not too much a challenge to me. During the past ten years, I never forgot what I learned at high school, and I spent time, whenever possible, at night and during the weekends, to study various subjects of interest to me, even under the oil lamp after a long day of hard labor in the field when in the village. I taught myself calculus, physics, electronics, digital circuits, etc. I even studied the subject of “geophysical prospecting” while working in the oil field. In December of 1977, I took the three-day examinations held at a local elementary school. The ID card for the examinations read:

ID card # 0932 (Science/Engineering)
 Day 1: 8– 11, Chinese, 1 – 4 Politics
 Day 2: 8– 11, Mathematics; 1 -- 4
 Physics/Chemistry or History/Geography
 Day 3: 8– 11, Foreign Language

I felt confident after the exams were over. While I could not be too certain about my performance in Chinese and Politics, I was sure that I had done all problems correctly in mathematics, physics and chemistry. I even completed the two extra problems in calculus. The flame of hope revived from the ashes of the hopeless past, burning more brightly than ever. I applied some top universities of the country, the first of which was Tsinghua University, where my father studied decades ago. He was also hoping that I could follow his footsteps to study there. I awaited the admission notification anxiously.

It was said that over 5.7 million people participated in the national examinations that year, most of whom were from some 20 million “sentdown students”, accumulated over the last ten years without any chance to attend college. Out of these people, only 273,000

were accepted. Needless to say, with an acceptance rate lower than 5%, the competition was brutal. And, unfortunately, I was not among the lucky 5%!

I can no longer recall how I felt after I got the rejection letter. It must have felt like a bucket of icy water pored over my head. In the ten long years I encountered countless tough challenges and endured a lot of hardship, but I had always admired the qualities of perseverance and hard working, and I never gave up my university dream. I did my best to study whatever subjects of interest, whenever I got a chance. But I was denied of all opportunities I deserved. It was also said that the universities would give priority to those younger applicants, as they were more suitable for college studies. I felt people like myself, who spent a decade of their youth in hardship but never gave up, were deprived of all opportunities and deserted by the society. But without any voice, what could we do to protest?

I firmly believed I did well enough in the examinations to be accepted by some college, if not Tsinghua as I had hoped, at least some of those less prestigious ones. I tried to find out my exam scores. But the result was very disappointing and most suspicious. I was told my college application files could not be found. I had to believe somehow someone else must have stolen my identity due to my high exam scores. Such act of cheating actually occurred frequently in those years. Some of those with special social connections such as knowing a government official could easily gain unfair advantages such as the opportunities to attend college.

A few months later, when the trauma of being deprived of the opportunity of higher education started to heal, the government announced that graduate schools of all universities in the country were to accept qualified students after a long interruption during the CR. The entrance examinations for graduate schools would be held in May of 1978. One more time, the sparks of hope were ignited! Of course I knew only too well how others around me would think of me. They would surely think I was crazy: trying to get into a graduate school soon after failing to get into any undergraduate program? Did I lose my mind? But I certainly could not afford to miss this last opportunity and I had to give it a try. I tried my best to prepare for the coming exams in secret, and kept a very low profile to avoid any unwanted attention from anyone around me. I then took another round of exams for the graduate school of Tianjin University, six months after the failed attempt to get into any undergraduate college. The ID card for the examination read:

ID card # 2466

May 15 (Monday) 8:30 – 11:30 Politics; 2:00 – 5:00 Foreign Language

May 16 (Tuesday) 8:30 – 11:30 Basic subject; 2:00 – 5:00 Basic subject

May 17 (Wednesday) 8:30 – 11:30 Specialized subject; 2:00 – 5:00 Specialized subject

天津市1978年高等学校招研究生

准考证

姓名 王汝辉

报考专业 计时仪表

地区 河北涿县

考场地点 天津大学 报考号 2466

考试时间表

时 间	5月15日 (星期一)	5月16日 (星期二)	5月17日 (星期三)
上午8:30 - 11:30	政治	基础课	专业课
下午2:00 - 5:00	外语	基础课	专业课

This time, the problems on the exams were much more difficult compared to those on the previous ones. While I could handle most of the problems in the subjects of electronics and digital circuits, I felt the problems in mathematics were most difficult. I was unable to do some of them; and I didn't feel too confident about some of the rest I did manage to complete. I could only tell myself, you did your best.

While waiting for the results of the exams, I tried to find how I did in them. Very disappointedly, I learned that my math score was only 19%. My mother tried to give me some words of comfort: you should not be too surprised if you didn't do well in math, as you have never attended college. Otherwise, what are the math professors for? But just when I was about ready to give up the hope, I

got a notification letter from the university I had applied, which read:

Comrade Wang Ruyue, care of the Revolutionary Committee of the Computer Center:

Based on the result of the preliminary examinations, you are qualified for a second round of examinations to be held on July 7 and 8, 1978. Please bring your ID card together with this notification to take the examinations on the university campus. (Report to the university on July 5 or 6.)

The Admission Committee, Tianjin University, June 12, 1978

编号 2019

天津大学

研究生复试通知书

石油部
物资局物资站革委会转 王汝辉 同志: 根据初试结果, 同意你复试, 时间按排在一九七八年 6 月 6 日至一九七八年 6 月 8 日进行。凭本通知书及本人准考证到校参加复试。

七月五日至六日报到

一九七八年 6 月 6 日

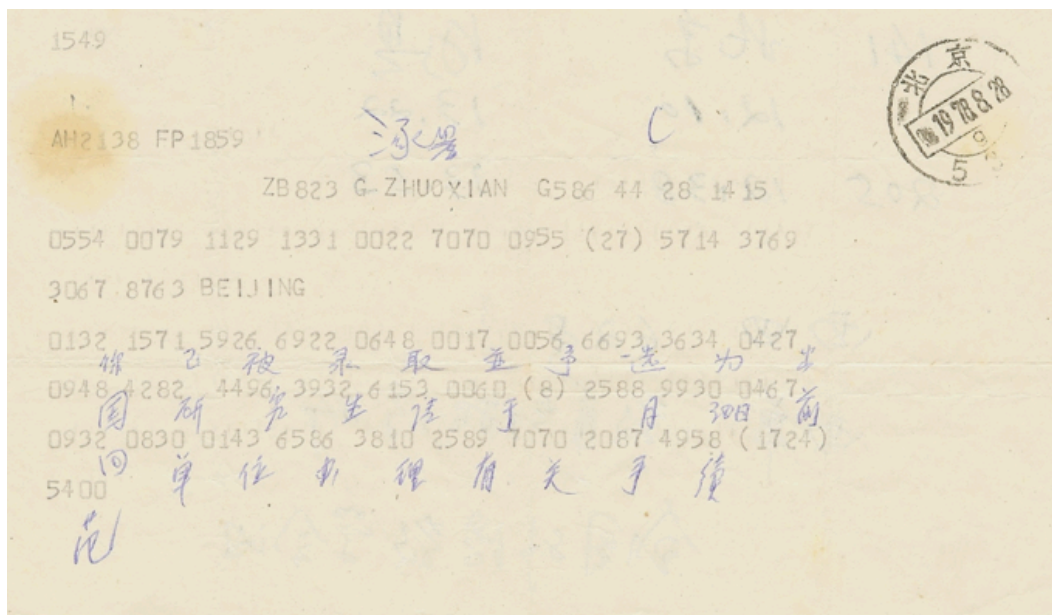
One more time the distinguished sparks of hope were ignited! I could totally understand why a second round of examinations was required. The universities could not trust the local governments who administered the first round of exams. The universities wanted to evaluate the applicants who passed the preliminary exam on campus and meet them in person to avoid any potential cheating such as identity theft. I then went to the university to take the second round of exams, which included an oral exam as well

as a written one, both on some specialized subjects. I then came back and started another round of waiting.

In August, I was at home in Beijing taking a brief break from work, having almost forgotten the exams. In a hot summer afternoon, when I was home alone, I heard a postman outside the door shouting “Telegram!” Immediately I got nervous and could feel my heart beat! I signed for the telegram, took it out from the envelope, and read:

“You have been accepted as a graduate student and preselected to study abroad. Please come back to go through the formalities by August 30”

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取 0 0 1 7 并 0 0 5 6 预 6 6 9 3 选 3 6 3 4 为 0 4 2
7 出 0 9 4 8 国 4 2 8 8 研 4 4 9 6 究 3 9 3 2 生 6
1 5 3 请 0 0 6 0 于 (8) 2 5 8 8 月 9 9 3 0 3 0 日 0
4 6 7 前 0 9 3 2 回 0 8 3 0 单 0 1 4 3 位 6 5 8 6 办
3 8 1 0 理 2 5 8 9 有 7 0 7 0 关 2 0 8 7 手 4 9 5 8
续 (1 7 2 4) 5 4 0 0 范



The stamp of the telegram showed the date: August 28, 1978. This was the most important turning point in my life. I knew the trajectory of my life was changed forever!

No one was home to share my joy and excitement. I went out, with the telegram in hand, wanting to share my good news with anyone I might run into. But in that hot August afternoon, I could not see a single soul in the streets. So I went to see a friend of my father, a physics professor at Tsinghua University, who lived just near by. I used to seek

his help during my study of physics, and now he became the first to share my excitement. He said he had always known I would eventually exceed.

That was the happiest time of my life in those years. The words about my success had spread quickly around the computer center. One of the software engineers at the computer center with a college degree also took the exams for some graduate school but he was rejected, while I, a mere electrician without even completing high school education, was now admitted into a graduate school. People congratulated me whenever they saw me. The head electrician who wanted to train me as an out-door electrician said he would now have to train someone else for the job.

Finally, ten years later since I left high school in Beijing for the countryside, I became a graduate student back on a university campus. I soon learned that almost all the graduate students admitted by the university were college graduates before the CR, except a few “worker-peasant-soldier students”, who were allowed to study at colleges during the CR. I was the only one without any college experience, and I was also one of the youngest in the group. I also learned that my score of the mathematics exam was 66%, instead of 19%, which was actually someone else’s score. The math exam was indeed difficult; the highest score was only in the 70s. Later I also had the opportunity to see the remarks of the three professors who gave me the oral exam, “this student could answer most of the questions well with clear conceptual understanding of the subjects; he was able to apply the theoretical knowledge previously learned to solving problems posted on the spot never seen before. He possesses the capability of analyzing and solving problems.”

Due to my good performance during the exams, I was preselected to study abroad together with a dozen others. The plan was for me to study biomedical instrumentation in Australia. This group of us selected to study abroad took another unified test in foreign language, held in the capital city of the province. I got yet another ID card for the English test, which read:

Unified Foreign Language Test for Graduate Student to Study Abroad, 1978
Seat number: 253

September 15 (Friday) 8:30 – 11:30 Written Test, 2:00 – 5:30 Oral Test
September 16 (Saturday) 8:30 – 11:30 Oral Test

一九七八年出国进修生、研究生外语统一考试

《 准 考 证 》

院(校) 系 专业

拟 派 往 国 家

顺序号(考场座号) 253

姓 名 王 汝 辉

送 考 外 语 语 种 英

出国进修生、研究生外语统考时间表

日期	9 月 15 日 (星期五)	9 月 16 日 (星期六)
上 午	时 间 8 : 30 11 : 00	时 间 8 : 30 11 : 30
	科 目 外语笔试	科 目 外语口试
下 午	2 : 00 5 : 30	2 : 00 5 : 30
	外语口试	"

Having taken the foreign language test, we started to take classes on campus while waiting to hear from the Ministry of Higher Education, which handled the applications to some graduate programs abroad on our behalves. Gradually, all members of the group took off for the UK, France, and the US, leaving me alone behind still waiting. Later I was informed that there was some difficulty in my study abroad application due to the fact that I did not have a college diploma, and the plan of my study abroad was shelved. But that was totally fine with me. Now I could study all the fascinating subjects I had dreamt of learning, I could definitely wait to go abroad in some later time.

In the first year of the graduate program, the entire graduate class was required to take courses in only two general areas, independent of their specialized fields, the

advanced engineering mathematics (including probability and statistics, linear algebra, and mathematical physics), and the “four mechanics” (including analytical mechanics, statistical mechanics, classical electromagnetism, and quantum mechanics). The university seemed very determined to provide the most rigorous training in mathematics and physics to its first class of graduate students after the long ten-year interruption. The best professors were selected to teach these courses in the most strict fashion.

Retrospectively, it might seem challenging for me to take these courses, as the only one in the class without any formal undergraduate training. But actually I never felt much pressure during the study of these subjects then. I was just being too excited for the opportunity that finally came to me to worry about the course load. In fact, I completed all of these courses successfully without any difficulty. In the second year of the graduate program, we returned to our individual departments to take another set of specialized courses in our own fields, while also starting our thesis research. However, I was still filling the hunger for learning and would like to take the full advantage of the opportunity, so I elected a few more advanced courses of my own interest in some other departments.

In two and a half years, I completed all required course work and my research project. Having passed the thesis defense and received my master degree, I started to look for jobs. At the time many universities and research institutions were eager to recruit the first class of graduate students after the CR, during which few advanced degree holders were produced. I applied for a teaching position at Peking University and soon joined the faculty. After a dozen years since I left Beijing as a high school graduate, I finally came back to the city, to the campus of Peking University where I grew up. I used to dream of

attending the university as a student, but I now joined the university as a member of the faculty.

Soon after I arrived at the university, I started to offer a new graduate level course. All students in my class had just completed their undergraduate study, four years after they passed the national entrance exam, which I also took, and entered college in 1977. I could have been one of them had I had a little better luck, but I was teaching them now. What a twist of fate, what a bittersweet for me!

After all, I never had a college degree, without which I ran into a little trouble later when applying for a Ph.D. program in the US, but that is another story for another time. Other than that, who cares whether I have a bachelor degree or not, with a MS (and a PhD later)? In general, if the time between high school and graduate school is naturally one's college years, then, for me, the ten years I spent first in a remote village and then on an oil field, would have been my college education. Without my own knowing at the time, I actually gave myself the college education I was so desperately seeking. I made my university dream come true.

Thanks to my mother, who carefully kept for decades all the documents included in this article, such as the ID cards for the various examinations, the notification letters, and, most importantly, the telegram that changed my life.

The author got a Ph.D. degree in the US after teaching for a few years at Peking University, and is currently a college professor in Los Angeles.
