Indian Institute of Technology 2005

Bombay, India

21 July, 1:30 AM

I arrived at Bombay International Airport a couple of hours ago and got picked up by a driver from the school. "Namaste", I said, after learning some phrases from a nice guy from Bangalore on the plane.

It's hot, rainy and most of all humid. The campus is pretty cool...sometimes it looks like it's been built in the middle of a jungle. It's green and nice but somewhat wore down. I live in a newly built hostel which is very much like a cheap hotel i Bangkok; simple, small, a bit dirty and humid. Humid is kind of the motto here. Oh, and I have a really nice view!

IIT rocks.

Markus

Markus Kirsten, kirsten@kth.se, 2006

Introduction

I was planning to go to India a couple of years ago when I was traveling in South-East Asia but the idea just never took off. When I decided to study abroad somewhere, Singapore was my first idea. I was in Singapore in 2004 and decided to go back to study or work for some time so it seemed like the obvious choice - good education, good standards, good geographical placement and nice pressure-boiler climate.

However, when talking through the plan with my study counselor at KTH he convinced me that IIT in India was a better university than NUS in Singapore and the cultural challenge would also be greater. Greater challenge, greater idea. And so I had my mind set at IIT instead. After a couple of papers filled with redundant information, some trouble with the embassy and an expensive one-way ticket later I was on my way. The cover page is my first diary entry when I arrived in Bombay.

Academics

IIT is tough compared to KTH but it depends a lot on the courses you take and your ambition. Since grading is typically relative in class level not all of your friends can get the highest grade. AA, pronounced "A-square" complying to good academic humor, is normally given to about 5% of the students. It's always a good fight and sometimes you have to complete with Ph.D. students in the subject. However, I never once did see the school as competitive between students. Everybody was always very helpful and the study climate was extremely friendly and nice.

In undergraduate courses, attendance is often taken and you have to attend around 90% to be allowed to write the exams. Examination was also more continuous than it is at KTH. A course would typically have about 3 larger assignments, 3 quizzes (often by surprise), one mid-sem and finally one end-sem after which the performance on all would be weighted together. I found this pretty good but it meant you had to follow the study plan at all times to not miss a quiz or homework. KTH offers more freedom when it comes to plan your studies while IIT enforces continuity.

The quality of lectures, assignments and quizzes in general were high and I felt my understanding and reasoning was being tested much more than at KTH. This was particularly true in the master courses.

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My courses

Theory of Computation, CS 331 Prof. S. N. Krishna

I took this course to deepen my understanding of core computer science concepts such as Turing machines, computability and problem classes. I felt too much time was spent on details of context free grammars, state machine and Turing machines and that we should have reached further into computability and problem classes. One of the major reasons for this, I believe, was that the course was given to a group of fairly demotivated third-year students. Professor Krishna slowed down the pace it bit because she preferred people to follow the lectures rather than include all topics. However, the course was good and professor Krishna was a pedagogic lecturer who encouraged class interaction a lot.

Database and Information Systems, CS 317 Prof. N.L. Sarda

This course is basically the same as 2I1100 at KTH. I took it since the latter is mandatory. This course showed no surprises and were pretty much as I would expect any introduction to database systems to be at any university around the world. If you know some SQL and concepts to start with, this course is a breeze.

Statistical Foundations of Machine Learning, CS 705 Prof. Soumen Chakrabarti

I can not find word to praise this course enough. The course contained so many things you always wanted to know but just never took the time to dig into. We covered optimization techniques, matrix factorizations, support-vector-machines, advanced clustering techniques, graph methods and lots more. Everything was given at a fairly high pace and required a solid mathematical foundation. You do not want to let your thoughts stray away during his 2-hour lectures without breaks, because if you do - you're hopelessly lost. We were given a total number of 7 assignments, I think, of which the majority was open-ended and without a final solution. This was an amazing motivator and I spent countless nights together with my Indian friends coding Matlab, brainstorming ideas and drawing on whiteboards. If you can, take his courses. This was the best course I've ever read. Period.

Artificial Intelligence, CS 621 Prof. Pushpak Bhattacharyya

A fairly interesting course covering automated reasoning in formal systems, A*, fuzzy logic, some ANN, some information theory, AI planning and a couple of mathematical techniques. Prof. Bhattacharyya was a good lecturer focusing on core understanding. All lectures were recorded and we could get CD's regularly with the last lectures. This was a nice feature I've longed for many times at KTH.

Data Mining, IT 608 Prof. Sunita Sarawagi

To me, this was a perfect complement to my machine learning and AI courses at IIT and KTH. We covered clustering techniques, Bayesian networks, active learning, methods for handling skewed data among other things. Professor Sunita Sarawagi was a good lecturer (and actually married to Soumen Chakrabarti). The last assignment was probably the best part of the course as it was open-ended and required us to make a clustering algorithm for huge datasets without knowing much of the data and its distributions. Overall a good introduction and foundation of data mining techniques.

Formalities

Overall, administrative tasks was easy at IIT and everyone was more than helpful. Professors always acted professional and encouraged new solutions and ideas. The only contact with people that annoyed me was the teaching assistants (TA:s). If you had bad luck, you could get fourth-year students that knew a lot less than you in the subject and did a terrible job correcting assignments and papers. Twice, I contacted my professors to get a fair correction of my assignments (and got it). Others were less lucky and had to go with what the TA:s said.

Accommodation

My room in Hostel 13 was very much like a small clean, but cheap, hotel room in Bangkok. Fine, in other words. All rooms are equipped with a (hard) bed, a chair, a desk, a locker, a wardrobe (with doors that made an excellent whiteboard), internet access and a mosquito net for the windows. That's pretty much all you need. Other students from KTH have complained on the accommodation but all the hostels I visited were absolutely OK, even though some were a bit worn down.

Food

If you don't like Indian food - don't go to IIT. I was really worried for a French guy who didn't like the food and survived on rice with ketchup three times a day the whole semester and occasional pizzas. The food was generally a bit spicy and really good. However, the hostels give you pretty much the same food every day so be prepared to dislike the food after a couple of weeks. Other options include Pizza Hut, a couple of other pizza places, ice-cream delivery and the amazing "Sujata Palace" - offering India's possibly best Chicken Tikka Masala. I ordered here about once a day with home delivery. Simply amazing!
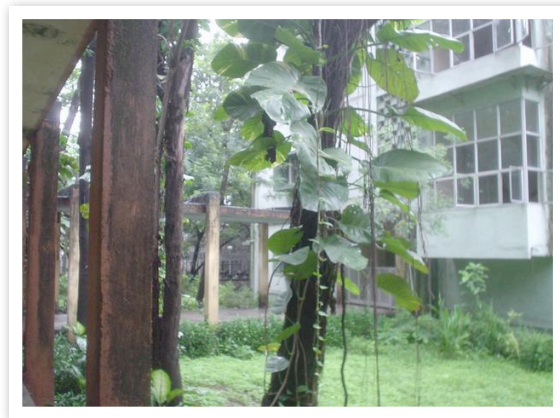

Alcoholic drinks are not allowed on the campus but the guards (yes, there is a security check) almost always just let you pass. Sometimes they check your ID or whether you have computer equipment with you. Anyhow, people don't really care and beer is available cheaply just outside campus. Otherwise, there isn't much of a drinking culture on campus.
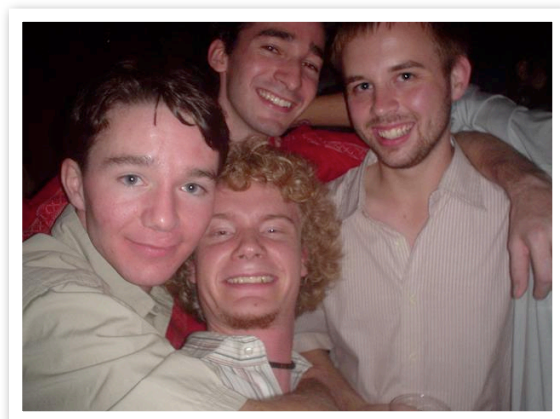
Life @ IIT

Life at IIT was great. IIT offers many sport facilities if that's your game. There are also a lot of clubs and other activities around. Hostel 12 & 13 are both well equipped with a gym, table-tennis, TV-room, computer room, newspapers, Xerox services, telephone and fax. They both share a common canteen which serves food 4 times a day (included in your Hostel fees) and a night canteen which is open 24 hours serving hot food between 11 PM and 4 AM. I appreciated the latter the most, I think, especially when I did assignments and could go down, chat with some friends, have a coke and amazing butter parathas. What more can a man ask for?

A couple of days after I arrived Bombay received massive amounts of rain - 942mm of rain in 24 hours. At first, I didn't know whether this was normal or not but when the lights went out and the canteen (which is located at subzero level) had more than a meter and a half of water - I realized this doesn't happen every day. However, except for some mosquito born deceases that spread after the rains, the IIT campus coped very well but other parts around Bombay became quite bad with roads getting washed away and collapsing buildings.

A normal day for me consisted of waking up just before 8 AM, going to two lectures, going back home eating something, sleep for 3 - 4 hours, beginning the day again - studying, hanging out with friends and keeping contact with my girlfriend back in Sweden. After dinner, around 9 PM, the real work began on assignments and projects. At around 4 AM I would go to sleep and get another 3 - 4 hours. I worked a lot with a guy from France named Alban who was also an exchange student. I think we were about eight in total and we all lived on the same floor. Alban and I lived next door and it was really great living together with people you worked with. Time and place was never an issue and we did spend many late nights in front of my ad-hoc whiteboard solving Soumen's assignments. Sweden has another approach to student life and without making up my mind which one I prefer; campus life at IIT was really great. I enjoyed having everybody around. Everybody lived on campus (even professors and employees) and you could get called in for a demo or presentation at 1 AM a Saturday night. There's something about that complete dedication to academic life you just have to love...

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Communications

Yes, every room has internet access but that doesn't mean your favorite application works through the network. No Skype, no iChat AV, no MSN video. No. The network uses a quite aggressive proxy for traffic filtering and even if you set up SSH tunnels to get traffic through you're out of luck when it comes to opening up the huge range of ports for both TCP and UDP traffic an application such as Skype needs.

I had a server back in Sweden relaying out my traffic through (direct and reversed) SSH tunnels. This is fairly straight forward if you're on a UNIX-based OS. On the Windows side you should be able to get through by socksify your connections. VPN-based solutions are blocked and the IT administration are not particularly helpful when it comes to getting your traffic through. We had a lot of network downtime which caused some problems but after using tunnels for all my traffic I realized that it wasn't the network that went down, it was the proxy.

There's an internet café nearby where you can use old Windows 95 computers or bring your own laptop for a small fee. Speeds are around 80kBps, compared to the university network which peaks at around 20kBps for outside traffic (even though the internal network is 100Mbps and hosts a variety of movie servers which offers speedy downloads).

Mobile coverage is good and with an Airtel pre-paid card you only pay about 1.50SEK for international calls to most countries (including Sweden). Pretty good. The customer "service" is nothing more than a joke, however, and I got charged the wrong amount a couple of times and eventually gave up the fight with them. Your mileage may vary.

Bombay

Bombay, or Mumbai which is the original name, never lets you forget you're in India and I like that. There isn't much of a city center and I never really figured out the bus system. The trains, usually completely packed, offers speedy and regular traffic (but only to around 1 AM).

IIT lies in a area called Powai (after a lake which hostel 13 has a great view over) which has a commercial center called Hirandanandai. Apart from the internet café, they have supermarkets, restaurants and a couple of stores and a small shopping center. A rickshaw drive away is the closest train station Kanjur Mal which is about 45 minutes from the central station in Bombay. But watch out, as a lot of people get killed on the trains every day and safety doesn't seem to be a concern at all.

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Expenses

Living in India is cheap if you have funds from Sweden. Living as an student in India is even cheaper. So, money isn't really an issue at all. I've taken down some typical figures, as I remember them. At the time of writing 1rp ≈ 0.18SEK.

Lunch at staff canteen	20rp
Coke	10rp
Rickshaw to Hirandanandani	16rp
Rickshaw to Kanjur Mal	25rp
Train to central station	10rp
Food delivery	100rp
Pizza Hut delivery	200rp
Typical restaurant meal	100rp
Western luxurious restaurant	400rp
Cinema	120rp
Typical study literature (Indian reprint)	250rp
Xerox a 200-page book (bound)	120rp

Chicken Tikka Masala with 3 parathas from Sujata Palace, home delivery - 100rp

You get the picture. I didn't keep count but I believe my phone bills surpassed all other expenses.

IIT takes out $150 in fees for foreign students through an exchange program, additional 6.000rp for accommodation, hostel services and food (4 times a day). If you want a library card, that's additional 10.000rp in deposit. But why bother when books cost around 250rp? I bought Haykins "Neural Networks" that costs about 1.200SEK in Sweden for 43SEK at a bookstore near the campus. I bought a lot of books, Xeroxed some and gave a lot away when I left but still had around 10kg of books when I left.

Conclusion

The time in India was fantastic. I'm really happy I got to experience the kind of campus life that IIT has to offer and to meet so many great people. It was really hard leaving IIT and India and I had to rebook my flight to get some more days to just hang around with the people I worked so much with. All my expectations, except for electronic communications, were surpassed, by far. But even though I miss the academic part of IIT, the though assignments and the sometimes jaw-dropping end-sems, what I miss most is the people. I miss Alban, Mikel, Kuldeep, Pranav, KVS, Sebastian, Nitesh and everybody I forgot to mention in this list.

I warmly recommend IIT and India and as long as you enjoy change in culture and student life, I'm sure you'll find IIT as interesting and enjoyable as I did.

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