Integration without calculus

BY SERINA DINAGA

On Wednesday, esteemed mathematician Tom Apostol lectured to a room full of colleagues, graduate students, undergraduates familiar with his books ("Calculus, Vol. 1 & 2").

The method outlined in "Mamikon's Theorem" correlates the areas under curves using geometry instead. Illustrating the method with computer graphics, Apostol and Mnatsakanian found the area under a parabolic curve, an exponential curve, the arch of a cycloid, and a tractrix - all using geometry and no integrals. The method is necessary only to know the beginning and ending points of the curve and the angular difference between the tangent lines and then find the area of a rotation with the same calculus.

Space Week at Caltech

BY JONATHAN FOSTER

Caltech has strong connections to the space program through JPL and several student clubs, so it is not surprising that there are several events on campus planned for Space Week (see skybox). Says Loretta Hidalgo, a Caltech student who served as a youth delegate to the United Nations 3rd Unispace Conference (which originally suggested the idea of an international space day): "I think the goal is to get people to think about space. Not just to help get more kids into math and science, but because it's an important human endeavor that can affect all of us... something that can bring the world together like the pictures of the earth taken from Apollo, and something that will become more real in the next ten years as more non-astronauts go into space."

Space Week activities at Caltech are co-hosted by the Caltech/JPL, Mars Society, SEDS, and Spectre.

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Entertainment!

Ticket Stub page 4

culture column page 2
Welcome to the new semi-weekly column that brags to have more culture than your yah-ghurt. Here you will find information on cultural events that are happening around Pasadena and the greater L.A. area. Furthermore, we’re running a contest this term that could get you an evening out with the concert of your choice and a concert with us for you and a guest (enter by emailing tech@ugcs.caltech.edu).

This week the Los Angeles Philharmonic is performing Schoenberg’s Survivor at Warsaw and the Ninth Symphony of Beethoven. Schoenberg’s “Survivor at Warsaw” was written in response to the fencing off of the Jewish ghettos in Poland. Schoenberg had already fled the Nazi regime predicting politically that anti-Semitism could only lead to violence.

From the technical view this piece was written using the twelve-tone system that Schoenberg pioneered. A predetermined set of twelve notes forms the basis for the entire piece and is then manipulated and tweaked throughout the composition. Leonard Nimoy (yes, that Leonard Nimoy) is the narrator for the piece.

The second piece is definitely the more recognized. While the final movement of Beethoven’s Ninth is in the running for the most played piece of classical music, there is a reason it is heard so often. It’s that good. The Ninth is the first work that brings music to a symphonic work, thus paving the way for Mahler.

The most amazing thing about the Ninth Symphony is that Beethoven never heard it. By the time it was written and performed he was completely deaf. At the premiere of the piece in 1824 Beethoven is reported to have conducted both the orchestra and the choir but actually did nothing: the conductor had given instruction that he was to conduct before the piece was finished and did not turn to acknowledge the applauding audience until someone from the audience yelled “Play!”

There are three performances this weekend: Friday and Saturday night at 8 and a Sunday matinee performance at 2:30. Rush tickets with a student ID are $10 at the box office beginning two hours before the performance at the Dorothy Chandler Pavilion.

Why is TIAA-CREF the #1 choice nationwide?

The TIAA-CREF Advantage.

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ASCIT minutes

October 2, 2000

Board of Directors, 2000-2001

Eric Tuttle, President
Laura Brogchos, Vice-President
Jason Cardema, Secretary
Sean McHugh, Treasurer
Chris Elton, IHC Chairman
Emma Kang, Director for Academic Affairs
Melinda Turner, Director for Social Activities
Meghan Smith, Upperclass Director-at-Large
Martha-Helene Stapleton, Fresman Director-at-Large

Minutes of the ASCIT BoD Meeting

Present: BoD; Guests: OASIS - Dinkar Gupta, Neha Soni, Prashant Paroohit; AACIT - Michael deSalvo; Keepers of Donut - Jonathan Danna, Robert Christy, and Dylan Simon

The first meeting of the year is called to order at 10:03 pm. Guests OASIS asks for $250 for their fall cultural show on November 8 in Reno Auditorium. Their program includes Indian dancers, Indian classical music, a flute recital, and a skit by under-graduates, and is open to the whole Caltech community, including JPL. They are also asking various other sources for funding, and are also helping to defray the cost themselves by selling tickets. Eric tells them to include the cost of this yearly event in their budget proposal at their next meeting. Martha-Helene tells them to publicize on donut.caltech.edu.

Michael, from the AACIT, requests funding mainly for the National Intercollegiate Flying Association’s SAFECON competition, which will be held in Arizona this year. Eric also tells them to include this event in their budget proposal next time. Then in comes these three guys, really proud of their project, the donut.caltech.edu website, which the BoD agreed was pretty cool. They even have a section for clubs, where users can find links to web pages and email addresses. Clubs can post on an event calendar, to keep people up to date on activities. The only problem is that not enough clubs have registered. Jon suggests that ASCIT should require clubs to register on donut.caltech.edu before they can request funding. We like that idea. Martha-Helene will email the clubs right away about our new rule.

The Bookmart is doing pretty well, with 224 postings at the moment. Ex-ASCIT President Baldeep Sadhal liked it too, saying, “It’s everything I ever wanted in a bookmark, and more.”

Martha-Helene receives advice from the donut guys for putting the UROH online. Emma asks them about working on the CLUE. Laura asks about having a place to sell random junk. The donut guys tell us that there is a Classifieds section on the web page that is still being implemented. Someone suggests having a personals section too, and we all laugh.

Eric tells them about implementing the ASCIT DVD Library checkout system in the Coffeehouse. We need an inexpensive computer for it, which shouldn’t be a problem since according to Eric, “we have computers up the chandelier!” The donut guys say they’ll work on it as long as they can get someone else to do the data entry, which should be easier with one of those free bar code scanners from Radio Shack.

General Meeting

Martha-Helene, the keeper of the ASCIT scrapbook, will submit some pictures to Erik Dill for publication in the Big T yearbook, which is still in the works. We are still looking into the ASCIT endowment, which has been in the planning stages for years. Eric found an old file by Baldeep from 1998 about it. Eric, Sean, and Jason will figure out all the details, including how to put money in, what kind of performance to expect, and what happens when we take money out.

There have been a lot of questions about when the Coffeehouse will be opening. Eric will contact Marcel, who is still the manager. One proposed improvement this year, besides the DVD library, is to have a PlayStation, and maybe a Super NES, for the TV in the back room. This is Marcel’s best idea so far. Chris will look into the SNES and comic book subscriptions. We are down to two remaining ASCIT lights. Melinda says houses borrow them, but don’t return them. Eric will ask the Caltech DJs about buying some replacements.

The Hipster/Donuts event was a good replacement for the lame ASCIT rotation party we usually have. We even came in under budget.

The Screening Room will be completed soon, as a place where ASCIT members can watch DVD’s on a big screen TV with audiophile-quality sound in the comfort of SAC 35.

We have the audio equipment picked out from GNP, an audio equipment store on Colorado owned by an alum, Eric, Laura, Sean, and Jason will look into big screen televisions this Friday. The study room (where the old arcade room was) still needs to be worked on.

ASCIT decides to give $250 to OASIS for their fall cultural show. We will postpone deciding how much to fund the AACIT club until we can straighten out the rest of our finances.

To figure out when we should have our meetings for the rest of this term, we pass a schedule sheet around. It comes back completely filled except for Monday nights from 10 pm to midnight.

Meeting adjourns at 11:45 pm.

Respectfully submitted,

Jason C. Cardema

What is the value of being first?
Why should you care?

Because being first means you raise the bar for everyone else. Because it creates an environment that is endlessly stimulating. Because it forces technology to constantly reinvent itself. Because the most influential ideas and applications were never the result of second place thinking.

Come be first with marchFIRST.

Come and join us for our Presentation on October 9th from 4-6pm in the Career Development Center.

Contact some of your Cal-Tech Alumni now working for marchFIRST

Jero Sinor
patrice.mahoe@marchFIRST.com
brigitte.baldi@marchFIRST.com
andre.marinescu@marchFIRST.com

Other dates for your calendar...

Resume Drop: October 18, 2000
1st Round interviews: October 31, 2000
Almost Famous

Rated R; for drug, boozy, and all those things your parents tried to shield you away from when you were 12

Ticket Stub rating: A- yeah, it still gets an A though

The early ’70s was a nebulous, transitory era for music, with the emergence of disco and the great monolith of rock taking its last deep breaths. The appearance of rock bands ceased to be novel, since soulful singers had already populated the scene with self-reflection and nihilism since circa the Vietnam War. In the post-war period, what talent that did surface was caught between appearing like a clone of a more famous predecessor (Mandy Moore vs. Britney, anyone?) and feigning musical integrity uncorrupted by commercialism. Being almost famous, an impatient lemming between stardom and obscurity, was nevertheless a training ground for wannabes experimenting with either selling out or staying true to music that could only be appreciated by the minority of deep thinkers and feelers, but in either case with a dash of drug and groupie-banging on the side.

“Almost Famous” never directly confronts the issue of being what may be termed “indie” by today’s standards by staying underground, vs. having a throng of adoring fans and making music down to the every-day appreciator. The fictional band “Stillwater” studied in the film is already a conformist to the counter-culture of rebels drenched in their own megalomania and sleaze. But even in the eyes of a martinet, one thing is redeeming about them — both figuratively and literally, they rock.

“Almost Famous” is a film which builds on lovely contrasts and irony: the straight-arrow vs. the sinful, the laid-back hippie vs. the over-achiever, the otherworldly, vs. the slacker. Even more so, there’s an indication that all sides can get along. But the peace which eludes isn’t the result of gung-ho compromise — it’s a smash down, like when a mother sending her son into the boudelio of a rock concert screams after him “Don’t Do Drugs!” like a message from an after-school special, only to get a mocking repetition from crack-heads and boosters. The effect, while distressing to the parent who may drop her boy off at a concert only for him to return as a man, is fiercely comical.

The circumstances of the story are delightfully absurd. William Miller, a 15-year old boy with cherubic qualities and over-achieving talents, manages to land a freelance assignment with Rolling Stone magazine after a phone conversation. Rock journalism would be an occupation for somewhat post-punk rockers, but otherwise typical groupies. An interview with the lead guitarist, Russell, proves elusive, and essentially there is no serious input from the musicians, no stirring account of what music means to them, or what music of the ’70s really is. But in the topsy-turvy culture of the rock machine, it is this indefiniteness that characterizes existence. Ominously, the group is still conformist because it has allied itself with the non-conformist, rebel culture. But the music and their lives are free and unadulterated, amorous and linked. The indecipherability of what it all means, whether their lives ceased to be real because it was injected with abstract elements like fame or psychotropic effects, is an allegory for the cultural landscape, which was ripe for philosophical or existential questions but fell short of answering them with a simple response. The story isn’t simply the music or the band members, but the entire demi-god culture that has sprung up around them, in which they are most pugnacious to indulge. As William flips through photographs and scribbled notes of random occurrences, the words emerge in a flurry. The music doesn’t exist without its fans, without its strife, or without its share of drama and bereft of the constraints of “on the record” material, he writes with a freedom which mimics the free-spirited groove of the ’70s.

In form and content, “Almost Famous” is absolutely original and creative. Its cast, lesser-known though rising starts may have caused a dearth of attention in the mainstream, but this is, after all, a film about counter-culture. Conversations between characters come off as both over-the-top and genuine at the same time. Though the film bubbles with levity, it is not without its more serious moments, which do much to introduce the actors’ versatility and naturalistic chemistry on-screen. As another quality worthy of applause, this film has the most touching and clever insights on the greatness of the “uncol.”

The film is attractive and equally appealing to conservatives who may say the world is doomed to hell and liberals who say we’re not free enough.
JOIN ONE OF THE FASTEST GROWING INVESTMENT BANKS IN THE WORLD?

Are you looking for a dynamic and rewarding career in investment banking? Do you want to be in a job with a lot of responsibility and opportunity? Do you want to work in an environment where achievement and reward are naturally connected? Then you should consider joining the UBS Warburg team.

We are accepting resumes from the Class of 2001 interested in a full time Investment Banking Analyst position. Interviews will be held on Wednesday, November 1st.

We welcome those interested to apply via your career services office.

www.ubswarburg.com
Welcome to a new school year at Caltech, where wonders will never cease (nor will the misery). Like any new year, this one provides an opportunity to experiment with new ideas and activities. This year, consider involving yourself with the Caltech Y.

The Caltech Y is one of the most active clubs/organizations on campus. It sponsors activities like Compression, Y Hikes, Decompression, and Noon Concerts. Primarily, the Y provides students with the opportunity to get away from Caltech to do a couple of things: help someone in need (e.g., tutoring, Union Station [homeless shelter], Christmas in April), and enjoy oneself (e.g., ASCIT/Y Beach trip, day hikes, Alternative Spring Break).

Today we will sponsor our first noon concert of the year on the north end of Winnett Center. It will feature Brigette Roth, Caltech Class of 1999, who has returned from her one-year world tour of street performance. To learn more about what the Y does, please come to our meetings. They are held on Mondays from 12:15 PM to 12:55 PM in the Y Lounge, located on the first floor of Keck House. So bring your lunch, a friend, a book, and most of all, your ideas.
After another week of living out of suitcases, having dinner in different places each night, and evaluating and deciding where you would fit in best, where the distractions, all the carousing and of suitcases, having dinner in different futures that await you. But let me indulge in my dream. To reach and exploit these treasures you must be well prepared. That is different from other endeavors, says the Olympics, to choose the example du jour. There as here, beyond mere ability, there has to be an urge to do well, a drive to practice, practice, try again, pick oneself up after failures and push, push beyond what you thought was possible. Actually I know little about sports, and did not follow the Olympics attentively. Completely by chance, while dial surfing, I came across a match between the Lithuania team, and that from Lithuania. The US, I gathered, had squandered a large early advantage, and when I started watching, the lead was seesawing between the two teams. The US won, but if the game had ended a few seconds earlier, they would have lost.

concentration as they might have, once victory seemed to be at hand. Everything you need to succeed is here. All you need to do is to avail yourself of the opportunities. You know, we are a small school, we have small classes, famous professors and many dedicated teachers. We have selected hyper bright people to be your classmates, and what with everything else we provide, and your own well directed efforts, it should be a winning combination. Yet not all students manage to perform at the expected level. One reason seems to be that when you get here, there are many things which compete for your attention. Concentration is as essential to scholastic performance as it is for athletic success. Unfortunately school work is far from being the only thing on your mind, and it may not even be the topmost one. You need to try out your wings, to explore new areas, to make new friends, to establish connections, to find a coping niche. All of this takes energy and time away from your studies. To succeed you have to learn to balance intellectual and worldly endeavors. In fact some of the reasons the first two terms are pass/fail is to give you time to learn to balance these conflicting demands, and to get accustomed to the pace and depth that we demand. Contrary to common lore P/F is not about painlessly taking courses that are too advanced, or reputed to be difficult. So now how should you react if things go wrong? In the Olympics all you can do is keep a stiff upper lip and gamely cheer your competitor’s gold medal. Here at school, you are still in training and failure means a chance to recognize and correct problems. To start with, make sure that you participate in the learning activities which are being offered. I mean going to lectures, at the price of getting up in the morning, attending recitations, participating in discussion groups. There is no shame in talking about your problems to others. Talk to successful upperclassmen, your faculty advisor or TA, or with one of the deans. There is no point in going to school if you insist on doing it alone. You might as well sit in your mom’s living room, surrounded with textbooks. It would be cheaper and much cozier. So swallow your pride and ask for help, today; if you wait for tomorrow, things may be worse. All of you are capable of operating at the highest level. Those of you who have problems often just do not take advantage of all of the support systems. Can you imagine an Olympian making do with out a coach, a maseur and perhaps even a sports psychologist? So why not you? A bientot.

Jean-Paul Revel

Dean’s Corner

The Caltech Olympics

by Jean-Paul Revel

(yuck, right, not cool and not sanitary either), anyway to go gaga (well I hope not gaga, but, you know, you know, like, gaga) over all the wonderful futures that await you. But let me indulge in my dream. To reach and exploit these treasures you must be well prepared. That is different from other endeavors, says the Olympics, to choose the example du jour. There as here, beyond mere ability, there has to be an urge to do well, a drive to practice, practice, try again, pick oneself up after failures and push, push beyond what you thought was possible. Actually I know little about sports, and did not follow the Olympics attentively. Completely by chance, while dial surfing, I came across a match between the Lithuania team, and that from Lithuania. The US, I gathered, had squandered a large early advantage, and when I started watching, the lead was seesawing between the two teams. The US won, but if the game had ended a few seconds earlier, they would have lost.

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Jean-Paul Revel
Beginning Argentine Tango - "Amateur"-taught, four week series starting Wed 4 Oct 00; free group for students and $15 for others. The lessons will be held from 7:30 to 9:00 pm on Wed in the Winnett Lounge, with refreshments provided after each lesson. Refreshments will be provided, and no partner is required.

Last minute change: see caltech.edu/ballroom, or call Don at 626-791-3103.

SIC 95 Annual Conference call for papers submission deadline extended to Sep. 30. The National College Inventors and Innovators Alliance (NCGA) invites proposals for conference sessions for our 5th Annual Meeting on March 6-9, 2001 in Washington, DC. We invite proposals for interactive and creative presentations, poster sessions, and workshops on any aspect of science, technology, and engineering courses, and approaches to teaching and entrepreneurship in the classroom and industry. Complete submission instructions appear on our website at http://www.nccia.org/events/ and abstracts must be received by September 30, 2000. We will notify submitters of the status of their proposals by November 1st.

EVENTS

Announcement of the Fall Meeting Caltech Science Education Club, Tuesday, October 17, 2000 5:15 p.m. 287 S. Hill Ave (Building 22A, floor 1, meeting room 105) Caltech students and faculty, staff, and students and faculty, staff, and alumni are invited to participate. For information, contact: Dr. Mark R. Green, Chair of the Science Education Club, markr@caltech.edu or visit their web site at http://www.oreg.coe.uleth.ca/.

The Caltech Ballroom Dance Club (CBDC) continues its offerings for the Fall semester. CBDC offers both new and returning dancers the opportunity to dance every weekend, with five weeks of workshops each semester. CBDC offers instruction in six ballroom dance styles: Foxtrot, Waltz, Swing, Charleston, Rumba, and Cha-Cha-Cha. CBDC offers dance lessons every Saturday, at 3 PM in the Beckman Institute Auditorium. If you are interested in joining CBDC, please contact the President at CBDCpresident@caltech.edu for information on lessons and open houses. The meeting for new members will be held on November 17, 2000.

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Join Avvo house for the first fire side chat on Wednesday, October 11 at 7 pm in the Avvy Library. The free event will be held in the Avvy Library and will be open to all Avvy users.

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