## **FACES OF COOPER** Jameel Ahmad

#### CAROLINE YU (EE '15)

**The Cooper Pioneer**: Where are you originally from?

**Jameel Ahmad**: I was born in Pakistan but I came here when I was still in my teens.

**TCP**: Can you tell me about your educational and professional background? **JA**: I went to the University of Hawaii first and got a Masters there and then I got a PhD from the University of Pennsylvania in Philadelphia. Then, I taught at a couple of places first then came to Cooper. I've been here ever since! **TCP**: Why did you choose civil engineering? What is your favorite field within civil engineering?

JA: Since I was born in a developing country, there was a need for water supply and infrastructure and roads. So I was attracted to that. I liked science and math - those were my favorite subjects. Engineering is a natural profession grounded in science and math. It also is an applied profession so this is the reason I went into civil engineering. And then I found out that the civil engineering field is really broad. You can do a lot of things. For example, you can work in structural engineering or you can design transportation systems or waste-disposal systems. You don't really feel like you're confined to one field.

I'm a structural engineer. One interesting area that appealed to me was the generation of power from flowing water – hydroelectricity. I had an interest in building dams. Lately, we don't build dams so now we have kinetic hydropower which means how to extract energy from flowing water. I have a patent for a new technology which I got in 2008.

The real world isn't disciplinary. It's quite multidisciplinary. Disciplines are the way fields are organized but not how the problems are solved. The difference is that when you get involved in a real project – it really doesn't really go by discipline. For example, in any of the engineering projects, permitting requirements, financing issues, return investments, and ethical issues are also involved. I think not all of those we learn while we're in school because we only have a small amount of time - four years for an undergraduate degree but it's sort of amazing to work with very many different people. A lot of different professional people involved. As a structural engineer, I work with architects a lot. This is the nature of how design is done. You also deal with owners, contractors, labor forces, unions contracts, how to procure materials, [and] environmental issues. So, it's a large team effort and engineers work on very large projects! This skill that one has to develop is how to network with other professionals, how to communicate, [and] how to outreach the community. Our projects have a very large impact on the community. We need to get the community involved very early on in the project.

**TCP**: What is your role in Cooper? What is your department's role in Cooper?

JA: I'm a professor in the Civil Engineering department. I'm the chairman of the department also. The engineering school is basically divided into four degree departments with separate faculty in each department. There is interaction with other departments including the school of architecture. We are trying to develop that collaboration. Next year we plan to offer a lab course which will be available to the engineers and the architects. This will basically be a course on the testing of building materials – it'll be done in our structures and material lab in the CE department. TCP: Do you have a favorite professor or colleague at Cooper?

**JA**: Well, I have a very big respect for the Cooper faculty. You have to be a good teacher and a very knowledge person to be able to teach here because our students are very gifted students and they don't really need to be spoon fed. You realize that very early on. It's a challenge to teach here. It's never really dull because the students are always very mature into the field and their high level of interest and you have to keep them motivated and keep yourself motivated. I don't one or two favorites - almost every faculty member in the engineering school know their field. In my own department, I have very experienced faculty members that have been here for decades. You can learn from them and collaborate with them. Some of the young faculty are very impressive. I see them and they are working with a different technological world. Twenty to thirty years ago we didn't have the technology we have today. The instruction has changed a lot. The

students have changed a lot! You have to keep up to date on your knowledge. I attended a lecture just last night, which was about the tallest building world which is being designed in Saudi Arabia – Kingdom Tower. 1000 meters high. The kind of challenges they were talking about were incredible. If you interact with the faculty, you can learn a lot. If you find out what they're doing – it always amazes me. They're doing great things!

**TCP**: What are some of your hobbies? **JA**: I like to travel. I also like food. I cook. I also like to read – not necessarily about engineering. I was recently in Paris and it was such an interesting experience because it has such a rich history. It has tremendous food. **TCP**: What advice would you give to Cooper students?

**JA**: I believe that each generation meets their own challenges. Just like when I was a young engineer, I saw the challenges - the space program that was just getting underway. Even the mainframe computers weren't invented yet! We prepared and couldn't really seek advice. I worked for the space program as a graduate student the University of Pennsylvania. This project was to put a man on the moon - this was started under President Kennedy. There was no blueprint to do that! We were very young and when we were working on this program they would discourage us to seek guidance from senior people. And we said, "What do you mean?!" He said because they will tell you, you can't do it - there are so many unknowns.

My advice is to have new challenges. You should look at those challenges from the prism of your own self: "I would like to solve this problem and invent something new." You need a lot of knowledge based on experience but that experience is based in prior history but it's not based on the future. My hope is that students will be prepared to address those challenges that might not have addressed in a course or lecture. You have to prepare yourself for the future. I got my undergraduate degree exactly 50 years ago. The amazing thing is that I'm still working in this field. One of the things I keep in mind when I'm teaching students is that they might be active in their profession for 60-70 years! The best thing we can hope to do is to make sure students learn how to teach themselves and develop a mind set. To have confidence in your ability and to give everything their best shot. They have to build their own world - it's a very exciting world!

### **GUIDO INTERVIEW**

#### MARCUS MICHELEN (BSE '14)

At some point in the semester, a schedule for the upcoming semester is released. We usually don't think much of it; we figure out what classes we want to take, put them into a Google calendar or Excel Spreadsheet and hope the gods of Registration and Datatel are kind to us. Last week, I sat down with Professor Vito Guido, the man who makes the engineering schedule each semester to get insight into his process. He gave the Pioneer the following statement:

Each semester, in the Fall and in the Spring, I send an email to the seven department chairs in the engineering school. So let's say for this particular Spring semester, for registration for the Fall: back in late January, early February I started requesting to have the information back by February 14th so I could start making the schedule, because invariably there are going to be changes made in the schedule and we would like to have them completed as soon as possible before registration.

So what do I include in that email? A request from the department chairs saying what courses are going to be offered in the fall semesters; who's going to teach those courses; what special requirements they have. When we were in 51 Astor Place, not all the rooms were smart classrooms. Here they all are, so that's not a problem.

If it's an adjunct, I need to know what special hours they need, because they work in industry. So maybe they can't be here during the day. If they teach somewhere else, they have to make sure their schedules mesh with our hours here. So those are the kinds of requirements I get from the department chairs.

Then I look at an overall master schedule, which I work on, to try to make sure that you're not going to have any conflicts. You don't want, say, a senior ChemE course conflicting with a graduate level ChemE course, because there may be some seniors in ChemE that want to take graduate courses. So we have to try to make sure that doesn't happen.

#### It's not always 100% foolproof.

The other thing is, in this building we have to be conscious of how many

students are registering for classes because not every classroom has the same number of seats. So that's another thing I request from the department chairs: what are their estimates of how many students should be in a class. If it's a junior level required class, say, in EE, they'll know more or less how many students they'll have. If it's an elective, they may give me a range because then, when you're making the schedule, you also have to pair the time with an available room. On the fifth floor, 502 and 503 have 30 student limits, but 504 505 and 506 have 40 student limits. So it may be silly to put a class that may only have 12 in a room that can accommodate 40 students, and vice-versa. So that's another thing we have to look at.

It's like a big puzzle, putting all the pieces together. One of the major issues is Humanities. I also have to fit them into the schedule. I basically assign rooms in 41 Cooper Square. Foundation building [assignments] are under architecture [direction] and some are under art. Occasionally we switch back and forth, but I try to keep most of the engineering classes in this building, 41 Cooper Square.

It's a thing that evolves. For the Fall Semester, it evolves over the Summer. When they assign freshmen to a section in August, things may change. An adjunct may say, "Oh, I can't teach anymore" so we have to get a different adjunct and find if his hour mesh with where the course is already in place. So that's why it keeps evolving.

For the math classes, basically all the freshmen and sophomores take the same classes. For math electives, professors will usually indicate to me to make sure that it fits in the EE schedule, because they have some required math courses in their curriculum. And if those spots where we put it fit in for other students to take them, then that's it. Sometimes professor Agrawal will say to may, "well I have some students that want to take this but it conflicts, can we see if we can find another time?" We try to do that. Sometimes we'll put it at 8 in the morning, from 8 to 10 or 8 to 9, so there's never any conflicts because there are really no scheduled classes at 8 o'clock.

## Cryptoquote

#### MARCUS MICHELEN (BSE '14)

A Cryptoquote is an encoded quote. It is encoded such that each and every occurrence of a letter is substituted with a different

logic. It roughly translates to "cleverness-cleverness."

**Instructions:** Like Sudoku, each row and column must contain the numbers from 1 to 5. The number in the upper-left corner of the bolded shape made up of squares is the number you need to get by using the operation next to the number. For example, the "20x" rectangle in the bottom left corner can be filled in with a 5,4 or a 4,5.

KenKen

MARCUS MICHELEN (BSE '14)

KenKen is a Japanese paper puzzle by Tetsuya Miyamoto much like Sudoku, only it involves both math and

The unique solution to the last issue's puzzle is reproduced below. This puzzle contains only one solution, which will be released in the next issue.

4	5	3	2	1
5	4	2	1	3
2	3	1	5	4
1	2	4	3	5
3	1	5	4	2

-

1440×		15×	160×		16+	28×		504×
6+		_	9			19+		
			36×					
19+ 2-	2-		19+		24+			1-
		4				23+		
13+				7				3-
7÷		20+						
		_		5÷		12+		8
4÷		2-					18×	

letter of the alphabet. Using clues such as frequency of occurrence and placement, the original quote can be found. For instance, the word XBDIKCXXBZ could be deciphered to reveal the word LONGFELLOW.

E WX LXS YIJJXYG E YDHAA OG PGCGCOGPGW BXP

HLUSDELN. OIS E WXL'S SDELV HOXIS CU MXPV EL SDXYG

SGPCY. ES EY TIYS HY ZIANHP SX MXPV BXP SDG YHVG

XB JXYSGPESU HY SX MXPV BXP CXLGU - XPYXL MGAAGY

Last issue's solution:

I BELIEVE THAT IF LIFE GIVES YOU LEMONS, YOU SHOULD MAKE LEMONADE... AND TRY TO FIND SOMEBODY WHOSE LIFE HAS GIVEN THEM VODKA, AND HAVE A PARTY

RON WHITE

FOLLOW US ON TWITTER! twitter.com/cooperpioneer LIKE US ON FACEBOOK! Shortlink: goo.gl/YkmW1

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# "CULTURE CENTRAL" Cooper's Culture Show 2013

#### YARA ELBOROLOSY CE'14

On April 6th, hundreds of students filled the great hall for the annual culture, run by the South Asian Society. Sponsored by Dean Baker, the culture show demonstrates that Cooper Students can bring more to the table than their intelligence. The emcees for the night were once again Marcello Ricottone (ChE'14), Jonathon Ostrander (ME'14), Alexa Reghenzani (Arch'15), and Sharang Phadke (EE'14), entertaining the crowd between every act. The night started off with Poco a Poco, an instrumental group that just started up this year. They broke up their act into two parts, the first part composed of tubas, trombones, and trumpets while the second part composed of the string instruments. Playing classics that most of the audience recognized made the act a great way to start the night. Next up was SAS Girl Dance, a recurring act that manages to be different every year. They danced to a mixture of contemporary upbeat Bollywood music, which made the act enjoyable to listen to and watch. Afterword, the Cooper Union Breakdance club performed with some new recruits including, for the first time in my last three years here, girls.

Professor Lepek once again awed us by playing a classic on the piano, filling the great hall with beautiful music. Ballroom dance club danced elegantly, showing off their Argentina Tango and Salsa skills. Chinese Yo-yo, an act that started off as a one-man show, evolved into an eight-person group during the culture show. This allowed for many amusing tricks, such as passing yoyos to each other. To end the first half of the talent show, SAS performed the guy's dance, which was just as wonderful as the girl's dance. Once again, they picked upbeat music and kept the crowd in good spirits.

After a fifteen-minute intermission, the culture show started up again with the Cooper Union Gospel Choir, a singing group that just started up this year. Singing with beautiful, strong voices, Gospel Choir had the entire audience joining in, either by encouraging spectators to clap to the beat or sing along. Afterwards, CooperNova, another group that also just started up recently, entertained us with their dance moves. Dancing to songs from all over, CooperNova integrated cultures from members of their group into one great performance. Sons of Pitches, a male acapella quartet took over after CooperNova. They sang two songs, one more well known then the other, but did a wonderful job with both songs.

A new act performed by Mary Madison Mazur (CE'15) was up next, an Irish step dance called Kilkenny Races, a unique and wonderful act, showing us a great dance we may have never seen elsewhere. Coopertones came up next, our very own singing group. Celebrating their last performance with one of the senior members of the group, Coopertones sang beautifully as always. The dombra, a two stringed lute from Kazakhstan was played beautifully once more. Playing two well-known songs, Diana Yun (Art'13) filled the hall with elegant musical notes.

Chinese Student Association (CSA) performed a Chinese cultural dance, similar to the one performed last year. Their Chinese cultural dance fused ribbon and fan dance together with great light effects to create a beautiful performance. Last but certainly not least was the SAS group dance. Group dance was a very upbeat and fun performance to watch, made even more



(Photo credits to William Biesiadecki (ME'14))

### The unsung steer of this year's culture show was its integration of the three schools, across all years

enjoyable was the reaction the audience had when President Bharucha came out during the Group Dance and joined along. Ending the night with delicious food that, Culture Show 2013 was an amazing event. The unsung steer of this year's culture show was its integration of the three schools, across all years, into its acts.

This year was a shining example of how much better the performances will be because of it. If you missed the Culture Show, be sure to check out the videos all over Facebook.





