

# Undergraduate Research & Creative Activities (URECA)

<http://stonybrook.edu/ureca>

## Jason-Flor Sisante

Class of '07, Psychology major:  
honors thesis program (2005-2006);  
Minority Access to Research Careers (MARC) Program

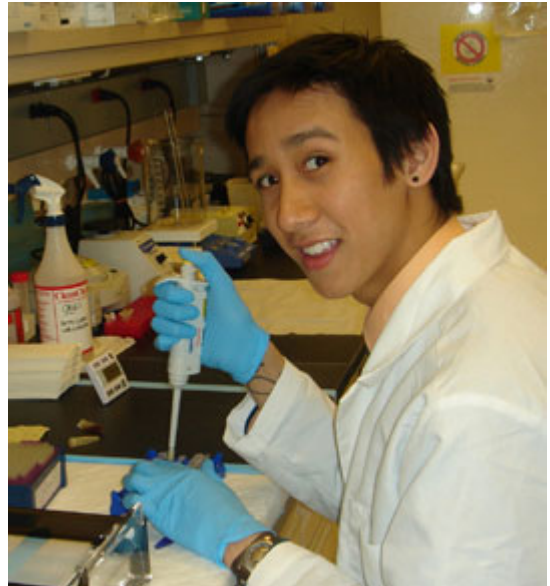
Research Mentor: Prof. Turhan Canli  
Psychology

## Researcher of the Month - April 2007

### About Jason

Handling drugged-up rats who occasionally bite, resolving technical difficulties in dispensing shots of juice to reward human subjects in a neuroeconomic study, presenting an honors thesis while gripped with pain, recovering from surgery— these are only *some* of the problems encountered and overcome by our April URECA Researcher of the Month, Jason-Flor Sisante! Self-described as a "mediocre" student who was transformed by [Dr. Anne Moyer's](#) introductory psychology class as a freshman and is now only weeks away from graduating and "leaving at the top," Jason-Flor has much to recount of his undergraduate research experiences.

During his five years as an SBU undergrad, Jason-Flor has had the privilege to work with three fabulous mentors, including [Dr. Turhan Canli](#) of [Psychology](#) (2005-present); [Dr. Peter Thanos](#) of [Brookhaven National Laboratory](#) (2002-2004), and [Dr. Michael Platt](#) of [Duke University](#) (Summer 2006). He first began working with Dr. Thanos as a high school student (while attending St. Anthony's HS) where he developed important lab skills. Later as an SBU undergrad, Jason-Flor continued to make the commute to BNL to carry out his research in the Thanos lab and got funding for this work during summers 2003 and 2004: he participated in BNL's [Science Undergraduate Laboratory Internship](#) (SULI) summer program funded by the Department of Energy (DOE) where he interacted with other undergraduate researchers from all around the country; in 2004, he was selected for the [Battelle Summer Research](#) award which funded investigation of the effects on locomotor activity in rats of methylphenidates, a drug used to treat Attention Deficit Hyperactivity Disorder (ADHD), a project he later presented at the [Annual Conference for the Society of Neuroscience](#) (Fall 2004).



In 2005, Jason-Flor joined the Canli lab on-campus where he did research for his honors psychology project (2005-2006) on the neurogenetics of impulsivity, titled, "An Endophenotype of Impulsivity: An Association between Polymorphisms of Dopamine System-Related Genes and Behavioral Inhibition." In summer 2006, Jason-Flor branched out into the investigation of neuroeconomics and social attraction while participating in a [Summer Research Opportunity Program \(SROP\)](#) and getting the opportunity to work in the Platt lab at Duke University. In addition to the Neuroscience 2004 meeting, Jason-Flor has presented at the [Annual Biomedical Research Conference for Minority Students /ABRCMS](#) (2005), the [Long Island Psychology Conference](#) (2006) and the on-campus [URECA Celebration](#) (2004-2006). He will be attending the [Cognitive Neuroscience Society's](#) May 2007 meeting with other members of the [Canli lab](#), a group which he thoroughly enjoys being around.

What's been an important factor in Jason-Flor's continuing growth and success? As Jason-Flor will tell you, mentorship, mentorship, mentorship! He hopes to be able to continue this tradition himself one day, upon completing a Ph.D. in neuroscience or biopsychology (and possibly an M.D.) and envisioning a future in academic research: "What I really like about the Canli lab is the idea of mentorship in the laboratory. I've been blessed before even going to graduate school with having a taste of what it is to research in academia ...Dr. Canli is definitely very devoted to his students ...Working with Eliza Congdon [the senior grad student in the lab] and Dr. Canli has just been tremendous. You get these great insights. And Eliza is very supportive, amazingly supportive.

I've never had anyone who is fighting in my corner as much as she is. . . I've been lucky in the Psychology Department to have great mentors."

Within the Psychology Department, Jason-Flor credits [Dr. Brenda Anderson](#), [Dr. Richard Gerrig](#), and particularly [Dr. John Robinson](#), the advisor who first helped him gain a position in Dr. Canli's group, for their outstanding support. He also articulates how positive an experience he's had as a [MARC Fellow](#) where he's benefited from interactions with Dr. Bynum, Dr. Maloney, and Judy Nimmo of the [Long Island Group Advancing Science Education/LIGASE](#). When it comes to the Stony Brook experience overall, you won't find a stronger advocate than Jason-Flor Sisante! Sometimes he has had to seek help with research projects from outside the boundaries of his department: a key to the solution in designing a leak-proof circuit to dispense liquid, for the 2005 Duke summer project, was based on the advice of Dr. [Thomas Hemmick](#) from our [Physics & Astronomy](#), of whom Jason-Flor emphatically states: "Dr. Hemmick is awesome! Part of why I want to teach classes on the undergraduate level is because of the way Dr. Hemmick taught his class. You want to be on time. You don't want to miss anything. Again, it comes to the whole idea of dedication to students. For an institution this huge, you would think that professors would not care about their students. But it's the opposite!"

Jason-Flor will be presenting at the undergraduate URECA [Celebration](#) for the last time on April 25th at the annual Psi Chi conference, a departmental/Psi-Chi organized symposium that's been held simultaneously during the URECA research poster event for years. Below are excerpts from Jason-Flor's interview with Karen Kernan, [URECA Director](#) .

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## The Interview

***Karen: You've had the benefit of working with different mentors—in both government and academic environments. Based on your experiences, do you think that there's a particular overriding quality that makes for a good scientist?***

*Jason-Flor:* When I think about Dr. Thanos, Dr. Platt, and Dr. Canli, what's very characteristic besides just how smart they are is that they have good foresight, and they are tremendously hard workers. . . These three lab mentors of mine, they would not quit on projects. They never viewed a setback as a setback. They viewed a setback as a development that is actually going to lead to the ultimate solution of the project. So persistency, definitely. . . the drive to keep going on . . . are things they all have in common. . . One thing I can take from all these experiences is to not give up. People would say that's the 'passion' aspect of research. You definitely have to enjoy what you're doing. When you do a real research project outside the context of being graded for a course, you learn just how hard it is to complete a project, and at the same time how rewarding it is.

***Let's backtrack a few years. You worked for quite a while at BNL in the Thanos lab, with support from the SULI and Battelle programs. How did you first find about the SULI program or that specific lab at BNL?***

Back in high school I used to go with my mother and my brother to Brookhaven, where they would have these summer tours. My mom knew a fellow psychiatrist who was doing a research project in the Thanos laboratory who suggested I volunteer in the laboratory to see if I'd like "a taste of science." So I started to volunteer part time in high school while I was at St. Anthony's. I'd handle animals for a few hours a week. . . It was in my freshman year that I was really learning techniques. That year, Dr. Thanos had told me the DOE had a summer internship called the SULI program. He advised me and the other undergraduates in the lab that year to apply. We all got in. . . By the time I was doing the research for Battelle, I had learned some pretty cool techniques and I was able, with Dr. Thanos's help, to design a pretty cool experiment. . . It was a pretty interesting study. It's one thing to have a rat on drugs, but to have a rat isolated in a box and tapping for cocaine hits was eye-opening . . . that was an experience!

Working at Brookhaven also gives you a glimpse of how it is to work for the government, and to see how much red tape there is when doing government research. I was always astounded by just how many forms Dr. Thanos had to fill out to get a protocol amended or approved or slightly changed. Still, Dr. Thanos really enjoys his job and the whole government aspect of doing science. As a result, he thrives in that environment.

***Tell me about your current area of research. How did you first get into Prof. Canli's lab?***

It's a weird dream come true. I remember being a freshman and the only class I seemed to do well in was introductory psychology. My teacher was Prof. Moyer and I thought, wow, this is really interesting! I really liked it better than anything else I was taking. Coming from high school, I didn't know too much about psychology. . . Then, one class, there was a special guest lecturer, Dr. Canli, and he had this fascinating presentation on the biological basis of personality, the melding of psychology and biology, and using these new techniques that have been developed. I just thought this was the most fascinating thing in freshman year.

The person who actually helped me to get into Dr. Canli's laboratory was Dr. John Robinson who is my academic advisor. He thought my experience at BNL was excellent, but he encouraged me to get some additional research experience where I'd be working with a graduate student — someone who was far ahead in the career but not so far removed from being an undergraduate. He had said all these great things about the Canli lab. He talked so highly of that laboratory, so I felt very lucky to get this opportunity. So for the last two years I've been working for Dr. Turhan Canli and Eliza Congdon, a graduate student. And it's been great!

Our project right now focuses on the neurogenetic basis of impulsivity which is kind of neat because it ties into everything else I've done at Duke and even at Brookhaven studying impulsivity. Basically, we're looking at impulsivity and the possible genes that may be related to it. We are looking at the normal population. Previous studies were focusing on drug addicts, people with gambling problems, people with eating problems, people with obsessive compulsive disorder. We know that impulsivity is tied in with all those disorders. But we don't have a picture of what really defines normal impulsivity in your regular normal mentally healthy person. So that's what we're trying to discover right now. That's what I've been working on for the past 2 years. I run human subjects on a computer task which tests for impulsivity, specifically behavioral inhibition. I collect genes via a cheek swab. About two to three times a semester, I go into the CMM building and we do PCR and electrophoresis and analyze the genes.

#### **Can you tell me more about the Honors program you've completed in Psychology here?**

The honors program I started in the spring of my third year when I joined the Canli lab. It's a great program. First semester was basically how to prepare what you want to write for your thesis, how to get the introduction down, how to write about materials and methods; and finally how to start or have a working idea of what the project was going to be for the next year. . . . You also start working on other stuff: how to apply to graduate schools, working on a personal statement, and what to look for in the next phase once you leave Stony Brook. At the end of the semester you have your introduction and methods completed. In the last semester you produce the final outcome, the thesis. I finished my thesis last year and given an oral presentation at Psi Chi.

#### **What have been your best and worst days of research?**

I think the best days are when you get over a block that's been hampering you for such a long time. I think the worst days are the ones where you think about that block, and you start doubting your ability, you start doubting your intellect, you start doubting everything that led you up to the point. . . . The worst days at Brookhaven were when I'd get bit by a rat and I'd think, "This stinks! I'm bleeding. I have all these rats on cocaine to deal with!"

#### **Did that happen often?**

It happened three times. You're the only person who handles the rats for your individual study, and they're supposed to be accustomed to you. But once they're on drugs, all the rules of animal handling and your knowledge of textbook animal behavior pretty much go out the window. But I think actually the hardest lesson I learned was about perseverance and that occurred last summer at Duke. I had a project which really had less to do with what I knew about neuroscience and more with computer programming and electrical engineering. It really pushed me to think outside of the problem. I would go through times of asking, "why am I here? " It was probably one of the most frustrating experiences I'd ever had.

#### **Tell me more about the Duke internship.**

It was a 10-week program. My professor was Michael Platt in the Department of Neurobiology. He does these really cool studies on reward physiology. He's part of this upcoming subfield in neuroscience called neuroeconomics. Along with his post-docs Benjamin Hayden and Robert Deaner and another summer intern, we devised a computer project where basically we had pictures of people and we assessed whether participants wanted to look at these pictures, and for how long they want to look at them. . . . It was the side project that involved the computer engineering and the electrical engineering. We wanted to replicate what they'd done with the monkeys in terms of a juice reward for the human studies. I had to design an apparatus where, if we had a task that involved a participant pressing a key, it would deliver a shot of water or Gatorade or whatever we had in the dispenser. And that was the most difficult thing to do. I had no computer background whatsoever in terms of actually designing and writing scripts or creating tasks via a computer language. I had to learn it. That was a headache in terms of the actual designing of the interface between the computer and the delivery pump. It involved some pretty sophisticated physics. One of the grad students in the Platt lab was proficient at electrical engineering and was helping me construct the circuit. . . . but even he had no idea why the circuit wasn't working. . . . It came to the point where I had to contact the software engineer for the program that we were writing, and I had to contact the engineers from our hardware company whose interface we were using. It ended up that I actually contacted my Stony Brook physics professor, Prof. Hemmick, who helped me devise a relay circuit that we eventually used. So that was actually the way we were able to think outside the problem. I didn't have a "Eureka" moment; it was basically trial and error every single day. . . . The way I was able to finally get this circuit to work was because I was able to contact all these people who little by little helped me troubleshoot every problem I was experiencing. Literally during the last week of the program, I was able to get a leak proof circuit to dispense liquid after writing the script with the computer program. All I could think was "Wow!" It was *amazingly* satisfying.

### **What was your mentor like?**

Dr. Platt was definitely a great mentor! He made it seem as if it was really feasible to actually have a life while running your laboratory, being a successful researcher. You were able to get the picture that you could have an enjoyable life in research and that you can have a fun time being in the laboratory while also making pretty cool discoveries. His style of mentorship is definitely one that I would love to emulate. When he wasn't travelling, he'd be one of the first to be in the lab, and get his coffee with everyone. He was always eager to look at everyone's data. He would actually spend hours sitting next to undergraduate students, sitting next to the post docs, looking at the data, devising new projects, talking about all the interesting aspects to factor in. And it was a really cool atmosphere to have your PI be in the trenches with everyone else. Also, one of the first things I noticed about the lab was that they had all these soccer balls and volley balls on the floor. When I asked about it, they just said, "you'll see." Then we had our first meeting. Everyone grabs a ball and starts tossing to each other as they begin to brainstorm. That's basically the way of thinking, getting brains activated. As you're tossing the ball around, you're tossing ideas. Every time they had a fresh idea, they would celebrate by having a good toss. The lab had a very cool, very quirky and very fun atmosphere.

It's funny, because I've lived almost 23 years on the Island. It was when I got to Duke that I was able to realize how lucky I was to be at Stony Brook, how big the opportunities are at Stony Brook. I think people take Stony Brook for granted. Some people in the SROP program at Duke had come from smaller institutions. And some hadn't had the opportunity to do research before, and they felt a little out of place. When I was at Duke, though, I definitely felt well prepared. Even though I didn't have the background in computer science and electromagnetic physics that I needed to easily complete my project, what I learned from Stony Brook and from my past research experiences helped me to get through. So when I came back here in the fall, I definitely had a different mindset. I felt lucky.

### **Do you have any advice to offer to other students about getting involved with research?**

It's do-able to actually have an enjoyable undergraduate career doing research while studying and preparing for life outside of Stony Brook. . . . And my advice is put yourself out there, let people know that you want to do research, that you're serious about your research, that you're open to having your eyes being opened. That's what doing research will do. It's not a job where you just go in 9 to 5 and you have to do a spreadsheet, or balance some books. Your job is to discover. Your job is discovering even the smallest things. . . . It's been my experience — and I've heard it from other students too — that once you approach PIs saying, "I'm interested in your laboratory" , the PIs feel so flattered. And even if they don't have room in their laboratory, they'll recommend you to a colleague who might have room. I've never heard a bad story about a student at Stony Brook trying to find a research mentor. The great thing about the PIs here is that they understand that you're a student, so they're always willing to help you in terms of doing better for your classes. They're always willing to help you make whatever it is you need to do to get to the next level. They know that that's your priority.

### **Let's talk a little about the conferences. You've presented at the on-campus URECA Celebration. But what it's like going tonational meetings?**

Neuroscience was the first national meeting I went to. I was presenting the research I had done for the Battelle fellowship and it was very nerve-wracking. We were trying to finish the study, and we had the poster printed 24 hours before our flight to San Diego. I was very nervous of course. I had no idea what to expect, but I always had between two to five people at my poster. The first person to talk to me happened to be an investigator who was working on a related project. He had come with all these criticisms of the project: "why did you do this, why did you do that? I disagree with what you're saying what this graph says." But I was able to hold my ground. I'm proud of that. He was there for at least 15-20 minutes, bashing my poster. But at the end, he looked at my tag, and asked, "how many more years do you have at Stony Brook before you pass your dissertation?" When I replied "I'm only an undergraduate," he was really sorry that he'd been so harsh as he'd thought that I was a graduate student! During the course of the next two hours or so, I talked with lots of other faculty members from other institutions. They seemed impressed that I was only an undergraduate and told me, "Once you are thinking about grad school, look at my lab. Or think about our institution." So even though it started off as nerve-wracking and I felt so small and insignificant, I ended having a very flattering experience. It ended up that I was being recruited for other people's laboratories and programs. That was the fall of 2004. That was definitely a rewarding experience.

When I went to the ABRCMS meeting, it was more laid back, more peer-oriented. That was really cool to see all my peers having these really great projects and everyone having a good time.

### **How do you find the on-campus URECA research Celebration? I know you've presented several times, and will be presenting on April 25, 2007!**

Those are so much fun! I have my collection of t-shirts of course! Last year I had a blast because I did the Psi Chi oral presentation, and then we had a poster presentation downstairs in the SAC. It was really satisfying because this was the URECA where everyone in the Psych Honors Program was presenting their work. We'd been working on our thesis together for 3 semesters, and it was finally our time to show off our hard work.

There's a bit of a story though. . . A week before URECA, four or five days before the Celebration, I had this horrible pain on the right side of my abdomen. It was horrible. I was in horrible pain and I suspected appendicitis. During the weekend, I ended up having to go to the Emergency Room, and get an emergency appendectomy. All I kept thinking was: "I have to present my thesis in four days. I can't be sidelined." So I go in for surgery and two days before the presentation, I said to myself, "I'm not missing this, I don't care, I'm going against doctor's orders because this is a year and a half worth of work." The day of the Celebration, my mom drops me off and I still actually had my hospital wrist tags, and I'm limping in so much pain. I go to the elevator in the SAC, arrive, and everyone is looking at me as if to say, "What are you doing here? You should be in bed." I tell them, "There's no way in hell I'm going to miss this." So I'm standing there for my presentation, in pain, holding my sides. Those were definitely 15 very painful minutes of my life. But that was very rewarding to complete that, have that done, and then to go downstairs and see the other posters and everyone else's presentations. That was definitely worth the pain and the grief.

**This year the whole URECA Celebration event is being sponsored by HHMI and LIGASE. You're a part of the MARC program which is also run by LIGASE. What's the MARC program been like for you?**

Amazing! Again, coming down to mentorship, Dr. Bynum, Dr. Maloney, Judy and everyone there in the office is so helpful. When you hear about advocacy for minority research, they're definitely the torch-bearers for that. They go out of their way to help you in whatever it is you're trying to do. Every time I got to a conference, I go to Judy with this and that. She even helped me with booking ABRCMS with a travel agent. She's a sweetheart, she's awesome. Dr. Bynum and Dr. Maloney give really good feedback on everything. Dr. Bynum always wants us to do our best. He believes in each and every student so much.

I have to say that I am so thankful for all the people at Stony Brook, Brookhaven and Duke who have helped me out. My three lab mentors and labmates, as well as Dr. Robinson, Dr. Anderson, Dr. Gerrig, Dr. Moyer, Eliza Congdon, and every one at LIGASE and MARC have all been extremely supportive.

I had Dr. Robinson, Dr. Gerrig, and Dr. Bynum look at my grades after every semester. They would say "good but you can do better." Finally this semester, I show my grades to Dr. Bynum, and he said, "Good job on this semester." Dr. Gerrig and Dr. Robinson said the same thing, because I finally got a 4.0. I finally did it — I reached my potential. At the end of talking to each of them, what they all said was, it wasn't for me to do it for them, it was for me to do it for myself. Once I earned that 4.0, that felt awesome. I was a mediocre student my first two years, but I'm leaving this university on top. It makes me feel that I'm taking as much as I can from Stony Brook.