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Student Profile: Chris Van Acker, STAC

From Monstrous Bodies to the Whedonverses and Beyond: An Account of Undergraduate Research

By Christopher Van Acker, Senior, STAC

I began my undergraduate research career during the fall of my Sophomore year. I had just changed my major to Science, Technology, and Culture (STAC) after a year of learning that computer science was not my calling. Excited about my new major, I took a semester full of Literature, Communication, and Culture (LCC) courses that included Professor Lisa Yaszek's Science Fiction course. She was in the process of planning a symposium on monstrous bodies in science, fiction, and culture that would be held the next semester. As a result, she gave us the option to write our final paper to be considered for presentation at the symposium. I thought that it was a great and relatively rare opportunity so I started brainstorming paper topics. My proposed topic was contemporary vampire narratives and their similarities to the cyberpunk movement of the science fiction genre. In order to demonstrate a tradition of cyberpunk vampire narratives, I examined Anne Rice's novel *Interview With The Vampire* as an earlier, precursor text and the films *Blade* and *Underworld* as my prime examples. Professor Yaszek sup-

ported the topic and offered sources to facilitate my early research on the topic.

I worked with Professor Yaszek in her Science Fiction Lab during the Spring semester to revise my paper for presentation at the symposium. Working with the Science Fiction Fellows gave me a chance to discuss my paper with upperclassmen who offered different perspectives and expertise that improved the structure and content of my paper. Professor Yaszek also worked with each of the student speakers to make sure we were prepared and comfortable with presenting our papers.

The symposium was a wonderful experience and my participation granted me opportunities I would never have had otherwise. My presentation was the first time I had participated in a panel discussion and helped to improve my confidence for public speaking. The presentation also gave me something to discuss with keynote speaker Dr. Rhonda Wilcox on the second day of the symposium. As co-editor of the online academic journal *Slayage* and the leading scholar of Buffy Studies,



From left to right: Chris Van Acker and Dr. Lisa Yaszek

Dr. Wilcox was particularly interested in how my topic would relate to *Buffy the Vampire Slayer* and encouraged me to consider attending the *Slayage* conference that would be held a little over a year later. I continued independently researching the topic in my free time in the months following the symposium and doing so enabled me to present different versions of the research at two conferences. Under Professor Yaszek's guidance, I submitted a proposal to be one of Georgia Tech's representatives for the Atlantic Coast Conference (ACC) Undergraduate Research Conference being held at Clemson in April 2006. I was also invited by Dr. Wilcox to

Undergraduate Research News

From Monstrous Bodies ...cont'd from page 1

submit a proposal to speak at SC2: The *Slayage* Conference On The Whedonverses* at Gordon College in May 2006. I was accepted for both conferences and worked with Professor Yaszek to tailor my presentations for the multidisciplinary undergraduate audience of the ACC conference and the professional audience of SC2.

The ACC Undergraduate Research Conference allowed me to establish myself as a scholar among my immediate peers and represent the humanities at Georgia Tech. Aside from the benefit of presenting to my peers, I was able to engage in discussion with other humanities researchers about our research. The casual conversations were interesting and incredibly helpful because they provided feedback on ways to better articu-

late your topic and the strengths and weaknesses of the argument and presentation. I was also able to demonstrate that Tech is equally capable in scientific and humanities research to other universities as well as my fellow Georgia Tech representatives.

SC2: The *Slayage* Conference on The Whedonverses allowed me to build on my experience from the ACC conference and establish myself as an emerging scholar in my field. As one of two undergraduates accepted to present at the professional conference, I had the privilege of watching presentations by well respected and published scholars in my field and received incredibly useful feedback on my research and presentation skills. I also had the honor of being invited to contribute to

two critical anthologies on the television shows *Grey's Anatomy* and *Nip/Tuck*. Attending the conference opened wonderful, unexpected opportunities to further my career as a scholar and was made possible by the President's Undergraduate Research Award (PURA) I received for travel expenses.

The invitation to contribute a paper on *Nip/Tuck* to be considered for publication gave me direction for my senior thesis and made a foundation for future research. In accord with the general topic of the anthology, I chose to write my senior thesis on subversive gender, sex, and sexuality identity politics and representations in the series *Nip/Tuck* under the guidance of Professor Yaszek. The topic has encouraged me to research multiple fields of scholarship and critical theory to best document the politics of the series. I expect

that researching and utilizing this variety of subjects and theory will prove to be highly beneficial during early graduate school career. Furthermore, my thesis research will serve as a foundation for my work next semester as a Science Fiction Fellow. I will be extending my current research to investigate Queer Science Fiction (science fiction that questions traditional ideas of gender, sex, sexuality, and reproduction) in a PURA funded project for the Science Fiction Lab.

* The term 'Whedonverses' refers to the original societies and mythologies created and strictly maintained in the works of Joss Whedon. It is a derivative of 'Buffiverse'—the fan term for the characters, world, and mythology created in *Buffy the Vampire Slayer* that carried over into the spin-off series *Angel*. The development of another universe for the series *Firefly* and its film counterpart *Serenity* facilitated the coining of 'Whedonverses' to describe these projects in scope and as distinct creative entities. A broader interpretation of the term can also include any creative work of Joss Whedon, such as his recent contribution to the *X-Men* franchise.

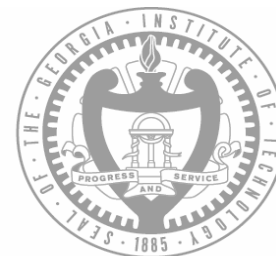
Congrats Spring PURA Winners!

In Fall 2002, the President's Undergraduate Research Awards (PURA) were established to encourage and support undergraduate research opportunities for all majors. The program continues to be a success because each semester, UROP sees an increase in the number of PURA applicants. For Spring 2007,

ninety- six students were awarded salary funding and nine received travel awards which provide full or partial funding for trips to present their work at professional conferences. Interestingly enough, a growing number of applications for spring were seen from the Ivan Allen College, the College of Management,

and even Math. For a complete list of Spring 2007 awardees, their mentors, and projects, please visit <http://www.undergradresearchh.gatech.edu/funding.php>.

Also, check the website for upcoming information regarding Summer 2007 PURA application due dates.



The Presidents Undergraduate Research Awards up to \$1500 in research salary and fund up to \$1000 to present work at a professional conference.

Faculty Corner

Resources and Tips for Faculty mentors of undergraduate researchers will be presented in this section of each newsletter.

Do you have a grant from the National Science Foundation? If so, funding is available for supplements to your existing awards to support undergraduates who will be involved in the research project in meaningful ways. In FY2006, NSF expected to invest in approximately 1,600 new Supplement awards (pending availability of funds). According to NSF Program Solicitation NSF 05-592:

“An REU Supplement typically provides support for one or two undergraduate students to participate in research, as part of a new or ongoing NSF-funded research project. However, centers or large research efforts

may request support for a number of students commensurate with the size and nature of the project. REU Supplements are supported by the various disciplinary and education research programs throughout the Foundation, including programs such as Small Business Innovation Research (SBIR).

REU Supplements may be obtained in either of two ways: (1) Investigators holding an existing NSF research award may submit a request for supplemental funding. For guidance, contact the cognizant program officer for the NSF grant or cooperative agreement that would be supplemented. (2) Proposers may

include an REU Supplement activity as part of a new (or renewal) research proposal to NSF. For guidance, contact the program officer who manages the research program to which the proposal would be submitted.”

Proposal deadlines and goals for supplemental grants also vary by research program, so contact program officers within the specific NSF program area of your work for additional information.

Main goals of the program include expanding “expand student participation in all kinds of research - whether disciplinary,

interdisciplinary, or educational in focus - encompassing efforts by individual investigators, groups, centers, national facilities, and other” (NSF web site). The program also “seeks to attract a diversified pool of talented students into careers in science and engineering” (NSF web site).

Visit the NSF website listing the specific for additional information on what types of information should be included in your proposal:

<http://www.nsf.gov/pubs/2005/nsf05592/nsf05592.htm>

Mentoring Workshop

ATTENTION FACULTY, GRADUATE STUDENTS, and POST-DOCS!

Are you a faculty member who is currently or will be supervising undergraduates in a research setting? Are you a graduate student or post-doc who is currently or who will be working with undergraduate students in research settings? If so, you should make plans to attend a workshop on workshop on mentoring undergraduate researchers:

Mentoring Undergraduate Researchers: A Workshop for Faculty, Post-Docs, and Graduate Students

Tuesday, January 23, 2007

11:00am-1:00pm

Wardlaw Center, Gordy Room

In order for undergraduate students (and graduate students!) to be successful researchers, a positive working relationship between the research mentor and student is critical. In fact, one of the most oft-cited comments by undergraduates is that “finding a good mentor” is one of the

most important factors in helping them complete a successful research project.

Join us for lunch and an interactive workshop that will focus on effective strategies used in the mentoring of undergraduate researchers. We will hear from fellow Georgia Tech faculty and graduate students who have consistently mentored undergraduate students with excellence, and we will engage in focused discussion on how to incorporate new ideas and methods into your mentoring. The workshop is open to fac-

ulty, graduate students, post-docs, and other appropriate Georgia Tech staff who interact with undergraduate or graduate students. Both veterans in undergraduate research mentoring and those new to the experience are welcome!

To register, visit: <http://www.cetl.gatech.edu/services/faculty/mentoring.htm>

Workshop sponsored by the Undergraduate Research Opportunities Program (UROP) and the Center for the Enhancement of Teaching and Learning (CETL).

Undergraduate Research News

Student Profile: Amanda Bryson, NRE

Amanda Bryson didn't realize that her outstanding work in Dr. Zhoumin Zhang's heat transfer class would lead to a research assistant position. Dr. Zhang recruited the Nuclear and Radiological Engineering major to work with him and graduate student Hyunjin Lee in his research on "The Effects of Anisotropic Roughness on the Emissivity of Silicon Wafers". It is important to know the emissivity and anisotropic properties of silicon so that it can be used in small electronics and technological applications such as microprocessors. In order for silicon to be processed and used in such applications, it must be heated at the right temperature.

One of Bryson's role in this project was to take temperature measurements of the sili-

con wafers (without touching the silicon) to obtain accurate readings. Her other duties included calibrating instruments and setting up the equipment used in the experiments and reading literature reviews. Bryson was humbled by every aspect of her research experience and was willing to perform all tasks assigned whether big or small. She advises students interested in doing research to "bear in mind that you're learning more than you think, even on days that you feel like you're just reading or doing fairly mundane things."

Under Dr. Zhang's direction, Bryson learned a lot about research methods, using databases, interpreting papers, applying statistics, and writing proposals and abstracts.

When asked about her experi-

ence working with Dr. Zhang, Bryson stated that Dr. Zhang "made me feel like a part of the team. He encouraged me to attend the same seminars that the grads went to. He treated me like an equal in the group." Bryson added that Dr. Zhang also encouraged her to apply for the President's Undergraduate Research Award (PURA), and she received this funding for her research. She wrote a paper based on her research (she was the second author of the paper) and presented it at the 16th Symposium on Thermophysical Properties at THERMO International in Boulder, CO this past August. Bryson also received a PURA travel award to present her paper at the symposium.

When Bryson isn't doing research, she spends her leisure time doing photography,

arts and crafts, and attending plays. On-campus extracurricular activities include the Nuclear Society, DramaTech's "Let's Try This", and the Lutheran Campus Ministries. Bryson started a small knitting-for-charity project at the Lutheran Center and they're currently looking for a charitable organization to donate their work. After graduating from Tech this December, Bryson hopes to find a position that will allow her to use her NRE degree and research experience and perhaps later pursue an advanced degree.



ACC Undergraduate Research Symposium

The Atlanta Coast Conference (ACC) sponsors an annual symposium for undergraduate researchers in order to showcase the intellectual and research talent of the conference's schools. Last year Georgia Tech supported 17 students who attended the conference at Clemson University. The conference is an

opportunity for undergraduate students to present their work in either an oral presentation, poster session, or through a fine arts presentation.

Students at last year's conference enjoyed a luau, plenary speakers on various topics of interest, and were able to attend a graduate school infor-

mation fair where ACC schools recruited for their graduate programs. Several of our students commented that the most enjoyable part of the conference was being able to attend presentations from students from other colleges and in other disciplines.

Each year the symposium

rotates between the conference schools. The 2007 conference will be held at the University of Virginia in Charlottesville, VA, April 12-14.

Watch the UROP website and your email for information on how to apply to represent Georgia Tech at the conference. Questions? Email urop@gatech.edu.

Undergraduate Research: a Key Component in Grad School Admission Application

The Office of Undergraduate Research interviewed Dr. Evans Harrell, Associate Dean of the College of Sciences and former graduate coordinator for Math, Susan Bowman, Academic Coordinator of Graduate Programs for Materials Science and Engineering, and Michael McCracken, Graduate Coordinator for College of Computing. These individuals serve (or have served) on the admissions committee of their graduate programs and here's what they had to say about the importance of undergraduate research and the graduate school admission process.

U/G Research: *Is undergraduate research experience an important factor when evaluating applications for admission to grad school? Please explain.*

EH: *Absolutely. A doctoral degree is a research degree, and there can be no better indication about an applicant's readiness for that than the applicant's performance in research in the past.*

SB: *Yes, the admissions committee considers undergraduate research experience when reviewing an application for graduate school. Applicant's generally request letters of reference from their instructors and/or research advisor. The scholarly characteristics rated in these evaluations include overall scientific and intellectual abilities. Having worked in an undergraduate research environment would, obviously, provide a good basis for these recommendations.*

MM: *Yes, there are many reasons, but I will list but three. The first is the opportunity for a student to get a taste of what research is really about. Research*

is in many ways quite different from classes and studying, and if a student hasn't had a chance to try it, how do they know if they do or do not want to do it? Many quite bright students don't consider research careers because they develop a misconception of what faculty do (teach) and don't consider the other side of being an academic, or just as importantly aren't even aware of industrial research. Additionally, students get a chance to work with a faculty member, one on one. That typically, is a great experience for the students. With the taste, it gives students yet another career choice, as well as an opportunity to understand why one would go to graduate school (beyond the purely financial aspect). The last item is when I evaluate applications of graduate students, the undergraduate research experience, and just as importantly, the letters of recommendation that should come from faculty they worked with, are very valuable in assessing a student's potential in graduate school. The faculty member with whom the student interacts with can offer a more complete

evaluation of a student's potential than a faculty member who had the student in class.

U/G Research: *What other factors are considered when evaluating applications? On a scale of 1—10 (1 being least important, 10 being most important), where does undergraduate research fall on the scale?*

EH: *Letters of recommendation from people who understand in depth the students academic qualifications. This could include the undergraduate research advisor. Rating scale- 10; A record of taking and excelling in challenging courses in the specialty. Rating scale- 10; The personal statement if it gives evidence of motivation and perseverance. Rating scale— 9; Evidence of creativity such as undergraduate research experience. Rating scale— 9; GPA— but only really valuable for advanced courses in the specialty. Rating scale— 8; GRE Subject Exam. This is particularly important if the undergraduate program is not known to be strong. Rating scale— 8; Reputation of undergraduate institution. Rating scale— 7; A match between the interests of the student and the*

needs or strategic goals of the department. Rating scale— 7; GRE General Aptitude Exams. Since most people applying to ambitious graduate schools have good general aptitude, this only a crude filter. Rating scale— 5; Extracurriculars. Rating scale— 3

SB: *Many factors are considered when evaluating an applicant's file. Some of the most important factors being GPA, GRE scores, and their undergraduate institution. These factors would rate on a scale of 10. While undergraduate research is important, it would rank 5.*

MM: *For a PhD or MS applicant, the undergraduate research is a 10, when the letters written about the student come from faculty who have done research with the student. For both cases, the other factors are grades— 9, GRE scores— 8, publications (likely to have come from undergraduate research)— 7, and letters from faculty who may have been less directly involved with the student— 6.*

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Undergraduate Research News

UROP's Spring Workshop Series

Funding Your Research with the President's Undergraduate Research Award (PURA)

Thursday, February 1, 2007,

4-5pm. Piedmont Room, Student Center

led by Dr. Karen Harwell, Director, Undergraduate Research,

Writing Research Abstracts

Thursday, February 8, 2007,

11am-12noon, Piedmont Room, Student Center

led by Dr. Amanda Gable, Director, Graduate Fellowships,

Scholarly Databases – a researcher's path to smart discovery!

Thurs., February 15, 2007,
4-5:30pm, Homer Rice Center, Georgia Tech Library

led by Ms. Lori Critz, Georgia Tech Library

Uncovering complementary and background information to your research project is also important for undergraduate students. This session will cover the basics of developing search strategies, searching the GT databases and using SFX/FindIT@GT to locate items in electronic and print formats. Get an edge on your research by learning to use these powerful tools!

Space is limited, please register by emailing urop@gatech.edu. Please register by February 8th!

EndNote - Bibliographies Made Easy!

Thurs., February 22, 2007
11am-12:30pm Homer Rice Center, Georgia Tech Library

led by Ms. Lori Critz, Georgia Tech Library

Frustrated with preparing bibliographies and managing reference lists? Instead of spending hours typing bibliographies, or using index cards to organize your references, do it the easy way—by using EndNote! Attend an introductory training session on using EndNote - the bibliographic management soft-

ware available to the Georgia Tech community.

Space is limited, please register by emailing urop@gatech.edu.

Please register by February 15!

Research Ethics

Wednesday, March 7, 2007,
4-5pm

led by Dr. Robert Kirkman, Assistant Professor, Public Policy, and Dr. Julie Swann, Assistant Professor, ISYE

Eye-catching Research Posters

Tuesday, March 13, 2007,
11-12noon

led by Dr. Lisa Rosenstein, Communications Specialist, MSE and CEE

Research Option Update

Interested in a long-term research experience? Thinking of graduate school? Looking for that unique undergraduate experience? Then, the Research Option may be for you. Students participating in the option complete nine hours of research, complete a thesis writing course, and complete an undergraduate research thesis or comparable paper for publication in a journal.

Schools who currently offer the plan include:

- Aerospace Engineering
- Biology
- Chemical and Biomolecular Engineering
- Computational Media
- Computer Science
- Earth and Atmospheric Sciences
- Electrical and Computer Engineering
- Materials Science and Engineering
- Mathematics
- Psychology
- Science, Technology, and Culture (pending Jan. 2007 approval)

For additional information and to download a copy of the Research

Option brochure visit:

www.undergradresearch.gatech.edu/research_option/. If you are planning on completing the plan, please signify your intent at the website so that your school can contact you. If you do not see your school listed and are interested, please contact the UROP office or your school's Undergraduate Coordinator.

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U/G Research: If there was a decision to be made among two applicants, one applicant has undergraduate research experience and the other doesn't, would the applicant with undergraduate research experience be selected over the applicant that has no undergraduate research experience?

EH: Yes, assuming the applicants are otherwise similar.

SB: No. See question #2. A student is admitted based on many factors. A student with high GPA and GRE scores from a top-ranked university may gain admission over someone with lesser credentials.

MM: That question has to be answered carefully. Without

concern that there is never a pair of equal applicants, and ignoring any type of perceived or real bias in the selection process, then I would say the undergraduate research applicant would win out. Noting that the research has to be of a level of quality that is expected of an undergraduate researcher.

U/G Research: What percentage of your graduate students had research experience as an undergraduate?

EH: Without systematic statistics, I would guess more than half.

SB: We believe approximately 80% of our graduate students had research experience as an

undergraduate.

MM: I can answer less exactly by saying about 90% of our PhD applicants had some type of research experiences, and 50% of our MS applicants had the same. Noting that, our undergraduate research opportunities are more extensive than at other schools, so that something we may not call research, could be called an undergraduate research experience at another school.

U/G Research: Please share any other comments that you think would be helpful in validating the fact that having research experience at the undergraduate level gives a student that extra edge when applying to graduate school.

EH: Undergraduate experience not only helps a student get into a good graduate school, it also helps pay for it. The NSF Graduate Fellowship Program and other prestigious fellowship programs regard undergraduate research as a one of the best indications of a student's readiness for graduate school and likelihood of succeeding.

MM: Undergraduate research, if done properly, is the factor that pushes an applicant ahead of another when applying to a PhD program.. It is less of a factor, though still important, when a student applies to an MS program with no intentions of continuing to the PhD.

Student Advisory Board Update

The newly formed Student Advisory Board for Undergraduate Research (SABUR) met twice during the Fall 2006 semester to discuss undergraduate research and begin working toward implementing new ideas for programs and resources for students interested in research. The group has divided into three sub-

groups (Publicity, Programs, and Resources and Relations). Publicity subgroup members are assisting with articles for the newsletter and other promotional activities. The Programs subgroup is working on events to showcase undergraduate research, and the Resources and Relations subgroup is discussing ways in

which students and faculty can interact to discuss and promote research. Watch for news early in Spring 2007 on new initiatives developed and implemented by the group.

If you are interested in participating in the group next semester or volunteering on one of the subgroups, please contact the

Dr. Karen Harwell, Director, Undergraduate Research at Karen.harwell@carnegie.gatech.edu. Freshman, sophomores, and juniors are particularly encouraged to become involved!

Undergraduate Research
Opportunities Program (UROP)
Georgia Institute of Technology
MC 0740
Atlanta, GA 30332-0740
Phone: 404-385-7325
Fax: 404-385-6940
E-mail: urop@gatech.edu
www.undergradresearch.gatech.edu

News from the Director:

If you're like me you can't believe that it's already the end of the Fall semester! Our office stayed busy with the start of the UROP workshop series, the inaugural meetings for the Student Advisory Board for Undergraduate Research (SABUR), a record number of PURA applications and awards, an appreciation event for our faculty advisory group, and continued work with the faculty across campus on undergraduate research initiatives.

Plans for this coming spring prove to be just as eventful – from our Spring Symposium, new offerings in our workshop series, the ACC undergraduate research conference, and undergraduate research in the East Commons (stay tuned!). Faculty, graduate students, post-docs, and program staff should plan to attend the January 23rd workshop on Mentoring Undergraduates in Research. Undergraduates should plan early for summer research opportunities since application deadlines for most programs are in February and early March. (Look for new links on the website for various programs).

I hope that you are enjoying the newsletter and its information. But, more importantly, are getting a glimpse at the diversity and excellence in the research our undergraduates are undertaking with their faculty mentors!

Happy Holidays from the UROP program!
Karen Harwell

New Web Updates —Check It Out!

**Georgia
Tech**



Undergraduate Research Opportunities Program



We're on the Web!

www.undergradresearch.gatech.edu

New Web Updates

Look for additional resources related to Summer, International, and Institute-wide Opportunities on our website. Just click on the Research Opportunities button on the website for additional information.

WE WANT TO HEAR FROM YOU!!!

We are always looking for subject matter for our newsletter, including suggestions of students and faculty to profile and good news to share about student achievements, publications, and presentations. If you are interested in writing for the newsletter or have suggestions for future profiles, please contact us at urop@gatech.edu.