

Department of Computer Graphics Technology
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COMPUTER GRAPHICS TECHNOLOGY NEWS

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FROM THE DEPARTMENT HEAD



As the fall semester is now well underway, there are a number of exciting things going on within the CGT department. First, we are up to 620 undergraduate students and 68 graduate students. In the last 5 years we have nearly doubled our enrollment. In addition, our students come to us with higher test scores and higher high school GPAs than they have ever had. We have grown our faculty ranks as well – we are now up to 34 faculty members, with a new one to start next year. As a result, we are examining our strengths and opportunities as a department. What should we be teaching? What topics should we retire? What sorts of technologies do we need to provide to our students, and what do they come to us knowing already? As the Fourth Industrial Revolution dawns upon us, it is an exciting time to be in the Computer Graphics Technology Department. We are looking at ways to teach our curricula to and from West Lafayette and our statewide locations in Richmond and New Albany. We are evaluating our seven academic majors to establish a first-year core curriculum for our students, not only as a way to give everyone a firm foundation, but to help develop a sense of community and culture within the department as well. To continue with that theme of community and culture for a moment, the CGT department is planning a series of alumni events during the school year as well. Please watch your email and social media for announcements about dates and locations. Finally, if you find yourselves near West Lafayette, please stop by to say hello and see all of the new things that are happening in the department. You are always welcome!!

DR. AUSTIN TOOMBS, PROFESSOR



Austin Toombs has been an assistant professor in the Department of Computer Graphics Technology (CGT) since August of 2017. After finishing his PhD, he was a postdoctoral associate from 2016 to 2017 in Open Lab at Newcastle University in Newcastle upon Tyne, England where he returned this summer to co-lead the Digital Civics UK Study Abroad for the second time. He was able to take students interested in learning about digital civics to Open Lab to learn from the digital civics experts there.

In addition to working on a handful of ongoing projects with collaborators from other universities, Toombs has also been running a summer DURi (Discovery Park Undergraduate Research Internship) project with three undergraduate researchers. “We’ve been studying an online platform for building small communities of gamers to help them find people to play with.” They spent part of the summer conducting interviews and will be submitting an article for publication this Fall.

“Through my research about the impact that digital technologies have on how communities form and are maintained, I’ve developed a theory that the kinds of relationships that people can develop through certain platforms can be very limited or very open depending on the design of those services.” Toombs explained that even specific decisions about the language used for whether someone is a “friend” or a “follower,” or the series of actions one needs to perform to connect to another person on that platform, can have a huge impact on the way that people understand the relationships they have with other people.

“In other words, platforms filter out some aspects of these human-to-human relationships and highlight others. A lot of my research is about figuring out what is being filtered and what is being highlighted and, based on that, how we can design platforms and services to give people the relationship experiences they actually need.”

In addition to the projects listed above, Toombs is also continuing to study co-living and co-working spaces, along with one of the Polytechnic postdoctoral researcher associates, and continuing to design research projects that investigate how people form communities and strong interpersonal relationships through various platforms and technologies.

This fall, he will be teaching the 4th studio course in the undergraduate UX Learning Studio sequence, which focuses on “UX Strategy,” as well as the 1st studio course in the graduate UX studio sequence. “In Studio 4, we get to pull in expert practitioners who can describe to our students what it’s like to advocate for user experience design approaches to understanding problems in their future careers.”

Toombs describes that many UX designers are in jobs where they have to spend time describing that value to their employers, and since the field is still relatively new, this experience is very valuable. The 1st studio for the grad students will be a little more playful, where he will get to introduce some of the foundational skills and approaches to deconstructing and re-building solutions through a “user experience” lens. Toombs is very excited to start another year at Purdue CGT.

DR. JORGE CAMBA, PROFESSOR



This summer, Purdue Department of Computer Graphics Technology professor Jorge Camba was busy teaching and completing research. In the past year that Camba has been with the department, he has started teaching a virtual reality course for product development.

“This graduate-level course provides an opportunity for students to explore how virtual and augmented reality technologies are used in product development and engineering design and manufacturing scenarios”, explained Camba. Taught this summer, the class covered the various facets of that technology, analyzed recent developments, and identified future research directions.

“Some of the major topic areas include mixed reality technologies and their use in the various stages of the product lifecycle (e.g., conceptual design, modeling, design reviews, simulation, etc.), VR for Virtual Manufacturing, multimodal user interfaces in virtual environments, and collaborative mixed reality environments. We also have guest speakers from various engineering firms joining us to discuss how they use this technology and how it impacts their workflows and processes.”

The goals of this class was to expose the 7 participating students to current trends and research in the area of mixed reality technologies. Camba acknowledged, “The course has a significant research component, but there are also hands-on projects such as creating immersive product visualizations and developing prototypes for haptic feedback that demonstrate the various uses of VR/AR technologies in industrial environments.”

Alongside teaching, Camba completed a significant amount of research during the summer. “Some of my recent research has focused on the digital representation of the product as a native parametric model to facilitate design reusability, communication, and ultimately optimize product development.”

His work combines analytical and computational techniques to evaluate model complexity and procedures to determine quality indicators in digital models.

Camba has no limit to his interest in the field. Because of his passion for this technology, he is happy to learn about anything, especially as the field continues to progress. He wants to be a part of that innovation.

“In our field, like many others in technology and engineering, research and development move very quickly. We have to keep up with many things, and new challenges and opportunities are constantly appearing. In this regard, there is no shortage of material I would like to get involved with. “

ALAINA CREAGER, ALUMNA



Alaina Creager, a technical program manager at Microsoft, was in the first cohort of students to graduate from the new UX Design program in Purdue’s Department of Computer Graphics Technology. She graduated in 2018 with a double major in Web Design and Development and UX Design.

Creager recently started this new role inside an innovation studio at Microsoft. “I wanted to do something more challenging as a designer and leader.” Her previous roles as a full-time UX designer gave her a solid foundation, but she was ready to take on the challenge of combining project management with UX design. Her background in UX design has allowed her to use her understanding of the design process and apply it to this new role.

Creager explained that the industry work she does now directly relates to the processes and approaches she began learning in her classes at Purdue. “The UX program at Purdue CGT is designed well because it is reflective of how many businesses consider and implement the design process.” Her background in UX Design gave her complete understanding of the design process, allowing her to apply those skills directly to her current role as a program manager. “As a program manager at Microsoft, we heavily rely on the design thinking process. It’s extremely important, because successfully collaborating and working with others requires a strong understanding of this.”

The innovation studio that Creager is a part of intentionally follows Microsoft’s values and mission statement, to empower every person and every organization on the planet to achieve more. Alaina enjoys the opportunities she has to empower people and work for them through design and project management. “It makes you feel like you have the opportunity to take action,” she explained.

Through her work with the design process, she can make things more efficient, accessible, and useful. Meeting design goals that alleviate problems for people is the motivation that drives her every day.

BILL FLETCHER, AVANCE DESIGN

Bill Fletcher, a 1995 Purdue graduate, credits the Purdue Computer Graphics Technology (CGT) program for preparing him for his career that would touch on and combine technology, business development, teaching, and sales.

After his undergraduate graduation from Purdue, Bill started out as a technical illustrator and went on to work as a CAD instructor at a high school career center. He was able to incorporate his CGT

course studies in his classes teaching mechanical/ architectural CAD, 3D solid modeling, computer animation and manufacturing. Fletcher states “I created my own curriculum based off the Purdue CGT classes. That gave my students a huge advantage when they went on to college.”

Currently, Fletcher is the Business Development Manager for Avance Design in Indianapolis, IN. Founded in 2002, Avance Design is a product development & engineering design group focused on offering clients unique solutions that fit their products. Avance serves a wide variety of industries but primarily customer-interactive products in the areas of consumer products, medical devices, and specialty tools/hardware. “The CTG program gave me the foundation to work in my field of study, transition my career into sales and now I have a job that incorporates both worlds.”

Visit Avance Design’s website for more information, (www.avancedesign.com).

CGT SPOTLIGHT - PROFESSOR ROSEMARY ASTHEIMER

One of our faculty was recently awarded the “Excellence in Instruction for Continuing Lecturers”, “Outstanding Faculty in Learning”, and “Polytechnic Institute Excellence in Instruction” awards. Rosemary L Astheimer is an Assistant Professor of Practice in the Purdue Polytechnic Institute, Purdue University, West Lafayette campus, and works remotely from Needham, MA.

I began working for Purdue in 2014 but what makes my situation unique is that I don’t live near campus. I live just outside of Boston, MA and teach from my home. When I began working for Purdue I wasn’t sure how this long distance teaching format would work but I am proud of the work I have done to make it possible and to continually improve upon it to make it most effective for students.

“It’s also nice to be recognized for my efforts put into the courses I teach. Sharing the knowledge that I have gained throughout my professional career is something that I genuinely enjoy doing and I hope that it helps to prepare them for their future careers. Knowing that my dedication to making myself available to my students is appreciated (often on “off hours”) makes it worthwhile and puts a smile on my face.”

NEWS AND NOTES

ACM Senior Membership Award

The Senior Members Grade recognizes those ACM members with at least 10 years of professional experience and 5 years of continuous Professional Membership who have demonstrated performance through technical leadership, and technical or professional contributions. Dr. Benes has been recognized by ACM and elevated to ACM Senior Member position.

STAY CONNECTED

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