

PURDUE POLYTECHNIC

# COMPUTER GRAPHICS TECHNOLOGY

FACULTY



**PURDUE**  
UNIVERSITY®

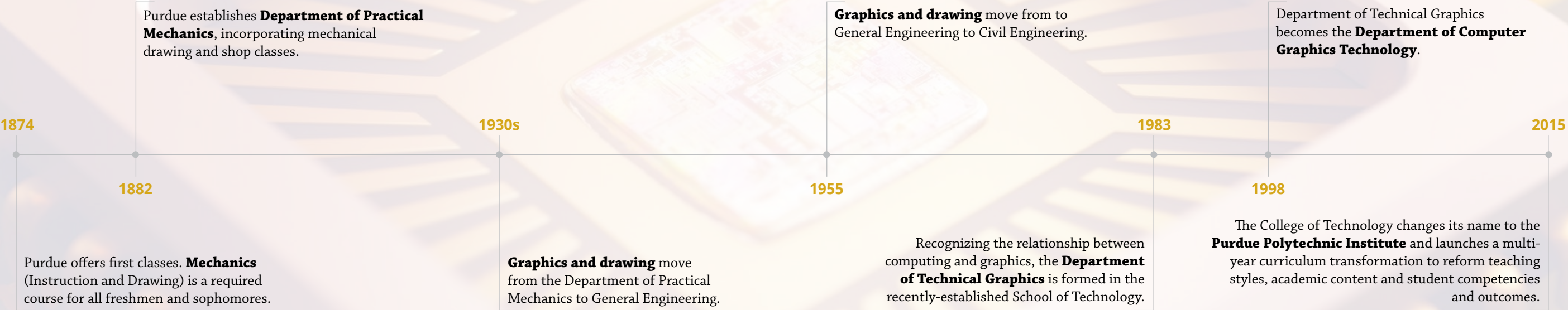
Polytechnic Institute





# COMPUTER GRAPHICS TECHNOLOGY FACULTY

» Nicoletta Adamo <i>Professor, Director of the IDEA Laboratory</i>	» Clark A. Cory, Ph.D. <i>Associate Professor</i>	» Raymond P. Hassan, MS <i>Associate Professor of Practice</i>	» Paul Parsons, Ph.D. <i>Assistant Professor</i>
» Rosemary L. Astheimer, BSME, MSE <i>Continuing Lecturer</i>	» Hazar Nicholas Dib, Ph.D. <i>Associate Professor</i>	» Rob Howard <i>Associate Professor of Practice</i>	» Nancy Rasche <i>Assistant Professor of Practice</i>
» Bedrich Benes, Ph.D. <i>Professor</i>	» John Campbell Finnegan, MFA <i>Associate Professor</i>	» Richard Kopp, MFA <i>Associate Professor</i>	» Austin L. Toombs, Ph.D. <i>Assistant Professor</i>
» Gary R. Bertolini, Ph.D. <i>Dean and Distinguished Professor</i>	» Travis J. Fuerst, PMP <i>Assistant Professor of Practice</i>	» Tim McGraw, Ph.D. <i>Assistant Professor</i>	» Daniel Triplett, MFA <i>Assistant Professor of Practice</i>
» Andrew Buchanan, Ph.D. <i>Assistant Professor</i>	» Esteban Garcia Bravo, MFA, Ph.D. <i>Assistant Professor</i>	» Craig L. Miller, Ph.D. <i>Professor and Purdue University Faculty Scholar</i>	» Michele Walker <i>Continuing Lecturer</i>
» Vetria L. Byrd, Ph.D. <i>Assistant Professor</i>	» Sarah J. George, LEED AP <i>Associate Professor of Practice</i>	» James L. Mohler, Ph.D. <i>Professor and Associate Dean of the Graduate School</i>	» David Whittinghill, MS, Ph.D. <i>Associate Professor</i>
» Jorge D. Camba, Ph.D. <i>Associate Professor</i>	» Ronald J. Glotzbach <i>Associate Professor</i>	» Carlos R. Morales <i>Associate Professor</i>	» Nasheet Zaman <i>Lecturer</i>
» Yingjie Chen, Ph.D. <i>Associate Professor</i>	» Colin M. Gray, Ph.D. <i>Assistant Professor</i>	» Christos Mousas, Ph.D. <i>Assistant Professor</i>	
» Patrick Edward Connolly, Ph.D. <i>Associate Dean and Professor</i>	» Nathan W. Hartman, Ed.D. <i>Dauch Family Professor and Department Head</i>	» Amy B. Mueller, MBA <i>Assistant Professor of Practice</i>	



## Nicoletta Adamo

*Professor, Director of the IDEA Laboratory*

**EXPERIENCED GRAPHIC DESIGN AND ANIMATION INSTRUCTION:** Nicoletta Adamo, a Purdue University Faculty Scholar, is an award-winning animator and graphic designer and creator of several 2D and 3D animations that aired on national television. Her expertise includes character animation and design, and she is co-founder and director of the IDEA Laboratory. Adamo has been funded multiple times by the National Science Foundation; her projects and research interests include:

- » **Multimodal affective pedagogical agents for different types of learners:** Adamo uniquely integrates several areas of research, including computer graphics research on lifelike and believable representation of emotion in embodied agents, advanced techniques from artificial intelligence (deep learning), and cognitive psychology research on how people learn from affective agents.
- » **Application of 3D animation technology:** Adamo is interested in 3D animation applications in education, human-computer interaction, and visualization.



**Nicoletta Adamo**

317-966-2508 | [nadamovi@purdue.edu](mailto:nadamovi@purdue.edu)



## Rosemary L. Astheimer, BSME, MSE

*Continuing Lecturer*

### DIGITAL PRODUCT DEFINITION THROUGH A MODEL-BASED ENTERPRISE

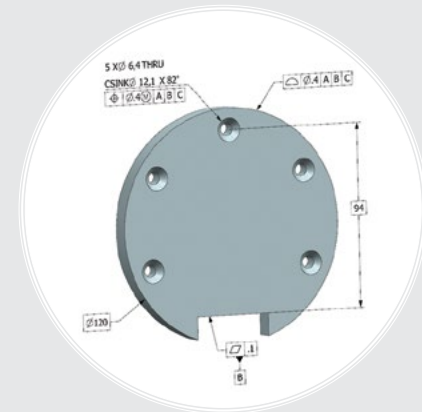
Traditionally, product manufacturing information has been captured in a 2D drawing to be consumed by a human, requiring expertise to interpret the data. Astheimer is an active member of the community that is transforming this process into a digital one; all information is captured in the CAD model and read directly into Computer Numerically Controlled (CNC) machinery for manufacture and Coordinate-Measuring Machines (CMM) for inspection.

- » **Understanding of industry standards:** Astheimer is an American Society of Mechanical Engineers (ASME) certified Geometry Dimensioning & Tolerancing Professional and remains active within the standards groups to keep up with changes made to adopt a digital definition.
- » **Online digital manufacturing certificates for existing workers:** Astheimer instructs the Model-Based Definition (MBD) Certificate Program in Creo, CATIA, NX and Solidworks to educate the workforce on how to implement MBD. This knowledge allows industry to begin adopting digital manufacturing with more ease while keeping pace with the latest technology advancements.



**Rosemary L. Astheimer**

781-514-5444 | [rastheim@purdue.edu](mailto:rastheim@purdue.edu)  
[polytechnic.purdue.edu/product-lifecycle-management/education/mbd-certificate-program](http://polytechnic.purdue.edu/product-lifecycle-management/education/mbd-certificate-program)



*Model-based definition image for digital manufacturing.*

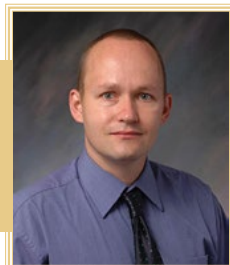


## Bedrich Benes, Ph.D.

*Professor*

**GENERATIVE GEOMETRIC MODELING:** Procedural techniques in computer graphics allow for an efficient generation of a vast variety of 3D models, ranging from vegetation to urban models and 3D printable objects. Dr. Benes has studied procedural models and simulations for over 20 years. Research projects include:

- » ***Inverse procedural models:*** Dr. Benes develops fundamental algorithms that can generate 3D structures such as vegetation, urban models, or 3D microstructures. His work has been sponsored by Department of Energy, NASA, National Science Foundation, NIH, Adobe, Intel, Siemens, Ford and USDA.
- » ***High-performance computer graphics:*** Dr. Benes is the founder of the High Performance Computer Graphics Laboratory at Purdue. Together with his students, he develops novel algorithms for geometry processing and simulations. His recent work addresses applications of Artificial Intelligence in inverse algorithms and user-assisted modeling.



**Dr. Bedrich Benes**

765-496-2954 | bbenes@purdue.edu



## Gary R. Bertolini, Ph.D.

*Dean and Distinguished Professor*

**TECHNOLOGY TRANSFORMED:** Gary Bertoline, dean of the Purdue Polytechnic Institute, co-founded the Indiana Next Generation Manufacturing Competitiveness Center (IN-MaC) and spearheaded the transformation of the college's curricula and student learning experience. His dedication to better preparing graduates for life and work in the digital age led to the college's record-breaking enrollment numbers and one of the University's highest job placement rates. Dr. Bertoline's research interests include:

- » Scientific visualization
- » Interactive immersive environments
- » Distributed and grid computing



**Dean Gary R. Bertolini**

765-494-9267 | bertoline@purdue.edu





## Andrew Buchanan, Ph.D.

Assistant Professor

**ANIMATION HISTORY, THEORY AND CONTEMPORARY PRACTICE:** Dr. Buchanan explores the potential of digital animation for creative expression and artistic exploration, combining studies in the history and theory of experimental art and animation with contemporary practices in the latest digital applications. Along with production projects in short film experimental animation, projection art, animation installation and digital sculpture, research projects include:

- » *Improvisation and artistic practice using contemporary toolsets:* Dr. Buchanan examines how animation software limits or supports a range of creative approaches to making moving images.
- » *Philosophy of the animated image:* Dr. Buchanan investigates time, form and transformation as aspects of mind and world.



Dr. Andrew Buchanan

765-496-0637 | buch25@purdue.edu

## Vetria L. Byrd, Ph.D.

Assistant Professor

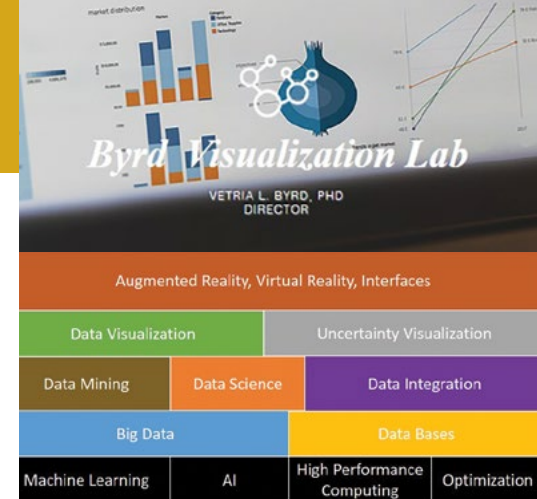
**DATA VISUALIZATION CAPACITY BUILDING:** The ability to transform raw data into visual representation and meaningful insight are skills driving today's workforce. Dr. Byrd generates visual insights from complex data. Research projects include:

- » *Visualizing heterogeneous data:* Building on a foundation of machine learning and high-performance computing techniques, Dr. Byrd's Lab examines and integrates data from multiple sources in various formats into visual presentation that is easy to understand and explore.
- » *Broadening participation in visualization:* Dr. Byrd is the founder of BPViz, the Biennial Broadening Participation in Visualization Workshop (<http://www.bpviz.org>) which introduces interested individuals to the data visualization process. These efforts help to make sense of data and empower others to build their capacity for visualizing data.



Dr. Vetria L. Byrd

765-494-6335 | vbyrd@purdue.edu



Visualization & Engineering  
**Design Graphics**  
With Augmented Reality

Jorge Dorribo Camba  
Jeffrey Otay  
Manuel Contero  
Mariano Alcariz

## Jorge D. Camba, Ph.D.

Associate Professor

### DIGITAL PRODUCT DATA AND CAD IN THE MANUFACTURING ENTERPRISE:

Considering digital product models as the pillars of the Model-Based Enterprise paradigm, Dr. Camba’s research focuses on virtual representation of the product as a parametric model to facilitate design reusability and communication and ultimately optimize product development. Dr. Camba’s work combines analytical and computational techniques to evaluate model complexity, parametric constructs and procedures to determine quality indicators in virtual models and digital twins; characterize and develop methods, protocols and tools that support manufacturing and other downstream processes; and evaluate, optimize and automatically repair digital product data, particularly at a functional level. Dr. Camba’s goal is to unify and expand the common information threads running through the product lifecycle and establish the theoretical and technical foundations for new mechanisms that will enable manufacturing systems to become smart.



**Dr. Jorge D. Camba**

765-496-0629 | [jdorribo@purdue.edu](mailto:jdorribo@purdue.edu)

## Yingjie Chen, Ph.D.

Associate Professor

### INTERACTION AND VISUALIZATION OF THE DIGITAL WORLD

Rooted in a solid scientific foundation of human cognition and computing technologies, Dr. Chen creates immersive, interactive experiences to inspire human creativity by blurring the boundary between the physical and digital world. He funded the Purdue Intelligent Visualization and Interaction Laboratory with research that covers a broad range of human-computer interaction domains, including information visualization, visual analytics, tangible interaction, virtual reality and augmented reality. Dr. Chen believes that creative yet simple graphs can empower humans to comprehend extensive datasets and make informed decisions.

- » ***Designing intuitive information visualizations that enable data-driven decisions:*** Dr. Chen developed an interactive Infovis system to help students identify suitable college majors based on alumni career path datasets. Dr. Chen believes that creative yet simple graphs can empower humans to comprehend extensive datasets and make informed decisions; his visual analytics system gives biomedical scientists the improved ability to monitor and measure the performance of diabetes medication.
- » ***Employing cutting-edge technologies to create immersive interactions with the digital world:*** Dr. Chen leads the development of CryoVR, a virtual reality training system for cryo-electron microscopes (Cryo-EM). The system provides novice scientists with hands-on learning experience without risk to delicate, multimillion-dollar equipment.



**Dr. Yingjie Chen**

765-494-1454

[victorchen@purdue.edu](mailto:victorchen@purdue.edu)



*The CryoVR system provides hands-on training without endangering delicate scientific equipment.*

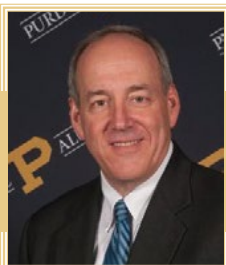


## Patrick Edward Connolly, Ph.D.

Associate Dean and Professor

**ASSOCIATE DEAN, PROFESSOR AND CAD EXPERT:** Patrick Connolly serves as the associate dean for undergraduate programs and learning innovation at Purdue University. He has extensive experience in CAD applications and design, CAE software support and customer service management. Dr. Connolly's research interests include:

- » Distance learning
- » Learning styles
- » Virtual reality



**Dr. Patrick Edward Connolly**  
765-494-0378 | [connollp@purdue.edu](mailto:connollp@purdue.edu)



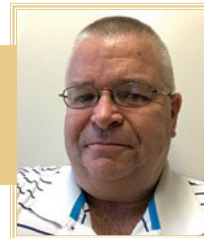
## Clark A. Cory, Ph.D.

Associate Professor

### REAL RESULTS IN CONSTRUCTION: BUILDING INFORMATION MODELING (BIM) AND VIRTUAL DESIGN IN CONSTRUCTION (VDC)

The BIM/VDC process allows the design and construction team to estimate, coordinate, plan and build a project in the virtual space, long before construction begins. This modeling and management process helps builders, clients and other project team members generate a clear picture of the project and the best way to proceed with construction, budgeting, scheduling, logistics and safety.

- » **BIM and VDC in learning:** Dr. Cory researches and teaches the latest processes and technologies to give students a real-world, hands-on experience. Virtual Design Construction processes, technology, and curricula help to deliver a quality, ready-to-work BIM/VDC manager to the architecture, engineering and construction (AEC) industry.
- » **Defining the future of the industry:** Today, the AEC industry sees an extraordinary arrival of advanced technological solutions meant to excel advancements in construction to meet ever-toughening client demands and tighter building deadlines. Dr. Cory researches how AR/VR, 3D laser scanning and drone use can be incorporated into education as well as within the AEC industry.



**Dr. Clark A. Cory**  
765-494-8730 | [ccory@purdue.edu](mailto:ccory@purdue.edu)



*Virtually modeling the entire building can resolve all conflicts months ahead of actual construction. The AEC industry has become proactive, with all parties involved working in a more integrated and communicative way.*



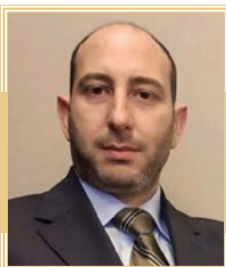


## Hazar Nicholas Dib, Ph.D.

Associate Professor

**COMPUTING AND TECHNOLOGY IN SCIENCE AND ENGINEERING:** Hazar Dib, with both the Department of Computer Graphics Technology and the School of Construction Management Technology, believes that computing and technology are fundamental to the advancement of globalization of science and engineering. His courses focus on building information management, a lifecycle approach that uses effective technologies to manage construction activities and share information. Dr. Dib's research areas include:

- » Integration of 3D technologies in information modeling techniques.
- » Development of knowledge acquisition methods and strategies for examining and capturing expert design knowledge.
- » Sharing lessons learned and historical data to improve design, increase efficiency in construction processes and improve the classroom experience when teaching construction management.



**Dr. Hazar Nicholas Dib**  
765-494-2464 | [hdib@purdue.edu](mailto:hdib@purdue.edu)



## John Campbell Finnegan, MFA

Associate Professor

### MOVING STUDENTS TO BECOME THE ENTREPRENEURS OF TOMORROW:

John Finnegan works today to inspire tomorrow's leading-edge thinkers. His passion for all things design and his experience across the design fields helps to create other avenues for students to learn and understand the place of design and design thinking in the world today. Teaching/learning projects include:

- » **Web design and development projects for local arts-related clients:** With extensive experience and contacts in the theatre, architectural and mobile app design community, Finnegan includes students in his professional work and brings that work into the classroom.
- » **Extensive community outreach:** Finnegan works diligently to remain connected to the community at large. Extensive high school outreach is part of his focus, and he volunteers and is involved in many different CGT-related high school activities. These include theatre, art, design, marketing, entrepreneurship and more.



**John Campbell Finnegan**  
502-432-7946 | [finnegan@purdue.edu](mailto:finnegan@purdue.edu)



*Green screen video production for dream sequences in a live theatrical production of 1984.*



## Travis J. Fuerst, PMP

Assistant Professor of Practice

### EFFECTING ORGANIZATIONAL CHANGE FROM THE GROUND UP:

Bringing his experience as an Army officer and an Engineering Workplace Coach and Continuous Improvement Leader straight from industry to the classroom, Travis Fuerst prepares students for successful careers in their chosen fields. He blends leadership competencies, continuous improvement methods and project management best practices with technology to instill a systematic approach to problem solving and innovation.

- » **IN-MaC certificates, certifications and assessments:** As part of the Indiana Next-Generation Manufacturing Competency Center (IN-MaC), Fuerst works with industry partners and Purdue programs to deliver certificate programs, industry certifications and competency assessments for the incumbent workforce to enhance the skills and qualifications of industry professionals within the state of Indiana and beyond.
- » **Purdue/Boeing P-51 digital restoration:** In partnership with The Boeing Company, Fuerst leads a team of undergraduates in the reconstruction of a P-51 Mustang based on historical engineering drawings in Dassault Systèmes 3D Experience. The project showcases techniques used by the aerospace industry for top-down relational design and provides valuable experience to undergraduate students.



Travis J. Fuerst  
765-496-1831 | fuerstt@purdue.edu

## Esteban Garcia Bravo, MFA, Ph.D.

Assistant Professor

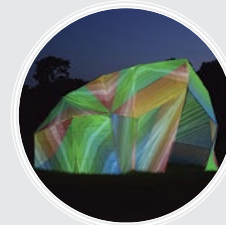
### THE INTERSECTION OF AESTHETICS AND TECHNOLOGY

Dr. García Bravo explores computational art – the intersection of aesthetics and technology – as a researcher, a practitioner and as an educator. His recent public art installations include Gleam: The art of Light at the Olbrich Botanical Gardens in Madison, Wisconsin, and the Grand Rapids Public Museum’s ArtPrize venue. His work involves the creation of unique, attractive, audiovisual sculpture that embeds animations, LEDs, video projections and Virtual Reality. Collaborative projects include:

- » **Geode:** Taking the shape of a glowing, mineral crystal, Geode is a gigantic video mapped object that fuses soundscape, public art and visual projection into one immersive experience. Each surface of the crystal flows and ebbs with improvisational geometry that responds to real-time audio synthesis.
- » **Reconstructing a modern painting into virtual reality:** Different than the common way of appreciating paintings hung on the wall or shown on books or monitors, this VR application of painting brings audiences into a painting’s world and allows them to interact with the environment as if they were part of it.
- » **Bodygraphe:** This interactive, visual music application unifies gestural computing with live performance art. Dancers become instruments and conductors that wholly generate graphics and sounds that correspond with their movements in real time.



Dr. Esteban Garcia Bravo  
garcia0@purdue.edu



Geode’s improvisational geometry.



A VR reconstruction of Fernand Léger’s 1919 painting, “The City.”



A dancer uses body movements to generate graphics and sounds.



## Sarah J. George, LEED AP

*Associate Professor of Practice*

Sarah George has more than 15 years of industry experience in visual communications, 2D graphic design, architectural design, green building design, 3D modeling and animation, building information modeling and construction document management.

George's research interests include:

- » Green building design, wellness architecture and building information modeling.
- » Mindfulness teaching methods.
- » Women and minorities in technology.



**Sarah J. George**

765-973-8377 | [sjgeorge@purdue.edu](mailto:sjgeorge@purdue.edu)

## Ronald J. Glotzbach

*Associate Professor*

Ronald J. Glotzbach is the lead for the web programming and design major. His courses revolve around web development, programming, database integration and forward-facing interactive design. He maintains proficiency in many web programming languages and works on web-related projects. His research interests include the effects of mobile devices in the classroom as well as web-related topics.



**Ronald J. Glotzbach**

765-496-2953 | [rjglotzbach@purdue.edu](mailto:rjglotzbach@purdue.edu)

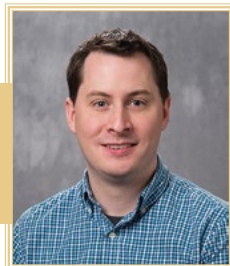
## Colin M. Gray, Ph.D.

Assistant Professor

### SOCIETAL RESPONSIBILITY AND THE ETHICS OF USER EXPERIENCE DESIGN:

Colin Gray documents the knowledge of UX practitioners using a critical theory lens, identifying necessary competencies for their success in education and practice. This discovery-focused research has resulted in the identification of barriers that UX practitioners face in remaining competent and building consensus in industry contexts. Research projects include:

- » **Describing “dark patterns” of user experience design:** Dr. Gray led a project funded by the National Science Foundation to describe how malicious or deceptive patterns in UX design may be used in unethical ways by UX practitioners.
- » **Documenting patterns of formal and informal design learning:** Through a series of classroom-based studies in parallel with investigations of online professional communities, Dr. Gray has identified patterns of learning in emerging disciplines, including curation of disciplinary knowledge, social roles for the creation and dissemination of knowledge, and patterns of disciplinary formation.



**Dr. Colin M. Gray**

765-494-6363 | gray42@purdue.edu  
uxp2.com



## Nathan W. Hartman, Ed.D.

Dauch Family Professor and Department Head of Computer Graphics Technology

### MOVING DIGITAL DATA ACROSS THE MANUFACTURING ENTERPRISE:

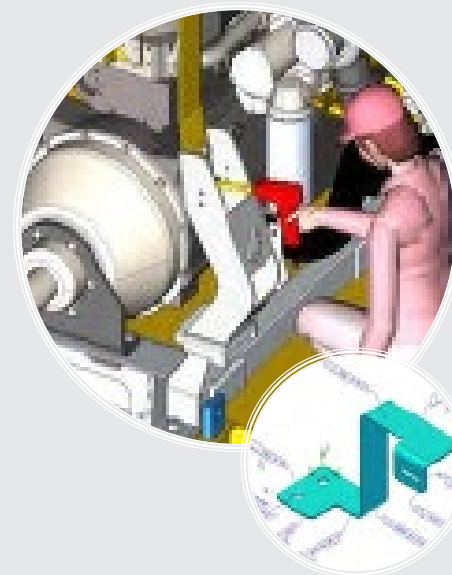
Improved data exchange capabilities create an opportunity for efficiencies across the manufacturing enterprise. Dr. Hartman discovers opportunities through intelligent digital product data - creating a digital twin for product/processes that match shape, behavior and contextual fidelity. Research projects include:

- » **Defining the need for data interoperability standards:** Dr. Hartman worked with the National Institute of Standards and Technology to investigate interoperability between product data management systems and the impact on the model-based enterprise.
- » **Creating online digital manufacturing certificates for existing workers:** To help manufacturers start their journey in digital manufacturing, Dr. Hartman created certificates in Product Lifecycle Management (PLM) and Model-based Definition (MBD). These programs demonstrate interconnected technologies that enable companies to make better business Dr. Nathan Hartman decisions throughout a product's lifestyle.



**Dr. Nathan Hartman**

765-494-4585 | nhartman@purdue.edu  
purdue.edu/plm



*By digitizing product and process data, employers can train assemblers at new positions quickly with fewer errors (top photo) and find product information quickly (above right).*

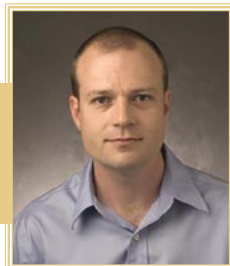




## Raymond P. Hassan, MS

*Associate Professor of Practice*

**FINE ARTS AND ANIMATION:** With a fine arts background that includes a specialization in traditional oil painting, Raymond Hassan focuses on 3D animation production, visualization and illustration. During his career, Hassan wrote and implemented 3D curriculum for pre-secondary students aged six through 18, and worked in 3D architectural visualization and product illustration.



**Raymond P. Hassan**

765-494-8069 | rhassan@purdue.edu



## Rob Howard

*Assistant Professor of Practice*

**VIDEO GAME INDUSTRY EXPERIENCE:** In over ten years in the video game industry, Rob Howard has worked for and with studios such as Human Head Studios, Irrational Games, Warner Brothers and FoxNext Games. His notable published games include *Bioshock Infinite* and *Batman: Arkham Origins*. Howard has served in game design, level design and game scripting roles; as an instructor, he teaches in areas such as game design, Unreal Engine technology and game scripting.



**Rob Howard**

765-496-3338 | rthoward@purdue.edu





*The STEAM Gallery features artwork of students and artists from around the world.*

**STEAM**  
CENTER



## Richard Kopp, MFA

*Associate Professor*

**MOVING STUDENTS INTO PROFESSIONAL FIELDS:** Richard Kopp discovers opportunities through the regional community of businesses and industries, creating partnerships that serve the community, provide student work experiences and assist in developing professional networks for Polytechnic New Albany students. Student-focused opportunities include:

- » **Creating applied work experience for students:** Kopp founded *The STEAM Center*, a student-focused enterprise that can plan, manage, design and produce products and services for internal and external clients.
- » **Providing public exhibit space:** At Purdue Polytechnic New Albany, Kopp opened *The STEAM Gallery*. Each fall, summer and spring, gallery exhibits feature the work of Computer Graphics Technology students, regional artists and international professionals.



**Richard Kopp**  
812-206-8385 | [rdkopp@purdue.edu](mailto:rdkopp@purdue.edu)  
[www.purdue-steam-center.com](http://www.purdue-steam-center.com)

## Tim McGraw, Ph.D.

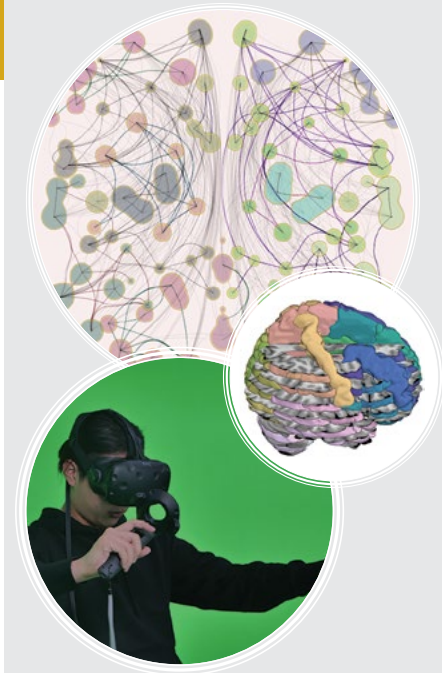
*Assistant Professor*

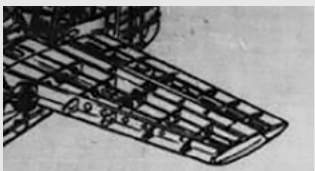
**ENABLING INTERACTIVE EXPLORATION OF IMAGES AND DATA:** Interactive graphics can help companies gain a better understanding of complex systems and processes. Dr. McGraw designs and develops visualization experiences which reveal patterns, relationships and anomalies within biological and physical datasets. His research projects include:

- » **Immersive visualization of brain anatomy and connectivity:** Virtual reality affords the user improved senses of size, shape, scale and spatial relations over traditional desktop display. Dr. McGraw has developed new interaction and visualization techniques for learning neuroanatomy and exploring medical images.
- » **Simulation and visualization of drug discovery processes:** Working closely with research scientists, Dr. McGraw helped to develop high-performance simulations of experiments which would normally be painstakingly conducted in a cleanroom. This work allows users to immediately see how changes in physical parameters affect bioavailability of drugs.

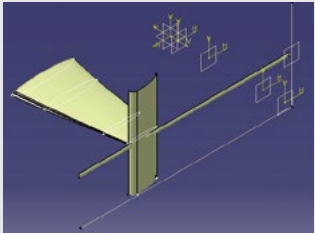


**Dr. Tim McGraw**  
765-494-0483 | [mcgraw@purdue.edu](mailto:mcgraw@purdue.edu)





P-51 screen shot from manual



Digital reconstruction of a P-51 Mustang aircraft.

## Craig L. Miller, Ph.D.

Professor and Purdue University Faculty Scholar

**UNDERGRADUATE AND GRADUATE EDUCATION, AND INDUSTRY TRAINING:** Dr. Miller has developed courses and training materials in computer-aided design (CAD) and Product Lifecycle Management (PLM). His curriculum materials have been used to advance the knowledge – from high school students to industry practitioners – for individuals in these subject areas. He has also been involved in research to improve the spatial abilities of secondary and university students and industry professionals. Projects include:

- » **Purdue/Boeing P-51 Digital Restoration:** Dr. Miller works with Professor Fuerst to lead a team of undergraduate students in partnership with The Boeing Company to digitally reconstruct a P-51 Mustang aircraft based on historical engineering drawings. The project showcases techniques used by the aerospace industry for top-down relational design while providing valuable experience to undergraduate students.
- » **Investigation of spatial abilities of students:** Dr. Miller’s work has justified the development of teaching methodologies and curriculum changes, including a revised technical graphics courses for engineering and technology students, which advances students’ spatial abilities. Spatial abilities are critically important for the success of students and industry professionals to be successful in technical areas.



Dr. Craig L. Miller  
765-494-8207 | miller02@purdue.edu

## James L. Mohler, Ph.D.

Professor and Associate Dean of the Graduate School

**SCHOLAR, PROFESSOR AND DIVERSITY CATALYST:** James “Jamie” Mohler is a Purdue University Faculty Scholar, a member of the Purdue University Teaching Academy, a member of Purdue’s ADVANCE team, and a Diversity Catalyst. Over the last decade, Dr. Mohler has taught graduate courses on research methods, perception and visual intelligence, and university honors courses on various computer graphics topics. He has authored, co-authored, or contributed to more than 20 texts related to computer graphics and media development, and has received \$1.5 million in grants. Dr. Mohler is also a guest professor at the Harbin Institute of Technology in the People’s Republic of China.



Dr. James L. Mohler  
765-496-6071 | jlmohler@purdue.edu

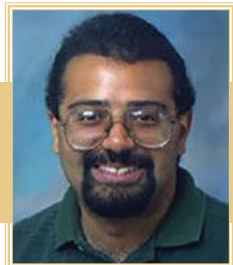


## Carlos R. Morales

*Associate Professor*

Carlos Morales manages the Visual Effects Lab for the Department of Computer Graphics Technology. His research interests include:

- » Integration of digital video
- » Animation
- » Interactive technology for visual training solutions



**Carlos R. Morales**

765-494-7204 | morales@purdue.edu



## Christos Mousas, Ph.D.

*Assistant Professor*

### EXPLORING COMPUTER GRAPHICS, ANIMATION AND VIRTUAL REALITY

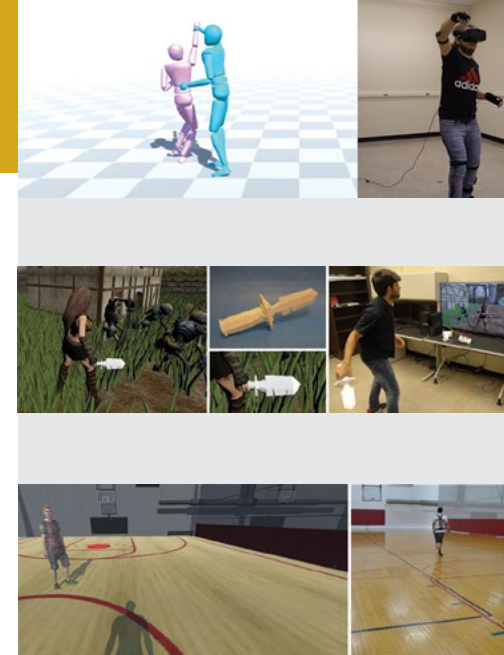
**ENVIRONMENTS:** Computer graphics, animation and virtual reality are areas replete with exciting problems, which Dr. Mousas works to investigate and solve. He develops methods that can be used in video games and virtual reality, and he explores the ways in which humans interact with these technologies.

One of Dr. Mousas' goals is to automate the 3D content creation and animation pipeline and allow everyone interested in developing 3D content the ability to work without experience in complex 3D graphics and animation tools. His research uses machine learning as a tool to synthesize the motion of virtual characters; aspects of cognitive and experimental psychology to understand the way that humans interact with virtual characters; and optimization techniques to fabricate and 3D print novel experiences and interfaces.



**Dr. Christos Mousas**

765-496-0633 | cmousas@purdue.edu





## Amy B. Mueller, MBA

Assistant Professor of Practice

Before joining Purdue, Amy Mueller spent 30+ years in industry and worked for Owens-Illinois, PTC, Cummins, Faurecia and Toyota Industrial Equipment. She brings this wealth of real-world industrial experience to the classroom, where she teaches product data management, product lifecycle management and configuration management. Mueller is also a certified CM2-professional and instructor.



Amy B. Mueller

765-496-7948 | amueller@purdue.edu

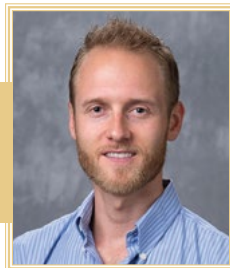


## Paul Parsons, Ph.D.

Assistant Professor

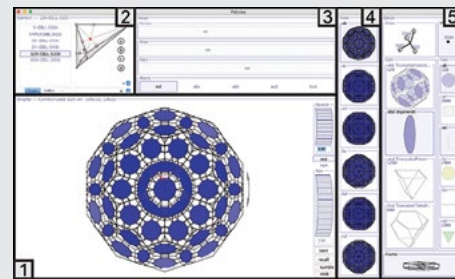
**HUMAN-CENTERED VISUALIZATION DESIGN:** Dr. Parsons conducts research at the intersection of human-centered design, information visualization and cognitive psychology. He is interested in understanding how people interpret and make meaning from visual information, and is also interested in how to support the design of interactive information visualizations. Research projects include:

- » **Supporting sensemaking of complex objects with visualizations:** Dr. Parsons worked with colleagues to develop an interactive visualization tool to help people make sense of complex 4D geometric objects. The resulting software tool can be used to help students learn about complex geometry through advanced interaction techniques with the visualizations.
- » **Examining the cognitive utility of 3D holograms in augmented reality:** Dr. Parsons and his students conducted studies to investigate the effects of 3D visualizations projected as augmented reality holograms. Results of this work are applicable to the design of information visualizations and augmented reality applications more generally.

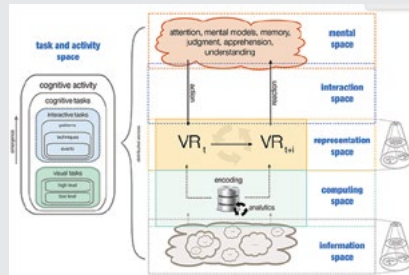


Dr. Paul Parsons

765-494-0511 | parsonsp@purdue.edu  
web.ics.purdue.edu/~parsonsp



*Interactive visualization interfaces can help people make sense of complex geometric shapes.*



*Design frameworks can help designers make informed decisions.*



## Nancy Rasche

Assistant Professor of Practice

**CREATING ENTERPRISE SOFTWARE IMPROVEMENTS THROUGH USER RESEARCH:** Nancy Rasche's primary research emphasizes front-end design and development of enterprise software solutions to improve the user's experience and to ease new software adoption. Her areas of concentration include interface design, user research, information architecture, design systems and project management. Research projects include:

- » ***Simplifying the user experience of enterprise software:*** Rasche currently works with Ford Motor Company to assist in the design of enterprise software solutions that will improve the engineer's efficiency by simplifying workflow and improving consumption of complex information. She supervises the collection and synthesis of user data to create actionable insights that inform design direction and decisions. Her onsite research methods include usability testing sessions, contextual inquiries, and stakeholder workshops.
- » ***Developing mobile educational software for children with disabilities:*** Rasche's secondary research area is designing mobile apps that support the unique needs and capabilities of children with disabilities. Her current application, LiteracyLABELS®, provides vocabulary and word recognition support to improve comprehension skills.



Nancy Rasche

765-494-6222 | nrasche@purdue.edu



## Austin L. Toombs, Ph.D.

Assistant Professor

Austin Toombs studies the impact that digital technologies have on how communities develop, are maintained, and foster (or not) strong interpersonal relationships between community participants. This includes how these technologies are implicated in explicit and implicit forms of care. Toombs is also interested in how community-centered technologies encourage the formation and maintenance of some identities, while discouraging others.



Dr. Austin L. Toombs

765-494-6237 | toombsa@purdue.edu



## Daniel Triplett, MFA

Assistant Professor of Practice

### CREATING VIRTUAL WORLDS:

As our lives are integrated with virtual spaces like web, games, television, cinema, virtual reality and augmented reality, creating virtual spaces that serve function and are also aesthetically pleasing is of high importance. Daniel Triplett shares his knowledge of creating virtual environments, characters and VFX that integrate with today's game engines, films and graphics. Much of the experience he shares was acquired during more than six years working as a professional in the game industry on AAA titles. Research projects include:

- » **Increasing Student Achievement through Constructive Play:** Triplett ran a study utilizing techniques commonly used within juvenile demographics to find the efficacy of using constructive play amongst adult college students.



Daniel Triplett

765-496-0628 | tripletd@purdue.edu

## Michele Walker

Continuing Lecturer

With over 25 years of design experience, Michele Walker has developed a wide array of curriculum for 2D design and illustration, user experience, 3D modeling and animation, and game development.

- » **VR environments for therapeutic use:** Walker studies the creation of virtual healing gardens, with the goal of bringing the experience to patients who may not be able to leave their rooms to go to a physical garden.
- » **Serious Games in education:** Walker currently specializes in creating Serious Games using 3D modeling, Unreal Engine for game development, and virtual reality to deliver immersive educational experiences to the public.



Michele Walker

765-973-8491 | walker21@purdue.edu



*Focus in research is spent finding techniques and subject matter that can easily be created in a virtual platform, even for the artistically challenged. This visual component to the studies within constructive play was built in a game engine (Unreal Engine). Finding a minimal environment that as a whole appears elegant and sophisticated was an essential example to display how simple boxes could create almost an entire environment with a refined look.*





## David Whittinghill, MS, Ph.D.

Associate Professor

**GAMES AND VIRTUAL REALITY:** Interactive computer graphics drive the multi-billion dollar fields of games and virtual reality. These technologies not only entertain us but enrich lives through their impact on medicine, public health, simulation, training, visualization and many other areas. Dr. Whittinghill's pioneering work in virtual reality and health games has helped bring greater impact and enjoyment inside and outside the entertainment field. Research projects include:

- » ***Motion sickness abatement in virtual reality:*** Dr. Whittinghill's work in virtual prosthetics opened an entire new area of research into how to prevent simulator sickness in virtual reality.
- » ***Game-based physical therapy for pediatric cerebral palsy:*** In collaboration with physicians at Peyton Manning Children's Hospital, Dr. Whittinghill developed motion sensing games to help children suffering from cerebral palsy more effectively conduct their at-home physical therapy and with greater treatment compliance.



**Dr. David Whittinghill**

765-494-1353 | [dmwhittinghill@purdue.edu](mailto:dmwhittinghill@purdue.edu)

## Nasheet Zaman

Lecturer

**3D ANIMATION AND MORE:** Nasheet Zaman has worked in the 3D animation and visual effects industries for over a decade, with roles including pipeline technical director, lighting/compositing artist, and VFX supervisor. Her credits include Beowulf, The Smurfs, Trollhunters, Tangled, Wreck-It Ralph, Moana, and Oscar-winning films Life of Pi, Frozen and Big Hero 6. She also co-directed an independent short film, One Per Person, and taught at the Columbus College of Art and Design. At Purdue, Zaman plans to teach classes in 3D animation and focus on the areas of lighting, rendering, compositing, shading and collaborative animation production.



**Nasheet Zaman**

765-496-7709 | [zamann@purdue.edu](mailto:zamann@purdue.edu)





Department of Computer Graphics Technology  
Knob Hall, Room 363  
401 North Grant Street  
West Lafayette, Indiana 47907



polytechnic.purdue.edu/cgt