AMI Registration Desk Hours
Tuesday, 3-6pm
Wednesday & Thursday, 7am–5pm
Friday, 7am-2pm
Saturday, 7am-4pm

Board of Governors Annual Meeting
Tuesday, 1-6pm, Saturday, 7:30-8:15am

Executive Management
AMR Management Services
AMI Executive Director: Tracy Tucker
AMI Program Manager: Sara Zach
AMI Meeting Planner: Glen Ellwood
AMI Records Coordinator: Sis Pike

Volunteers
Meeting Planning Council
Chair: Pam Little, Co-chair: Marcia Hartsock
Committee: Anne Altemus, Chris Gralapp, Lynn Kitagawa, Mary Jordan, Betsy Palay and Linda Wilson-Pauwels

AMI Baltimore 2011
Meeting Coordinator: Joan Tycko
Program Co-chairs: Cory Sandone and Anne Altemus
Workshops: Joy Marlowe, Emily Shaw, and Betsy Weissbrod
Techniques Showcase: Kim Krumwiede, Lydia Gregg, and Dave Mazierski
Digital Salon: John Dorn and Russ Adams
Traditional Salon Hanging: Fabian de Kok-Mercado
Salon Judging: Frank Corl
Professional Exhibits: Jill Rhead and Lori Messenger
Meeting Website and Logo Design: Jennifer Fairman
First-Timers’ Workshop: Emily Shaw, Megan Foldenauer, and Andrew Swift
Volunteer Coordinators: Rachel Bajema and Anneliese Lilienthal
Sponsorship: Ed Zilberts, David Ehliert, Linda Wilson-Pauwels, Jane Hurd, Stephen Mader, and Christine Young
Awards: Karen Bucher and Alison Burke
Continuing Education: Carolyn Holmes
Memorial Posters: Mary Jordan, Alison Burke, and Cassio Lynm
Meeting Booklet Design: Alison Burke
Meeting Booklet Cover Design and Map: Cassio Lynm

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Vesalius Trust
Welcome to Baltimore
the city of monuments...

... And welcome to the 66th Annual Meeting of the Association of Medical Illustrators. Our meeting venue is the spectacular Tremont Grand, built by the Freemasons in 1866 to be their Grand Lodge of Maryland Masonic Temple. The rooms in which we will gather in this richly ornate building, the headquarters for the Maryland Freemasons for over 130 years, have been restored to their former grandeur and contain much of the original artistry for us to enjoy.

We are pleased to offer an educational program that brings our friends and colleagues together to share their expertise and inspire all in attendance. The lineup is a rich, robust offering with a broad sampling of everything from fine art to our future directions. We are honored to welcome our distinguished speakers from Johns Hopkins Medicine, the National Institutes of Health, National Geographic, Yale University; a recent MacArthur Award winner; and local and international representatives from pharma, branding, science and medicine.

Friday, we’ll travel by private bus to Johns Hopkins’ new Armstrong Building. This state-of-the-art medical education building will be the location for our lunch, after 12pm workshops, and the wildly popular Techniques Showcase. We encourage you to take advantage of your time on the medical campus to visit the show, A Century of Teaching Excellence in Medical Illustration. This exhibit of 250+ pieces demonstrates the pioneering and enduring roles of medical illustrators trained at Johns Hopkins. Original Brödel illustrations are also on display, including work never seen outside the university.

Thank you for joining us for the 66th Annual Meeting on the 100th anniversary of our profession in the waterside town where it all began...Baltimore, hon.

Meeting Coordinator
Joan Tycko

Program Committee
Co-chair
Anne Altemus

Program Committee
Co-chair
Cory Sandone

Program Committee
Co-chair
Cory Sandone

This year we celebrate the 100th year of our profession and reflect on our past, celebrate our accomplishments, and predict our future. I am sure that Max Brödel and the pioneers of our profession would be proud of our accomplishments and our ever-expanding expertise.

Each year I come away from our annual conference feeling energized. I am sure that this year will be no exception. I look forward to sharing this very special celebratory event with you.

Warm regards from your AMI President,
Linda Wilson-Pauwels

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James Archer / Anatomy Blue

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Please see the board certification information found at: http://www.ami.org/medical-illustration/board-certification.html
**Wednesday**

- **Salon Opening and Breakfast**
  7:45–9am (Ribbon cutting at 8:45am)
  Tremont Grand—Edinburgh Hall and Mirror Room (5th floor) and Doric Room (4th floor)

- **Meeting Welcome**
  9:15–9:30am • Corinthian Room (2nd Floor)

- **Presidential Address**
  9:30–10:15am • Tremont Grand—Corinthian Room (2nd Floor) • 0.075 Business CEUs

- **Plenary 1: Keynote Address: Visual Clarity for the World: Art Direction at National Geographic**
  10:15–11:15am • Tremont Grand—Corinthian Room (2nd floor) • 0.10 Art CEUs

- **Break** • 11:15–11:30am

- **Plenary 2: Brödel Memorial Lecture: Science and Aesthetics of Biology Through a Microscope**
  11:30am–12:30pm • Tremont Grand—Corinthian Room (2nd floor) • 0.10 Biomed CEUs

- **Annual Business Lunch**
  12:30–2:15pm • Tremont Grand—Corinthian Room (2nd Floor) • Box lunch provided

- **Lighting Strategies for Small Object Photography**
  2:15–3:15pm • Composite Room (3rd floor) • 0.10 Art CEUs

- **Archiving Illustration: Exploring Collective History**
  2:15–3:15pm • Oriental Room (4th floor) • 0.10 Biomed CEUs

- **Schuler School**
  3:30–4:30pm • Tuscan Room (3rd floor) • 0.10 Art CEUs

- **Combining Flash and XML at NEJM**
  3:30–4:30pm • Composite Room (3rd floor) • 0.10 Art CEUs

- **Augmented Reality in Visualization**
  3:30–4:30pm • Ionic Room (3rd floor) • 0.10 Biomed CEUs

- **Break** • 4:30–4:45pm

- **AMI First-Timers Luncheon**
  12:30–2:15pm • Chapter Room (4th floor) • No CEUs • Box lunch provided

- **Dinner on your own**

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**Thursday**

- **Salon Opening and Breakfast**
  7:45–9am (Ribbon cutting at 8:45am)
  Tremont Grand—Edinburgh Hall and Mirror Room (5th floor) and Doric Room (4th floor)

- **Meeting Welcome**
  9:15–9:30am • Corinthian Room (2nd Floor)

- **Presidential Address**
  9:30–10:15am • Tremont Grand—Corinthian Room (2nd Floor) • 0.075 Business CEUs

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  12:30–2:15pm • Chapter Room (4th floor) • No CEUs • Box lunch provided

- **Dinner on your own**

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**Vesalius Trust Auction (Live and Silent) and Student Poster Session**
5:45–7:30pm • Tremont Grand—Marble Room (1st floor) • Hors d’oeuvres provided, cash bar
**Friday**

**Salon open 8am–7pm**

**Breakfast** • 7:30–8am • Tremont Grand—Roman Strada Room (2nd floor)

**Plenary 4: Visualizing Protein Interactions & Dynamics: Evolving a Visual Language for Molecular Animation**
8–9am • Tremont Grand—Corinthian Room (2nd floor) • 0.10 Art CEUs

**Plenary 5: Building Brands That Build Community**
9–10am • Tremont Grand—Corinthian Room (2nd floor) • 0.10 Business CEUs

**Break** • 10–10:15am

**Announcements** • 10:15–10:30am • Tremont Grand—Corinthian Room (2nd floor)

**Plenary 6: Visualizing Cells and Viruses at Molecular Resolution With 3D Electron Microscopy**
10:30–11:30am • Tremont Grand—Corinthian Room (2nd floor) • 0.10 Biomed CEUs

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**Saturday**

**Breakfast** • 7:30–8:15am

**Board of Governors Meeting** • 7:30–8:15am

**Plenary 7: Life-Cycle of a Pharmaceutical: Commercialization and Marketing**
8:30–9:30am • Tremont Grand—Corinthian Room (2nd floor) • 0.10 Biomed CEUs

**Plenary 8: Our Surgical Heritage: The Life of William Stewart Halsted, Illustrated**
9:30–10:30am • Tremont Grand—Corinthian Room (2nd floor) • 0.10 Biomed CEUs

**Break** • 10:30–10:45am

**Plenary 9: The Image of the Site: Aesthetics, Trust, and Visual Decisions About Web Pages and Other Visual Displays**
10:45–11:45am • Tremont Grand—Corinthian Room (2nd floor) • 0.10 Art CEUs

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**Board buses to travel from Tremont Grand (Charles St.) to Johns Hopkins**
11:30–11:50am

**Board buses to travel from Johns Hopkins to Tremont Grand**
4:30–5:15pm

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**Techniques Showcase**
1:30–4:15pm

Johns Hopkins, Armstrong Building

See pages 18–21 for room assignments and detailed descriptions of presentations
We have developed an open-source plug-in, embedded Python Molecular Viewer (ePMV), that runs molecular modeling software directly inside of professional 3D animation applications (hosts) to provide simultaneous access to the capabilities of these newly connected systems. Uniting host and molecular toolkit functionalities into a single interface allows illustrators to quickly create common representations of molecular models and to perform computational simulations, like molecular dynamics, directly inside of a host’s viewport with relative ease.

Available free at http://epmv.scripps.edu, ePMV currently supports Blender, MAXON Cinema 4D, Autodesk® Maya®, and Houdini. It should soon support Google Sketchup, Autodesk® 3Ds Max®, RealFlow, Autodesk® Softimage®, etc.

This workshop introduces ePMV basics and transitions smoothly to cover highly advanced ePMV techniques. Participants will learn to install ePMV, then read, model, and chemically color dozens of standard file-types including .pdb and .mrc in seconds. They’ll learn how to load and animate 4D data such as molecular dynamics trajectories and nuclear magnetic resonance (NMR) states. Users will further learn to use advanced modules that we have included in ePMV, including molecular dynamics, augmented reality, protein-ligand and protein-protein docking, procedural subcellular modelers (AutoFill), and other physics simulators that will help them easily create accurate and sophisticated molecular interactions and molecular machines for use in illustration or animation.

Matthew Cummings has worked in the wonderful world of web design in and around Baltimore for the past 10 years. Matt is currently the Senior Interaction Designer for No.1nc, a collaborative services firm focused on solving business communications problems using audience-centric design and emerging information technology. Matt has designed user experiences for over 30 full-scale web applications and 2 times as many websites for clients such as Johns Hopkins, AOL’s Advertising.com, BET, Boost Mobile, and The Discovery Channel. As if he can’t get enough design for online, he is always looking for the next fun little freelance project for small upstart business ventures. Mr. Cummings has a BS degree in graphic design and photography from Towson University.

Graham Johnson is a Certified Medical Illustrator (Johns Hopkins 1997) with 16 years of professional experience specialized in visualizing molecular and cellular biology. He fully illustrated both editions of the award-winning textbook Cell Biology by Pollard & Earnshaw as a coauthor, and has created thousands of ground-breaking scientific visuals ranging from journal covers and pedagogic animations to game concept art. Graham currently develops software to bridge the gap between art and science, while finishing a PhD in biophysics from The Scripps Research Institute. He lectures yearly on both molecular graphics and protein-docking to illustrators and biologists. More at www.grahamj.com.

Fabian de Kok-Mercado is a Certified Medical Illustrator who received his master of arts degree in medical and biological illustration from the Department of Art as Applied to Medicine at The Johns Hopkins University School of Medicine. He is currently employed by the Battelle Memorial Institute as the Medical Illustrator for the NIH National Institute of Allergy and Infectious Diseases (NIAID) Integrated Research Facility in Frederick, MD. He also operates ProAtlantal Studio, a biomedical illustration and animation business, with his wife and colleague, Lydia Gregg.
Fine-Tuning Your Web Development Skills: Intermediate Flash® and ActionScript 3

Daniel Müller

The Adobe® Flash® Platform currently is and will remain for many more years to come the industry-leading authoring software environment for medical illustrators to create interactive content. Flash has advanced and precise drawing and editing tools, it integrates smoothly with all other Adobe family applications, and it has an extremely powerful programming language called ActionScript 3, all of which allow for creating engaging, complex digital and web experiences quickly and self-sufficiently.

Key Flash and ActionScript 3 standards, concepts, and techniques will be presented as participants build several small interactive modules. Participants will create a dynamic portfolio that will load an XML file with all the information necessary to link the completed modules together with other textual information such as contacts and bio.

Note: This workshop will be fast-paced and is not recommended for beginners. Participants should be very comfortable with Flash editing tools and panels, as well as have a basic knowledge of ActionScript 2 or 3 (including familiarity with variables, functions, and event listeners.)

Daniel Müller is a graduate of the Department of Art as Applied to Medicine at The Johns Hopkins University School of Medicine. He has been working at The New England Journal of Medicine since 2004 as a medical illustrator. Currently, he holds the title of Interactive Medical Media Designer and is responsible for developing a variety of interactive modules for the web version of the journal. Daniel has completed multiple Adobe Flash ActionScript certified courses, as well as workshops in user-centered design and user experience for the web and mobile platforms.

Harvesting Medical Imaging Datasets for Production Ready 3D Models and Textures

Scott Dixon

3D medical modeling and animation production demands a high-level of accuracy and detail. Many questionable medical models exist on the web at sites such as www.turbosquid.com or the equivalent. 3DScience.com is perhaps the leader in online medical models and textures for overall quality. However, there is an overall lack of accuracy in the 3D medical model market, coupled with little to no realistic texturing. Medical artists must be prepared to originate or alter 3D models and textures to a higher level of accuracy and detail to serve their purposes.

During the first half of the workshop attendees will work on data set extraction by loading a medical dataset and generating a mesh from a volume renderer such as OsiriX®, Mimics, or Slicer. The subject matter will be something manageable, such as a kidney. Using this inefficient triangulated mesh as a template within Autodesk® 3Ds Max®, we will utilize retopology tools to create a more efficient polygon model. As time permits, we can also explore similar workflows within Pixologic’s ZBrush®.

During the second half of the workshop attendees will further modify and realize the benefits of this retopologized model by sculpting and painting both normal and diseased anatomy in Autodesk® Mudbox™. This will involve a thorough review of MudBox features and the ease of pipeline integration with Maya® and 3Ds Max. Maps and models will then be extracted and opened in 3Ds Max. We will then explore the application of normal and displacement maps to the retopologized low poly models as part of the final process in becoming production ready.

The final model will be an accurate representation of the dataset from which it was derived. The final models will also be optimized and support a variety of production workflows, such as animation, web interactives, mobile apps, 3D PDFs, etc.

Scott Dixon is a clinical Assistant Professor at University of Illinois at Chicago (UIC). He leads courses in the Biomedical Visualization program such as Computer Applications, Computer Visualization, Animation, and Advanced Imaging Applications. His research interests include virtual reality and stereo imaging, serious gaming, rapid prototyping, and mobile app development. Scott graduated from UIC in 2006 and began teaching immediately upon the retirement of Mary Rasmussen, creator of the Virtual Reality in Medicine Lab. His undergraduate focus was digital media at East Tennessee State University, Alias|Wavefront’s first official “Premiere Academic Partner” in the world. Graduates of the program have worked on films such as Avatar and popular games like Infamous. Scott also has training in CAD, extending his history with Autodesk products and 3Ds Max to approximately 13 years.
Wednesday

8am – 12pm
MICA Studio 218
(0.20 Art and 0.20 Business CEUs)

He Said, She Said: Medical Malpractice Strategy Development
Emily Ullo Steigler

Medical illustration can be an integral part of medical malpractice case strategy, both plaintiff and defense. It can allow the jury or judge to see what the defendant actually encountered during surgery, to understand a complex medical mechanism, or to compare a patient film to normal anatomy, etc. In this way, the issues become much more real and understandable to the lay person; more so than a lengthy testimony filled with medical and technical terms. Visual exhibit strategy differs greatly depending on the side of the argument and the specific issues of the case.

Each participant will receive a case to review before the workshop. A brief lecture will outline key points in plaintiff and defense strategy discussing exhibit goals, types of exhibits, and concerns/potential problems. Participants will then develop an exhibit proposal for their respective case and side, and present their exhibits in a mock trial setup to the group in order to allow all participants to examine the effectiveness and potential problems with proposed medical illustrations or animations.

Emily Ullo Steigler is a graduate of The Medical College of Georgia Department of Medical Illustration. She joined Seif Medical Graphics after graduating in 2006. She began private practice medical illustration as Medical Explanation in 2007, and has worked in educational publishing, surgical illustration, and medical malpractice defense. She was also an adjunct faculty member at Austin Peay University from 2008-2009. She currently works with Seif Medical Graphics as a case strategist and a lecturer to legal and insurance groups, providing continuing legal education.

1pm – 5pm
MICA Studio 218
(0.40 Art CEUs)

Color & Light: A Master Class on Theory and Application
Bill Andrews and David Mascaro

In this workshop, Bill Andrews and David Mascaro will guide the participants in a tour through, around, and over the rainbow. The journey will begin by exploring the perceptual basis of color through examples drawn from life. Then, the group will examine the different theories used to explain and model color perception, including Newton, Goethe, Munsell, Birren, and the International Commission on Illumination (CIE). The next stop on the tour will be to consider the theoretical attributes of color (hue, saturation, and value). With that knowledge, the group will develop effective color palettes for different uses. Along the way we will build an understanding of how RGB and CMYK color space relate to each other. Participants will receive reference handouts, as well numerous digital tools for exploring color.

Bill Andrews received his BA in art in 1978 from the University of Texas at Austin and his MA in biomedical communications in 1980 from the University of Texas Health Science Center at Dallas. He is currently pursuing a PhD in Health Promotion, Education, and Behavior at the University of South Carolina, Columbia. Bill began his professional career as a medical illustrator at the University of Arizona Health Science Center at Tucson before moving to Houston, Texas, in 1981. He worked in varying capacities in the Texas Medical Center, including Art Director for the Texas Heart Institute and Manager of Medical Illustration & Graphic Design Services at the University of Texas M. D. Anderson Cancer Center. He was honored to join the MCG faculty in 1999. He currently serves as Education Program Coordinator, Gallery Director, and Webmaster. Bill has won numerous professional awards and has had works included in juried exhibits around the world. Bill has presented numerous seminars and workshops across the United States and in Canada, France, Italy, and the Netherlands. He has been an active professional member of the Association of Medical Illustrators since 1982. He has served as President of the AMI and on the Board of Governors and is a Fellow of the AMI. Bill has been Editor of the national newsletter and is currently the Editor for the Source Book of Medical Illustration. Bill has been recognized as a Certified Medical Illustrator since 1993. In 1988, Bill became the founding President of the Vesalius Trust, an educational foundation supporting research and education in visual communications for the health sciences.

David Mascaro received his BS and MS degrees in medical illustration from MCG in 1969. Prior to his medical illustration training, he received extensive fine arts training at The Art Students League, The National Academy of Fine Arts, and The School of Visual Arts—all in New York City. After receiving his MS degree in medical illustration from the Medical College of Georgia, he accepted a medical illustrator position at Upstate Medical Center, Syracuse, New York. David returned to MCG in 1971 to teach in the Medical Illustration Graduate Program. David has published numerous articles on the use of color in medical illustration, has conducted many national and regional workshops on color theory, and was an active member of the Association of Medical Illustrators. David helped to revise the illustrative work begun by the late Dr. Frank Netter for the CIBA Pharmaceutical Company. Capping a 29-year career in teaching at MCG, David was recognized with the Distinguished Service Award from the School of Allied Health Sciences on April 20, 2000. David retired from daily teaching responsibilities June 30, 2000. Later that summer, the program established the David J. Mascaro Teaching Gallery of Medical Illustration as a lasting tribute to the teacher and artist. As an Emeritus Professor, David presents special lectures on color theory and watercolor technique, and participates in assignment critiques.

Emily Ullo Steigler

David Mascaro
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The presentation will demonstrate the challenges and successes of creating award-winning visual stories for a broad, international audience. The Art Department of National Geographic is a multidisciplinary team creating information graphics, geographic, and thematic cartography, scientific visualization, historical paintings, and anatomically accurate three-dimensional reconstructions of extinct creatures. National Geographic spends months producing original research and working with experts and consultants to achieve the most up-to-date and rigorous visualizations. We pore through tens of thousands of data points in spreadsheets and databases to find the visual story behind the numbers. We painstakingly build every layer of muscle in a reconstructed body to obtain the right proportions. We hire satellite companies to redirect their eye on the sky and take the image of a hot spot in the world because it was almost right but not quite. We consult with ornithologists about the shape of an almost invisible bird in the background of a historical painting. The quest for perfection never ends. The presentation will take a look at the process of creating art, maps, and graphics in the magazine, from rough pencil sketches to sophisticated final renderings.

Dr. Linda Wilson-Pauwels is a Professor and former Director of Biomedical Communications, Department of Biology, University of Toronto, Mississauga. Linda is the 2008 recipient of the AMI’s Brödel Award for Excellence in Education. She is the first coauthor of Cranial Nerves, PMPH.

Juan Velasco has been the Art Director of National Geographic magazine since 2008. He manages the Graphics and Cartographic departments, as well as freelance illustration. Previously, Juan worked as a graphics artist for El Mundo (Spain) and as the Graphics Art Director for The New York Times. In 2002, he founded his own consulting company, 5W Infographics, based in New York City and Madrid. Juan has won close to a hundred Society for News Design and Malofiej awards, as well as awards from Society of Publication Design and the American Institute of Graphic Arts. He was also a Pulitzer Prize finalist in 2001 as part of a team of writers and visual journalists for The New York Times. As a consultant, Juan has helped to restructure graphics departments and newsrooms around the world, including Le Monde in Paris and Puls Biznesu in Warsaw. He is an instructor for the “Show, Don’t Tell” infographics workshop, part of the SND-e Malofiej conference in the University of Pamplona, and a visiting teacher for the University of Hong Kong.
Drew Berry is a biomedical animator whose scientifically accurate and aesthetically rich visualizations reveal the microscopic world inside our bodies to a wide range of audiences. Trained as a cell biologist at the University of Melbourne, Drew Berry brings a rigorous scientific approach to each project, immersing himself in the relevant research in structural biology, biochemistry, and genetics to ensure that the most current data are represented. In three-dimensional renderings of such key biological concepts as cell death, tumor growth, and the packaging of DNA, Drew Berry captures the details of molecular shape, scale, behavior, and dynamics in striking form. His ground-breaking animations of the intricate biochemistry of DNA replication, translation, and transcription demonstrates these multifaceted processes in ways that enlighten both scientists and the scientifically-curious. In these and many other projects in progress, Drew Berry synthesizes data across a variety of fields and presents them in engaging and lucid animations that both inspire a sense of wonder and enhance understanding of biological systems.

Drew Berry received BSc and MSc degrees from the University of Melbourne. His animations have appeared in exhibitions and multimedia programs at such venues as the Museum of Modern Art (New York), the Guggenheim Museum, the Royal Institute of Great Britain, and the University of Geneva. In 2010, he received a MacArthur Fellowship “Genius Award.”

Emily Shaw graduated in 2003 from The Johns Hopkins University Art as Applied to Medicine Department. While at Hopkins, she was awarded the Vesalius Trust Alan W. Cole scholarship for a 3D animation of trypanosome KDNA replication. Her fine arts experience was acquired at Maryland Institute College of Art where she earned a BFA with a focus on painting and art history. Since 2003, Emily has been sole proprietor of the company, Illustrating Medicine, and has produced work for clients such as Wilmer Eye Institute, Johns Hopkins, National Institutes of Health, Johnson & Johnson, Lippincott, Williams & Wilkins, Women’s Magazine, Journal of Bone and Joint Surgery, Quality Medical Publishing, Laerdal Medical Corporation, MedStar Health, and GBMC. She holds a position as manager of the MedStar SITEL Clinical Simulation Center providing simulation-based continuing education to Baltimore-area hospital staff. Emily volunteers as an Emergency Medical Technician for a local fire department and is currently pursuing an AAS degree in Emergency Medicine, including certification as an EMT-Paramedic. Outside of work, she enjoys ice hockey, roller derby, and motherhood.

Andrew Swift is the sole proprietor of Swift Illustration (www.swiftillustration.com) and Chief Creative Director with iso-FORM (www.iso-form.com). Andrew earned his MS in medical illustration from the Medical College of Georgia in 1999. Following graduation, Andrew worked as an Assistant Professor at MCG with a joint appointment in the Department of Medical Illustration and the Department of Surgery, Section of Neurosurgery. Andrew was an Associate Professor with the Medical Illustration Graduate Program from 2000 until 2010. Andrew has been a Professional Member of the Association of Medical Illustrators since 2000, and was recognized as a Certified Medical Illustrator in 2002. Andrew’s illustration work has won numerous awards, including the Ralph Sweet Member’s Choice Award which he has won 3 times.
Norm Barker is an Associate Professor in Pathology and Art as Applied to Medicine at The Johns Hopkins University School of Medicine. He is Director of Pathology Photography and Graphics. He specializes in photomicroscopy and macro photography. He is a fellow of the Biocommunications Association and his work appears in textbooks, journals, and museums worldwide. His photographs are in the permanent collections of more than forty museums, including The Smithsonian, The George Eastman House, The American Museum of Natural History, The Nelson-Atkins Museum, and The Science Museum in London. He is currently collaborating on a book entitled The Eye of The Beholder: Exploring The Aesthetics of Medicine.

Nicholas Woolridge received his Bachelor of Fine Arts degree in 1985 from Mount Allison University with a major in photography and a minor in painting. In 1991 he graduated from the University of Toronto with a Bachelor of Science in biomedical communications. In 1996 he received his MSc from the Institute of Medical Science at the University of Toronto. The topic of his thesis was the development and formative evaluation of a semi-immersive clinical simulation for medical students, which had been funded by SPAR Aerospace. He is currently a tenured Associate Professor and Director of Biomedical Communications (BMC) at the University of Toronto. He conducts research in the development of digital media as instruments of biomedical research, teaching, and patient assistance. He is the coauthor of Anatomy 300/303: Interactive Lab Companion, as well as coauthor (with Jason Sharpe and Charles Lumsden) of the recent book Silico: 3D Animation and Simulation of Cell Biology with Maya and MEL.

Kim Sawchuk is a Professor in the Department of Communication Studies, Concordia University. Dr. Sawchuk’s writings on the history and politics of the body have included a number of collaborative coedited collections with artists and researchers including Sampling the Wireless Spectrum (2010); Used/GOODs (2009); Sampling the Wireless Spectrum (2010); Wild Science: Reading Feminism, Medicine, and the Media (Routledge, 2000) and When Pain Strikes (University of Minnesota, 1999). Sawchuk is the Principal Investigator for Illustrating Medicine: Grant’s An Atlas of Anatomy, a collaborative research project, with the Graduate Program in Biomedical Communications (BMC) University of Toronto. The drawings at the core of this pilot project reside at the BMC. The research component of the project examines the shift from systems anatomy to regional, or topographical anatomy, which created new modalities of movement through corporeal space for surgeons and pathologists. Articles on this project have appeared (with Nina Czegledy) in The International Journal of Art and Society (2010). Forthcoming have been accepted in Body and Society (2011) and, the Journal of Visual Communications (with Nicholas Woolridge and Jodi Jenkinson, 2011). For the past six years, Sawchuk has been the Editor of the Canadian Journal of Communication and the co-editor of Wi: Journal of Mobile Media.

Nancy Marrelli was the Director of Archives at Concordia University in Montreal for 28 years; she retired in 2010, but remains an active Archivist Emeritus. Nancy actively participates in professional activities with many archival associations in Canada, the US, and internationally; working and publishing in English and French particularly in the areas of archival preservation, copyright, and audiovisual archives. She has been a speaker at a wide variety of workshops and conferences. She is the chair of the Canadian archival community copyright committee. She chairs an International Council of Archives Archival Solidarity Committee which aims to coordinate foreign assistance efforts in the international archives community for developing communities and communities in transition. She has worked with a number of dance organizations to address their audiovisual archival needs. In addition to professional publications Nancy has published on Montreal history, including most recently: Stepping Out: the Golden Age of Montreal Nightclubs, 2004; Building Concordia: Concordia University As Seen Through Its Buildings; and she coedited edited The Scots of Montreal; A Pictorial Album, 2005. Nancy and her partner, Simon Dardick, are the owners and publishers of the Montreal publishing house, Véhicule Press, for which she also does editorial work. Nancy lives in a late Victorian limestone house in downtown Montreal. For fun she loves to travel, cook, garden, and hunt for antique dishes, linens, and lace.
Since 1959, the Schuler School of Fine Arts in Baltimore, Maryland, has been training students in the methods and techniques of the Old Masters. The goal of the Schuler School has been, and continues to be, to assure that future generations of artists receive the wisdom of the past while acquiring the creative freedom that only the mastery of traditional skills can provide. Drawing is stressed as the foundation for the study of painting and sculpture, and emphasis is placed on the mastery of the technical aspects of each discipline. Continuing in the tradition of Jacques Maroger, students at Schuler are trained to grind powdered pigments with the black oil that the student has prepared; make Maroger medium; prepare painting surfaces; make molds and cast sculpture, etc. The classes taught at the Schuler School train the artist in the perfection of their craft while teaching them the interrelationships of the various disciplines. Through his own exceptional work and the work of other faculty and students at the Schuler School, Hans will inspire the traditional fine artist in all of us.

Augmented reality (AR) is changing the way in which we see the world. It can provide new information about our surroundings, or make passive images into interactive tools. These visualizations present a new way to engage and educate a medical audience. With the help of AR, physicians can train using virtual procedures, medical students can brush up on their anatomy, and healthcare professionals can be educated on disease progression in ways that were previously never available. This session will provide an overview of AR, including how it was developed and works. Common examples will be used to help familiarize the audience with this new technology, and then the benefits and limitations of using AR will be discussed. The presenters will explain how AR is becoming an important part of medical visualization, including a case study and demonstrations of some recent projects developed at InViVo that use this exciting technology.

The Adobe® Flash® Platform, including Flash and Flex, is the industry-leading authoring software environment used to create engaging and complex web experiences and applications. With the release of ActionScript 3, Flash introduced a new system based on the ECMAScript standard to handle XML data. This opened the doors for developers to create, in a very simple and efficient way, Flash applications that are truly dynamic and easily customized. The New England Journal of Medicine has been using the power of Flash technology combined with XML data for the past 3 years. Two primary ways of using XML have emerged in our production work. The first one is the use of XML to handle XML data. This usage not only decreases production time, but also allows for a larger number of people to dynamically customize and change Flash templates such as video, audio, and slideshow applications. This usage not only decreases production time, but also allows for a larger number of people to create content by directly editing XML files without any knowledge of Flash and ActionScript. The second way is to use Flash and its powerful visual editing tools and resources to visualize large and complex sets of XML data (datasets that are very difficult to visualize in traditional static forms) successfully in an interactive form. This presentation will show several examples of how the journal has used Flash together with XML and demonstrate the benefits of this technology.
As the AMI celebrates the beginnings of medical illustration, the Vesalius Trust looks back also and celebrates one of the most memorable first live auction events—Alan Cole, Carol Donner, and Jack Desley were seated together during an AMI banquet and started doodling—on the tablecloth! Peggy Henry offered to buy the tablecloth and offered it to Don Biggerstaff for the upcoming live auction. The doodling was highly prized—the result was shared custody between the two last bidders. This year, six captains have been volunteered to lead six teams in creating their own tablecloth. At the end of the evening, the actual tablecloths will be auctioned off for a lucky winner to take home as a cherished linen.

The Vesalius Trust Silent Auction provides an annual opportunity to bid on and purchase some of the most unique and intriguing items for your studio. Included will be medical illustrations, anatomical models, old and new medical books, medical instruments, drawing supplies, and just about anything else that you might think of. All items will be on display in the ballroom and bidding will end before the live auction gets under way.

**Thursday**

**4:45pm – 5:45pm**
Corinthian Room (2nd floor)
0.10 Biomed CEUs

**Plenary 3: Vesalius Trust Scholars Session**
Moderator: Jennifer E. Fairman, MA, CMI, FAMI
The Vesalius Trust Student Poster Session will follow in the Marble Room in the same location as the Vesalius Trust Auction.

The Vesalius Trust for Visual Communication in the Health Sciences is proud to host this Vesalius Trust Scholars session devoted to student research in the areas of medical illustration and biomedical communication. The Trust is pleased to have awarded significant financial grants this year in support of these student projects, and we welcome each of the student presenters. In addition, we congratulate every Vesalius Trust grant applicant, and we wish all of this year’s biocommunication graduates success—10 of whom will present the research done as part of their graduate studies.

These award recipients will describe their research goals, problem-solving techniques and general methodology, including the use of traditional and innovative, computer-based techniques. Attendees will gain keen insight into the clinical, biomedical, and instructional design research currently being undertaken by medical illustration students in North America.

Joshua Bird, Georgia Health Sciences University—Research Grant Recipient • Developmental Origins of the Eye

Jodi Chapman, Johns Hopkins University—Alan Cole Scholar Educational Gaming: Creating an Effective 3D Video Game to Teach Human Genetics and Carcinogenesis to High School Students

Jennifer Fairman is the Founder and Principal of Fairman Studios, LLC and is an Assistant Professor in the Department of Art as Applied to Medicine, The Johns Hopkins University School of Medicine, where she previously received her MA in medical and biological illustration.

Joyce Hui, University of Toronto—Vesalian Scholar Perpetual Pain: Nerve Growth Factor and its Role in Rheumatoid Arthritic Pain

Sayaka Isowa, University of Illinois at Chicago—Vesalian Scholar 3D Form and Motion Reconstruction of a Digging Raptor with Emphasis on Forelimb Range of Motion and Digging

Bona Kim, Johns Hopkins University—Inez Demonet Scholar and Research Grant Recipient • Medical Illustrations and the iPad: A New Approach to Education for Pancreatic Cancer

Beatrice Lau, University of Toronto—Research Grant Recipient A Three-Dimensional Animated Visualization of the Growth and Development of the Human Craniofacial Skeleton from Birth to Adulthood

Adam Pellerite, Johns Hopkins University—Vesalian Scholar Visualizing Immune Responses to SIV Infection in Natural and Non-Natural Primate Hosts through a Multi-Platform Educational Module

Tara Rose, Johns Hopkins University—Research Grant Recipient • Face to Face: Applying Facial Analysis Principles to 3D Models of Recipients and Donors to Create Physician Education Materials to Improve Outcomes for Face Transplantation

Bricelyn Strauch, Johns Hopkins University—Research Grant Recipient • Silent Aspiration Visualization: An Interactive 3D Model Comparing Normal vs. Abnormal Deglutition Based on Diagnostic Imaging and Motion Tracking Technology

**5:45pm – 7:30pm**
Marble Room (1st floor)

**Vesalius Trust Auction & Student Poster Session**
Vesalius Trust for Visual Communication in the Health Sciences

Hors d’oeuvres provided, cash bar

As the AMI celebrates the beginnings of medical illustration, the Vesalius Trust looks back also and celebrates one of the most memorable first live auction events—Alan Cole, Carol Donner, and Jack Desley were seated together during an AMI banquet and started doodling—on the tablecloth! Peggy Henry offered to buy the tablecloth and offered it to Don Biggerstaff for the upcoming live auction. The doodling was highly prized—the result was shared custody between the two last bidders. This year, six captains have been volunteered to lead six teams in creating their own tablecloth. At the end of the evening, the actual tablecloths will be auctioned off for a lucky winner to take home as a cherished linen.

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Our insight into human health and disease is dependent on our ability to understand dynamic and increasingly complex cellular and molecular processes. Three-dimensional visualizations can be powerful tools of intuition as the need to integrate information from diverse fields becomes paramount. Although such advanced 3D visualizations are also expected to have an impact on the ability of students to assimilate complex spatial and temporal events, little quantitative evidence exists to support this idea. As the field of molecular animation evolves, driven by the integration and use of powerful 3D software suites, it becomes critical to understand not only the impact of such visuals on students but also to develop a visual language that maximizes pedagogical outcomes.

This presentation will explore our ongoing research examining the relative effectiveness of 3D visualization techniques for learning about molecular biology, specifically protein conformation and molecular motion in association with a cell-binding event. The findings of a preliminary study, involving undergraduate biology students (n = 131) will be discussed. Briefly summarized here, student participants were randomly assigned to one of 4 conditions, where they were shown a variant of an animation depicting the same binding event. Animations differed in terms of the level of visual complexity represented in each condition. Results suggest that there were significant differences between the conditions and that increasingly complex representations were more effective in helping students to understand aspects of cell binding events.

Jodie Jenkinson is an Assistant Professor of Biomedical Communications, University of Toronto, where she teaches Community-Centred Design Research, Information and Data Visualization, and Web-based Health & Science Design. Jodie has extensive experience in the development and evaluation of educational multimedia for both the professional and lay audience. Her research interests include information visualization and perception-based design theory, and the assessment of visual media for science and medicine.

Dr. Gaël McGill is Director of Molecular Visualization at the Center for Molecular and Cellular Dynamics at Harvard Medical School, where he also teaches scientific visualization. He is Founder & CEO of Digizyme, Inc. a firm dedicated to the visualization and communication of science through advanced technology applications. Dr. McGill is the creator of the online portal molecularmovies.org and the Molecular Maya software toolkit. He is also a technical editor for Wiley/SYBEX Publishing, where he has contributed to leading Maya and ZBrush textbooks. Dr. McGill is also currently the Digital Media Director for E.O. Wilson’s Life on Earth next-generation digital biology textbook.

“Milkshake Media—we believe in community.” We believe that the accelerated pace of modern life has people looking for genuine community more than ever before. Brands can meet that need in new and profound ways. Milkshake is the premier brand strategy agency for brands that build community and launch movements. While Milkshake’s clients include a wide variety of industries, they’re united by a deep commitment to brand, community, and experience. Katherine will share Milkshake’s unique approach to branding, including the community model that lies at the heart of creating high-profile brands such as: LIVESTRONG for the Lance Armstrong Foundation, sports architecture firm POPULOUS (designers of the London 2012 Olympics, new Yankee and Mets stadia), and Generation TX, a statewide movement to create a college-going culture across Texas. Milkshake develops brands that spark and foster community—from public radio stations to museums, education initiatives, grocery stores, and medical institutions. Ms. Jones believes that her clients’ brands have the potential to provide their customers an opportunity to be a part of something larger.

Katherine Jones is the Principal and Founder of Milkshake Media in Austin, TX. She graduated from the University of Michigan with a BFA in fine arts and a BGS in zoology and earned an MA from The Johns Hopkins University School of Medicine in Medical and biological illustration. She worked in 3D computer visualization, animation, and interactive entertainment, and film (title sequence of Fight Club) before establishing her internationally recognized brand strategy firm, Milkshake Media, in 1999. Ms. Jones’ passion lies in uncovering the soul of a brand and getting to its core essence so that the brand can be clearly positioned and, ultimately, creatively expressed.
Emerging methods in three-dimensional biological electron microscopy provide powerful tools and great promise to bridge a critical gap in imaging in the biomedical size spectrum. This comprises a size range of considerable interest that includes cellular protein machines, giant protein and nucleic acid assemblies, small subcellular organelles, and bacteria. These objects are generally too large and/or too heterogeneous to be investigated by high resolution X-ray and NMR methods; yet the level of detail afforded by conventional light and electron microscopy is often not adequate to describe their structures at resolutions high enough to be useful in understanding the chemical basis of biological function. The long-term mission of Dr. Subramaniam’s research program is to obtain an integrated molecular understanding of cellular architecture by combining novel technologies for 3D biological imaging with advanced methods for image segmentation and computational analysis. This talk will review the presenters’ recent progress in imaging and modeling dynamic biological systems, with particular emphasis on applications to signal transduction, HIV/AIDS, and cancer.

Dr. Subramaniam is Chief of the Biophysics Section in the Laboratory of Cell Biology at the Center for Cancer Research, National Cancer Institute. He received his PhD in physical chemistry from Stanford University and completed postdoctoral training in the Departments of Chemistry and Biology at MIT. Dr. Subramaniam has received many honors, including the Damon-Runyon Walter-Winchell Cancer Research Foundation Fellowship award, Fogarty Senior International Fellowship award, NIH Director’s Award, the Searle Scholar Award, FLC MAR Excellence in Technology Transfer Award, election to membership in the American Academy of Microbiology, and has served on the Advisory Boards for the Center for Cancer Research, NCI, the NIH graduate partnerships program, and the Advanced Technology Program at SAIC-Frederick. He holds a visiting faculty appointment at The Johns Hopkins University School of Medicine. His current work is focused on the development of advanced technologies for imaging macromolecular assemblies using 3D electron microscopy, and their application to address fundamental problems in AIDS and cancer.

Donald Bliss graduated with a degree in medical and biological illustration from The Johns Hopkins University School of Medicine in 1992. He joined the Department of Radiology and worked there with a small team of doctors and scientists developing early computer multimedia for radiology residents. At Engineering Animation, Inc., he worked on medical animations and interactive media for the pharmaceutical industry. Joining the National Institutes of Health in 2000, he led a group of graphic designers and medical illustrators creating illustrations and animations to support research at the NIH. Currently, he works at the National Library of Medicine participating in research with the National Cancer Institute developing novel visualization techniques. Donny is an Assistant Professor teaching an introduction to 3D modeling and animation in the Department of Art as Applied to Medicine, The Johns Hopkins University School of Medicine.

An exhibit of over 250 works of medical illustration and animation is on display this summer to commemorate the 100th anniversary of the Department of Art as Applied to Medicine at The Johns Hopkins University. This exhibit is in the Turner Building, Concourse level, accessible from the Rutland Avenue entrance. It is 3 blocks from the Armstrong Building. There is a guard station at the entrance to Turner, located at 720 Rutland Avenue, 21287 (see map, back cover).

Your time on the Johns Hopkins medical campus provides an opportunity to see hundreds of the graduates’ work collected for the first time—from the exquisite pen and ink embryos of James Didusch for the Carnegie Institute of Embryology, to neurological masterworks of Dorcas Padget for Dr. Walter Dandy, and cardiac surgery innovations depicted in carbon dust by Leon Schlossberg, to astonishing animations created by recent graduates depicting the dynamics of cellular and molecular interactions. The exhibit demonstrates the pioneering and enduring roles of medical illustrators trained at Johns Hopkins. Original Brödel illustrations are also on display, including work never seen outside the university.
Session A: 1pm – 2:45pm
Armstrong Building—Rooms 441-445
0.175 Biomed CEUs

Abdominal Vasculature and AAA Repair
Miguel A. Schön Ybarra, PhD; Richard Heitmiller, MD, FACS; and Mojtaba Gashti, DO

This course will consist of an anatomical review of the vasculature of the abdomen and a simulated surgical repair of an abdominal aortic aneurysm (AAA). Demonstrations will be made of the arteries, veins, and their corresponding main branches, which circulate blood through the intra-abdominopelvic digestive, urinary, and reproductive organs in one embalmed, prosected adult human specimen. Participants will sketch from a live simulated open abdominal aortic aneurysm (AAA) repair performed by a surgical resident on a simulated aneurism in the abdomen of a cadaver. The procedure will include cross-clamping the aorta, inserting graft material, and assessing aneurism repair by checking for leakage around graft after unclamping aorta. Vascular surgery faculty will review operative planning for an AAA repair, proctor the procedure, and be available to answer questions.

Dr. Heitmiller is Chief of Surgery, Program Director of General Surgery and Surgical Residency Program Director at Union Memorial Hospital (UMH). He performs a broad range of thoracic procedures related to cancer of the lung and esophagus. He received his medical degree from The Johns Hopkins University School of Medicine, and completed his surgical specialty training in general and thoracic surgery at Massachusetts General Hospital.

Dr. Gashti is a vascular surgeon at Union Memorial Hospital (UMH). He specializes in the diagnosis and treatment of vascular disease and performs the latest endovascular procedures (carotid stenting, stent-graft repair of abdominal and thoracic aortic aneurysms). Dr. Gashti received his PhD of osteopathic medicine at University of New England College, and completed his residency at Saint Barnabas Hospital. He also completed fellowships in vascular surgery at Deborah Heart and Lung Center and endovascular at UMH.
Friday

1pm – 4:45pm
Armstrong Building—Room 345
0.20 Art and 0.175 Biomed CEUs

Unity Game Engine Development
Frank Vivirito

In this workshop, participants will create a sandbox world full of 3D toys and gadgets that will provide an overall understanding of the Unity Editor. Participants will learn the basic usage of lights and cameras, physics-driven objects and particle effects, audio, and image effects. Later in the workshop, participants will work on a 3D character (supplied) and prepare the character for import into Unity 3D. Participants will work on setting up character animation cycles and adding them to playable scripts, setting up player’s controls, keyboard, and mouse input devices to drive the character, and adding a GUI (Graphical User Interface) and menu to the scene. Participants will also prepare some basic scripts to put it all together, and will study and implement “levels”. Finally, participants will publish the work for both stand-alone and web-based applications.

Frank has been developing 3D programs and content for the computer game industry since 1989. Software titles to his credit include: F-15 Strike Eagle, Task Force 1942, Return of the Phantom, Pirates

1pm – 4:45pm
Armstrong Building—Room 344
0.20 Art and 0.175 Biomed CEUs

OsiriX® Software: A Tool for the Medical Illustrator
Andrew Swift, CMI, FAMI (see bio on page 8)

OsiriX® software allows the trained user to create 3D virtual depictions of anatomy from DICOM images captured during a diagnostic scans such as computer tomography (CT) or magnetic resonance imagery (MRI). These virtual images, referred to here as “3D Reconstructions”, can be manipulated, with great control over transparency and color. Participants in this workshop will learn to use OsiriX software as a tool to improve their understanding of anatomical relationships as they exist in the living body. With this tool, the medical animator can isolate and colorize specific tissues and organs thereby creating animated virtual dissections. Participants will learn to create still images and animations of specific anatomical structures. The use of 16-bit Color Look-Up Tables to enhance the transparency and dimensionality of images as well as procedures for creating animations from sequential CT scans (known as “Cine” sequences) will be discussed. Several case studies will be presented.

1pm – 2:45pm
Armstrong Building—Room 343
0.175 Art CEUs

Adobe® Illustrator®: Hollywood Studio Techniques vs. The Traditional Medical Illustrator
Tim Hengst, CMI

This workshop will focus on Adobe® Illustrator® CS5 tools and techniques, developing concepts, working from sketches, and digitizing artwork from a couple of different artist perspectives. Tim will give a brief overview of common Illustrator features such as Pathfinder, appearance/graphic styles, gradients, object blends, and the intimidating mesh tool—but the main focus will be on two Adobe Illustrator concepts—one, working with a finished pencil sketch and using Illustrator’s Live Trace and Live Paint features, a typical Hollywood studio technique—and second, using customized pressure sensitive brushes to achieve an assortment of drawing styles. Tim will emphasize shortcuts and unique features of Illustrator to speed up your work. The pressure sensitive Wacom® pen and tablet will be an integral part of the workshop.

Tim Hengst is a 1972 graduate of California Lutheran University (formerly California Lutheran College). In 1974, he received his graduate degree in medical and biological illustration from the Department of Art as Applied to Medicine at The Johns Hopkins University School of Medicine. After illustrating for three years at the Texas Heart Institute in Houston with Dr. Denton Cooley, he returned to teach at Hopkins in the graduate program for 9 years (1977-1986). He then returned to California, and had his own freelance business until starting full-time at California Lutheran University (CLU) in 2001. He still continues to illustrate on a part-time basis, has illustrated over 60 medical and surgical texts, and his illustrations have appeared in over 100 scientific journals. His early illustration training was primarily in airbrush, continuous tone, and pen and ink. He began using the computer for digital illustration in the late 1980s, using Adobe Illustrator and Photoshop® as his primary illustration media. Tim became Director of the CLU multimedia program in 2001 and has taught scores of students in digital illustration and graphics techniques. Tim has conducted several national workshops in digital illustration, has served as a visiting Professor at the University of Toronto, and has numerous national awards for his medical illustration work including three Best Illustrated Medical Textbook awards from the AMI. Tim is a Certified Medical Illustrator and Fellow of the AMI.

Adobe supplied software for this workshop
Wacom® supplied Wacom tablets for this workshop
This workshop will emphasize the collaboration between Adobe® Illustrator® and Photoshop®, with of course, an emphasis on the special effects, layering, and photo montage tools that are unique to Photoshop. Use of the pressure sensitive pen will be emphasized in exploring the variety of brushes available with Photoshop, and the use of channels, paths, and Illustrator files in streamlining your workflow. Tim will emphasize techniques that have transitioned from his early non-digital training to a successful foray into the digital medium, including teaching Illustrator and Photoshop to dozens of undergraduate students every semester.

3pm – 4:45pm
Armstrong Building—Room 343
0.175 Art CEUs

Collaboration in Adobe® Photoshop®: Using Special Effects, AI files, and Wacom® Intuos 4 Pen Tablet
Tim Hengst, CMI (See bio on page 15)

In this workshop, two pathologists from The Johns Hopkins School of Medicine will be presenting a gross anatomical review with a focus on gross cardiovascular pathologies. This workshop will allow participants hands-on interaction with a variety of prepared gross anatomical specimens. This highly interactive discussion will cover a review of normal cardiovascular anatomy, identification of normal versus abnormal structures, speculation on what the abnormality is caused by, and what the consequences would be for the patient. Participants will also have the opportunity to sketch the specimens.

Session A: 3pm – 3:45pm, Session B: 4pm – 4:45pm
Armstrong Building—Rooms 441-445
0.075 Biomed CEUs

Anatomical Cardiovascular Pathologies, Specimens, and Sketching
Charles Steenbergen, MD, PhD and Marc K. Halushka MD, PhD

Dr. Charles Steenbergen has been Professor of Pathology and Director of Cardiovascular Pathology at The Johns Hopkins University School of Medicine, since 2006. He received his MD and PhD in biophysics from the University of Pennsylvania and did his anatomic residency training at Duke University, and then joined the faculty at Duke University in 1984. He does diagnostic pathology, basic research in ischemic heart disease, and teaches medical students, residents, and fellows. He is on the editorial board of multiple cardiovascular journals and serves on multiple NIH study sections. While at Duke, he was the coordinator of the introductory pathology course for medical students for 10 years.

Dr. Marc K. Halushka is Associate Professor of Pathology at The Johns Hopkins University School of Medicine. He received his BS in biochemistry at Indiana University and his MD and PhD from Case Western Reserve University. Marc specializes in cardiovascular pathology and is a frequent lecturer to medical students, residents, and fellows on all topics pertaining to the heart.

Celebrating the art and science of medical illustration
Technology may be evolving, but the power of visual media remains constant. While you stay focused on evolving the best practices to advance life sciences, medicine, and health care, we’ll keep delivering and refining the tools that help you bring your communications to life. Learn more at adobe.com/go/design

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Room 270: Steps to a Likeness
Perrin Sparks

Perrin will demonstrate with a live model, the development of a portrait in pastel on paper.

Perrin Sparks is a graduate of the Hopkins program. After 15 years working as a surgical illustrator in a variety of medical schools, Perri served as Director of the medical school art department and was on the faculty of the graduate program at UT Southwestern in Dallas, Texas. In 2005, Perri and her husband Larry moved to their lakeside home and studio on Quadra Island, in British Columbia, Canada. Perri’s art has appeared in The Artist’s Magazine, The Pastel Journal, and International Artist, and she worked closely with Prismacolor in the development of a new line of soft pastels. One of her images has been used in the packaging and promotion of this product introduced last year. Her two video’s “Steps to a Likeness—Pastel” and “Steps to a Likeness—Oil” were featured in the 2005 summer issue of the North Light Book Club. The recent uncrating of her etching press has renewed her interest in intaglio etching and she has been focusing on a new series, “birds of prey.” Examples of her artwork can be found on her website, www.perrinsparks.com.

Room 260: ZBrush®: A Digital Sculpting Tool with Unlimited Possibilities
Paul Gaboury

Pixologic’s ZBrush® is a digital sculpting application that allows unparalleled freedom to create without technical borders. ZBrush is a tool of choice for creating 3D anatomy illustrations. Paul will be sharing the various techniques used today by leading artists to create anatomy pieces with the various tools found with in ZBrush. He will be giving detailed demonstrations on the popular ZBrush tools, ZSpheres, Shadowbox, Clipping Brushes, Spotlight, and so much more. He will also showcase how quickly you can render with the new BPR render system that was released with ZBrush 4.

Paul Gaboury is Pixologic’s 3D Application Engineer who works with several studios such as Legacy Effects, Disney Animation, Bad Robot, and Pixar Animation on enhancing their digital sculpting pipeline using the leading industry application, ZBrush. He is also involved with the development of ZBrush and working with artists around the world offering support. As part of the Pixologic team, Paul will travel to various studios and schools giving demos on ZBrush to highlight the various new tools. Paul graduated with a BFA from Bowling Green State University and was an extension student at Gnomon School of Visual Effects.

Room 381: Medical Animation applications using Cinema 4D’s Soft Body Dynamics • Nobles Green II

MAXON Cinema 4D’s new Soft Body Dynamics is among the most effective and versatile physics-based tools for medical animation. By simulating organic shape characteristics, soft bodies provide endless possibilities for depicting gross tissue dynamics, as well as physical qualities of cellular structures. This demonstration will show how soft bodies can create lifelike ciliated cells that interact with their environment. In addition, we will explore several other applications of this breakthrough module that can benefit both medical animators and illustrators alike.

Nobles Green II is a Senior Medical Animator for Nucleus Medical Media. He received his BA in art and biology minor from Oglethorpe University and earned his master of science from the Medical College of Georgia. At Nucleus, Nobles is part of a fast-growing animation team that creates a variety of award-winning medical content for numerous clients such as WebMD, McGraw Hill, and the Doctor Oz show.

Room 320: What’s New in Mudbox™
Scott Dixon

An overview of the latest features in Autodesk® Mudbox™, will showcase:

- Painting and sculpting Enhancements
- Posing toolset
- Texture baking
- Vector displacement
- UV-less texturing with PTEX
- Remesh options
- Layer masks and blend modes
- Photoshop integration
- Single step integration with Autodesk® Maya® and 3Ds Max®

Scott Dixon is a Clinical Assistant Professor at University of Illinois at Chicago. He leads courses in the Biomedical Visualization program such as Computer Applications, Computer Visualization, Animation, and Advanced Imaging Applications. His research interests include virtual reality and stereo imaging, serious gaming, rapid prototyping, and mobile app development. Scott graduated from UIC in 2006 and began teaching immediately upon the retirement of Mary Rasmussen, creator of the Virtual Reality in Medicine Lab. His undergraduate focus was Digital Media at East Tennessee State University, Alias|Wavefront’s first official “Premiere Academic Partner” in the world. Graduates of the program have worked on films such as Avatar and popular games like Infamous. Scott also has training in CAD, extending his history with Autodesk products and 3Ds Max to approximately 13 years.
### Room 226: How to Manipulate Proteins and DNA in Pymol

**Sandra B. Gabelli, PhD**

Demonstration of the use of the Protein Database (PDB) and PYMOL as a preparation to import the molecules in 3D software. The demonstration will include use of available structure databases (PDB, electron microscopy DB); overview of useful features of Pymol before importing to 3D software; alignment of structures to obtain “desired” models; manipulations of PDB files to generate complexes, fibers, etc; ray-traced images (smoother sticks, surfaces, etc); session storage to save molecular representation, color, light, etc, quick molecular animations; exporting to png figures and VRML (for Maya, 3Dmax, etc).

### Room 226: How to Manipulate Proteins and DNA in Pymol

**Dr. Sandra B. Gabelli** is an instructor in the Department of Biophysics and Biophysical Chemistry and Oncology at the The Johns Hopkins University School of Medicine. She teaches how to represent macromolecules, the use of the databases such as the PDB, and rudiments of Pymol in the Art as Applied to Medicine Molecular Illustration/Business Policy class. For the class, each student gets an individual project from a researcher to be illustrated. Sandra also teaches medical students in the Biophysics section of Scientific Foundations of Medicine. Sandra received an undergraduate degree in Computer Sciences at Universidad Nacional del Sur, Bahía Blanca, Argentina, and a PhD in biophysics at The Johns Hopkins University. Sandra is interested in the regulation of signaling cascades and their inhibition or activation for therapeutic purpose. The focus of her research is the mechanism of activation of enzymes in cancer. In particular, she works on PI3 kinases, Nudix enzymes, and enzymes of the isoprenoid pathway. Her interests include drug design and development of inhibitors for the effective treatment of cancer.

### Room 383: Metadata—How to Embed Copyright and Contact Information in Images Using Adobe® Bridge and Photoshop®

**Tonya Hines, CMI, FAMI, and Martha Headworth, MS**

All creators and users of digital imagery share a common problem: how to identify, file, retrieve, and track expanding collections of image assets. Industry-wide adoption of metadata is the key to addressing these challenges. By embedding all relevant ownership information directly into the digital file, metadata protects your artwork from accidental infringement and potential orphaning. This demonstration will teach illustrators how to embed contact, copyright, and licensing metadata using the “File Info” in Adobe® CS software, and show how to create metadata templates to apply information to folders of files using Adobe Bridge. Tonya and Martha will demonstrate how metadata enhances the search and retrieve functions in a digital asset management system (DAM) such as Adobe® Bridge® or Lightroom®. And finally, they will discuss and demonstrate the PLUS License Generator, Embedder & Reader—an image rights metadata schema—to embed specific licensing terms.

### Room 370: The Fine Art of Silverpoint Drawing

**Gerald Hodge and Melinda Hodge**

Silverpoint is a technique dating back to the early Renaissance in which a silver wire was used to make detailed drawings. One of the advantages of using silver wire is that the wire can be sharpened to a much finer point than can graphite and rarely needs to be sharpened. Drawing surfaces must be either clay-coated or specially painted as the silver will not make marks on most papers. Silverpoint drawings, at their best, have a light, delicate appearance, and with age will tarnish to a beautiful warm gray color. If a darker or more “contrasty” effect is desired, carbon dust or graphite can be added.

**Gerald (Jerry) Hodge** received his BFA degree in painting from the University of Colorado and did his graduate work in medical art at The Johns Hopkins University. He is a Professor Emeritus of Art at the School of Art, University of Michigan. He has presented many art technique workshops for the AMI and Guild of Natural Science Illustrators (GNSI). Jerry is one of seven members of the Trompe L’Oeil Society of Artists. For about 18 years, he taught workshops at the Scottsdale Artists’ School in Scottsdale, Arizona, where he specialized in trompe l’œil painting and various techniques such as silverpoint drawing.

**Melinda Hodge** received her BA degree in parks and recreation at Michigan State University, an MA degree in art education from the University of New Mexico, and an MFA degree in jewelry and metalsmithing from the University of Southern Illinois University. She is a Professor of Art at Lock Haven University in Lock Haven, Pennsylvania, where she teaches metalsmithing, drawing, fashion design, fabric design, art education, and art history. She is a member of the Guild of Natural Science Illustrators and has presented workshops for the GNSI in colored pencil and silverpoint drawing.

### Room 383: Metadata—How to Embed Copyright and Contact Information in Images Using Adobe® Bridge and Photoshop®

**Tonya Hines and Martha Headworth** are employed at the Mayfield Clinic at the University of Cincinnati Department of Neurosurgery. Tonya is Chair of the AMI Professional Guidelines Committee. Martha is a graduate of MCG and responsible for developing digital asset management (DAM) processes for their company archive, which is a depository for nine staff members and over 20 years worth of illustrations, presentations, publications, videos, and patient diagnostic images.

### Room 370: The Art of the Perfect Watercolor Wash

**John Cody, MD**

John will demonstrate how a perfectly graded, light to dark, watercolor wash can be applied to a 22 x 30 in. piece of Arches 300 weight cold-pressed paper. John’s method is possibly the only way the objective of a continuously-graded value can be accomplished in watercolor.

**Except for majoring in art (and biology) in high school, John had no formal art training until his two years of study at The Johns Hopkins University Art as Applied to Medicine program beginning in 1947. After leaving Hopkins, he had a six-month-long job in the jungles of Trinidad as a staff artist for the famous deep-sea bathyspherist and author, William Beebe. Following the Beebe expedition, John worked doing medical art for roughly five years at the University of Arkansas Medical Center until he finally enrolled as a medical student there. He received his MD and originally intended to follow in Frank Netter’s footsteps as an MD and medical artist—instead he opted for psychiatry. Throughout his career as a psychiatrist and up to today, John continues to use watercolors to depict moths, creatures he has loved since childhood. He doesn’t deny he missed much by not having fundamental art training, but it was also an advantage. “What, by dint of persistent struggles, one discovers for himself is a bedrock solid and can be built upon.”
Room 220: ePMV, Our Free Plugin, Runs Molecular Graphics Directly Inside of Cinema 4D, MAYA, Blender, and Other Pro 3D applications

Graham Johnson

The Olson Laboratory at The Scripps Research Institute has developed an open-source plug-in, embedded Python Molecular Viewer (ePMV), that runs molecular modeling software directly inside of professional 3D animation applications. This demonstration introduces ePMV basics and transitions to highlight advanced ePMV techniques. Viewers will learn how to install ePMV, then read, model, and chemically color dozens of standard file-types (eg, .pdb and .mrc) in seconds. Viewers will learn how to load and animate 4D data such as molecular dynamics trajectories and nuclear magnetic resonance (NMR) states. Viewers will further see advanced modules that we have included in ePMV, including molecular dynamics, augmented reality, protein-ligand and protein-protein docking, procedural subcellular modelers (AutoFill), and other physics simulators that can help them easily create accurate and sophisticated molecular interactions and molecular machines for use in illustration or animation. Though demonstrated in Cinema 4Dv12, Blender, and Maya users can easily follow along (the graphic user interface for ePMV is the same across all platforms and software packages).

Graham Johnson is a Certified Medical Illustrator with 14 years of professional experience. He has specialized in molecular and cellular biology since graduating from The Johns Hopkins School of Medicine in 1997. He illustrated both editions of the textbook Cell Biology by Pollard & Earnshaw as a coauthor, and has created thousands of scientific visuals ranging from journal covers to pedagogic animations. Graham’s PhD work in the Molecular Graphics Lab at The Scripps Research Institute focuses primarily on developing algorithms to enable scientists and illustrators to generate, simulate, and visualize molecular models of cells. He also works with programmers to develop software that can interoperate the computational tools of science and art. Graham gives yearly lectures on both molecular graphics and protein docking to structural biology/biophysics graduate students, medical illustrators, and high school students. More information and a CV can be found on the company page of his website at www.grahamj.com.

Room 326: OsiriX®: A Rosetta Stone for Medical Imaging

Aletta Ann Frazier, MD

OsiriX® is open-source medical image processing software with an interactive display that optimizes radiologic image interpretation. It allows the user to translate complex volumetric data sets acquired at computed tomography (CT) imaging into exquisite multi-dimensional radiologic images with tremendous flexibility, and further provides control over image contrast, intensity, and rate of cine display in dynamic image series. Using examples from cardiothoracic and abdominal high-resolution three-dimensional CT exams, the demonstration will include (1) a brief explanation of volumetric data acquisition and packaging into a DICOM file for processing, (2) active navigation of the OsiriX 3D Viewer using each dataset, and three real time 3D post-processing, including multi-planar reconstructions, volume rendering and surface rendering of selected anatomy.

Dr. Aletta Ann Frazier is an Associate Professor of Diagnostic Radiology in the Division of Cardiothoracic Imaging at the University of Maryland Medical Center. She is also a medical illustrator, lecturer, and researcher at the American Institute for Radiologic Pathology, a program of the American College of Radiology, which annually educates more than 1200 radiology residents and practicing physicians from across the USA, Europe, South America, and Asia. For the past 15 years, Dr. Frazier has combined a career in academic practice with collaborative radiologic-pathology research and illustration at the Armed Forces Institute of Pathology and the Borden Institute in Washington, DC. The spectrum of her work comprises anatomy, embryology, pathophysiology, trauma, neoplasia, and oncologic staging systems at both the histologic and gross anatomic levels. Dr. Frazier’s illustrations address a broad range of challenging concepts in pulmonary, cardiovascular, musculoskeletal, neurologic, pediatric, gastrointestinal, genitourinary, organ transplantation, and military battlefield medicine. Her work has appeared in journals, textbooks, educational software, medical websites, and surgical atlases.

Room 384: A Practical Game Design Method Using Learning Objectives and Core Concepts • Nathaniel (Nick) Klein, MS

Great game design is the single most important aspect of creating effective game experiences that captivate the learner while imparting knowledge or influence. Finding the right balance between teaching and entertaining is not only a challenge, but also the difference between success and failure with educational games. With this highly adaptable method, creating a balanced, engaging, and effective educational game begins with a “core concept” that is derived directly from learning objectives. It is then elaborated upon, and broken down into four identifiable elements, which provide you with the canvas you need to create a fun, balanced, and meaningful experience.

Nick Klein has been developing educational interactive media, games, and animation since 2002, and is currently the medical illustrator for the Medical College of Georgia at Georgia Health Sciences University, and the Director of Innovation and Partner at iSO-FORM, LLC. Nick received his BA in biological/pre-medical illustration from Iowa State University and his MS in medical illustration from the Medical College of Georgia. Before beginning his formal training as a medical illustrator, Nick earned experience by traveling extensively while serving in the armed forces. Nick is a professional member of the Association of Medical Illustrators and the International Game Developers Association, and the Georgia Game Developers Association. Nick is also a registered Apple Developer, dog owner, fish tank enthusiast, and Level 17 Berzerker (but expects to be leveling up soon).
**Friday**

**Room 260: Biocommunicrafters**

Various biocommunicrafters will display and demonstrate their favorite craft techniques centered around biology, nature, and medicine. Techniques include sewing, crocheting, and knitting; jewelry techniques such as silversmithing, enameling, and glass beadmaking; and sculpture, flame painting, and anatomical LEGO® sculptures. Take a break and learn a new stress-relieving and inspiring skill.

Karen Bucher will be teaching basic knitting and how to work with patterns. She has also been experimenting with working anatomical patterns of her creation into pieces. She will do a computer demo of how to make a pattern. She creates wearables with her own designs: cardigans with anatomical hearts and scarves with vertebrae patterns.

David Cheney will show and tell his amazing polymer clay sculptures.

Beth Croce will share how she creates her own line of anatomical jewelry working in wax for precious metal casting. Her works include anatomically-correct heart pendants, silver uterus and pearl ovary pendants, and inner ear cuff-links.

Michelle Davis will be showing off original pieces of anatomical jewelry (in a variety of materials) printed by Shapeways, an online 3D printing company, and talking about the process.

Jeni Fairman will share wearable jewels from her project, “Exploring Flora and Fauna” with found objects and natural materials such as cicadas, twigs, and flowers from outdoor explorations of Charm City. Example techniques will include picture bezels with miniature paintings, casting, electroforming, enamels, and foils.

Jill Gregory will be knitting a scarf that incorporates a DNA helix into the pattern.

Kellie Holoski will be crocheting a mini coral reef using hyperbolic crochet techniques, which she plans to demo. She will also supply information on the worldwide crocheted coral reef project.

Carolyn Holmes will be demonstrating the use of a 4-Harness loom, playing with variations in pattern, texture, and color. She is interested in creating fabrics and art by weaving with natural fibers and incorporating found objects from nature.

Anneliese Lilienthal, master of the sewing machine, will be showing off her amazing handcrafted fashions.

Wendy Beth Jackelow will demo crochet techniques.

Lori Messenger will discuss silversmithing, enameling, and glass beadmaking.

Tim Phelps will be demonstrating the Art of Hot Rod Flame Painting with sign painter’s enamel and script liner brushes and describing the process with examples of small scale diecast cars, wooden birdhouses, and sharing examples of Fire-Inspired Wildlife Artwork showing up on his Cafe Press website.

Maya Shoemaker will share pieces and concept sketches from her upcoming LEGO® Anatomical sculpture project. She is collaborating with Clint Shoemaker and Dave Killpack, and when completed, she hopes to show the exhibit at various galleries and children’s hospitals.

**Buses depart from Armstrong Building between 4:30pm and 5:15pm**
Eleanor O’Rangers brings nearly 10 years of experience in the pharmaceutical industry to bear on her current work as a brand strategist in medical communications organizations. Recent projects include both strategic and tactical projects in numerous disease categories with an emphasis on cardiovascular and metabolic disorders. Prior to working in medical communications, Eleanor served as Director of Medical Affairs for the Crestor® US Brand Team at AstraZeneca LP, where she managed numerous thought leader relationships, provided guidance to publications, lifecycle planning and drug discovery initiatives, developed content for advisory board and speakers bureau meetings, wrote and delivered training to field medical scientists and sales representatives, and led competitive intelligence efforts for the dyslipidemia therapeutic area. Prior to her work at AstraZeneca, Eleanor was a field medical liaison and liaison manager at Bristol-Myers Squibb and Parke-Davis.

John Vieira has a broad perspective on the changing environment in pharmaceutical marketing with over 15 years of experience in the pharmaceutical industry, including sales and marketing in global and local markets, as well as healthcare agency roles. His most recent role is that of Senior Director, Marketing Operations and Strategic Services at Daiichi Sankyo, Inc. John’s work has included leading sales and marketing teams in the United States and Canada, as well as global operations. He has also worked on several significant product launches across several therapeutic areas with different manufacturers and with healthcare agencies. John’s educational background includes degrees in biology, psychology, as well as an MBA.

Jane Hurd is the Founder of Hurd Studios, a visual science agency specializing in animation for the pharmaceutical industry. Jane has directed the production of hundreds of media-driven scientific visualizations for marketing teams of the world’s top biopharmaceutical companies. Prior to Hurd Studios, Jane was Executive Art Director for Time Life Medical, Design Director for Medical News Network, sole proprietor of Hurd Illustration Studio, and Medical Illustrator at Georgetown University Medical Center. Jane’s work has received over 100 awards and her work has been exhibited worldwide in places such as the Smithsonian Institution, the American Museum of Natural History, the National Library of Medicine, and the National Science Foundation. Jane received her bachelor of science in medical art from the University of Illinois.
Saturday

9:30am – 10:30am
Corinthian Room (2nd floor)
0.10 Biomed CEUs

Plenary 8: The Life of William Stewart Halsted: Our Surgical Heritage, Illustrated
John L. Cameron, MD

William Stewart Halsted (1852 – 1922) is generally agreed to be the most important, influential, and innovative surgeon that this country has produced. He was born and raised in privileged circumstances in New York City, attended college at Yale and medical school at the College of Physicians and Surgeons in New York. After two years in Europe observing European surgeons, he returned to New York and began his career. Working with cocaine led to one of his most important contributions: the introduction of local and regional anesthesia. It also led to addiction. As part of his rehabilitation, he came to Baltimore with his best friend, William H. Welch, to work at The Johns Hopkins Hospital. For the next 30 years, working with Hopkins colleagues, including Max Brödel (1870 – 1941), he introduced many of the practices and techniques that ushered in the modern era of surgery. These included operations for inguinal hernia, breast cancer, thyroid disease, gallbladder disease, as well as intestinal anastomoses—much of this work was illustrated by Brödel. In addition, William Halsted changed the philosophy of surgery and introduced the surgical residency training system to the United States. This fascinating talk on the life of W. S. Halsted is well-illustrated with historic photos and artwork by Max Brödel.

10am – 12pm
Inner Chapel Room (5th floor)

Salon Artwork Pickup

10:45am – 11:45am
Corinthian Room (2nd floor)
0.10 Art CEUs

Plenary 9: The Image of the Site: Aesthetics, Trust, and Visual Decisions About Web Pages and Other Visual Displays
Patrick Lynch

Eyetracking studies seem to suggest that users do not look at large expressive graphics on web pages, as seen in the relatively few gaze fixations such graphics attract from users in task-driven eyetracking studies. However, many studies show that users react in very fast important ways to the overall design of web pages and other visual displays, and that such reactions have a profound effect on user’s judgments of the usability, aesthetic merit, and trustworthiness of what they see. Recent design writing and interface research illustrate how visual design and user research can work together to create better user experiences on the web: experiences that balance the practicalities of navigation with aesthetic interfaces that delight the eye and brain.

10:45am – 11:45am
Corinthian Room (2nd floor)
0.10 Biomed CEUs

Plenary 9: The Image of the Site: Aesthetics, Trust, and Visual Decisions About Web Pages and Other Visual Displays
Patrick Lynch

Patrick J. Lynch is the Director of Design and User Experience in the Office of Public Affairs and Communications at Yale University. In his 40 years with Yale University, he has been a medical illustrator, biomedical and scientific photographer, audiovisual producer, and for the past 30 years a Director of media and communications service units, and a designer of interactive multimedia teaching, training, and informational software and web sites. Lynch has won over 30 national and international awards for his medical illustration, publications, and software design, including the 2005 Pirelli INTERNETional Awards for Best Overall multimedia teaching site, and best site from higher education, the 1992 Best-in-Show Award from the Health Sciences Communications Association and a Gold Medal, Silver Medal, and Award of Excellence in the international INVISION Multimedia Awards.

Dr. John L. Cameron is the Alfred Blalock Distinguished Service Professor of Surgery at The Johns Hopkins University School of Medicine. For 19 years, he served as the Chief of Surgery at The Johns Hopkins Hospital. His major interest for many years has been diseases of the pancreas and biliary tree, and in recent years he has been specifically interested in the surgical management of cancer of the pancreas and biliary tree. Pancreatectoduodenectomy, or the Whipple procedure, is the only curative therapy for pancreatic cancer and for many bile duct cancers. Dr. Cameron has had extensive experience with this surgical procedure, and has performed more of these operations than any other surgeon in the world. He has had an active interest in surgical history and has written and spoken on the most prominent surgeon this country has produced, William Stewart Halsted.
This panel presentation focuses on issues related to our Strategic Plan and how we can enhance the overall perception and visibility of the AMI and its members. Three guest speakers will discuss their views of the AMI as they relate to: opportunities to reposition the AMI with a clearly defined brand identity, opportunities for the AMI to reach out and communicate our growing expertise to our client base, and opportunities for the AMI to build strategic alliances with related healthcare associations.

Dr. Linda Wilson-Pauwels is a Professor and former Director of Biomedical Communications, Department of Biology, University of Toronto, Mississauga. Linda is the 2008 recipient of the AMI’s Brödel Award for Excellence in Education. She is the first coauthor of Cranial Nerves, PMPH.

Ms. Susan Waldman is a partner, cofounder, and Director of Strategic Services for ZilYen. Former head of national advertising and senior marketing planner for Walt Disney World and Director of Advertising for Northwest Airlines, Susan has spent the past five years developing and honing the optimal process of brand development for ZilYen and its clients.

Brendan Ward is Senior Vice President Creative Director of LLNS, one of the nation’s leading healthcare communications companies, based in New York City. Since graduating from The Academy of Art University in 1988, Brendan has been working in both consumer and healthcare advertising ever since. He is responsible for creating award-winning consumer and professional ad campaigns for some of the biggest blockbusters in the pharmaceutical industry.

Dr. Anne Agur is the incoming President (July 2011) of the American Association of Clinical Anatomists (AACA) and Professor in the Division of Anatomy, Department of Surgery at the University of Toronto. She is the coauthor of Grant’s Atlas of Anatomy, Essential Clinical Anatomy, and Clinically Oriented Anatomy.

Over the last 20 years, bariatric surgery has emerged as an important therapeutic option in the management of morbid obesity and related diseases such as diabetes. This recent rise in bariatric surgery has paralleled the dramatic increase in obesity throughout the United States and has made weight loss surgery the most commonly performed advanced laparoscopic procedure. This talk will focus on advances in laparoscopic and stapling techniques that have led to the development of currently performed bariatric procedures: gastric bypass, adjustable gastric band, sleeve gastrectomy, and biliopancreatic diversion/duodenal switch. The indications for surgery and the pros and cons of each procedure will be discussed. In addition, expected outcomes will be reviewed including weight loss, reversal of obesity-related medical disease, and potential post-operative complications. Of particular interest to the medical illustrator will be discussion of changes in internal anatomy from the normal to obese state, details of various laparoscopic techniques and the devices and instruments employed, and pitfalls in performing and depicting laparoscopic surgery. The history of bariatric surgery will also be discussed including failed procedures performed in the past and emerging minimally invasive interventions for weight loss in the future.

Dr. Thomas H. Magnuson is an Associate Professor of Surgery at The Johns Hopkins University School of Medicine and Chief of General Surgery at The Johns Hopkins Bayview Medical Center. Dr. Magnuson received his undergraduate degree at Stanford University and his medical degree at the Vanderbilt University Medical Center. He received his general surgical training at The Johns Hopkins Hospital and completed one year of specialty training in gastrointestinal surgery. In addition he completed a two-year research fellowship investigating issues relating to gallstone pathogenesis and biliary tract disease. Dr. Magnuson currently specializes in gastrointestinal surgery, including stomach, gall bladder, pancreas, and bowel. He also has a special interest in obesity surgery and is currently Director of The Johns Hopkins Obesity Surgery Service. Dr. Magnuson’s current research interests involve basic scientific and clinical investigation into issues related to pancreaticobiliary disorders and obesity.
relationships to safeguard our future. When faced with the challenges of the ever increasing pace of property we bring to the table. As medical illustrators, we are part of developing these business needs. Our discussion will focus on how we meet our company and client needs, while protecting the intellectual integrity of a brand or discipline, and enhances the educational value of the experience.

**What is intellectual property?** Intellectual property (IP) refers to creations of the mind: inventions, literary and artistic works, and symbols, names, images, and designs used in commerce. IP pertaining to copyright, includes literary and artistic works such as novels, poems and plays, films, musical works, artistic works such as drawings, paintings, photographs and sculptures, and architectural designs.

**Transparencies emerged at a time when advances in printing technology coincided with a revolution in pharmaceutical research, branding, and advertising.** For this reason, they offer a fascinating historical example of medical illustration evolving in tandem with scientific and technological innovation. They are also beautiful and inspiring examples of artistry and design. This presentation will discuss the scientific, cultural, and economic position of anatomical transparencies in the postwar years, and show examples of the form.

**Dr. Shelley Wall** is a practicing medical illustrator and a full-time faculty member in the Biomedical Communications program, University of Toronto. As an illustrator, she specializes in web-based patient education, and has worked at The Hospital for Sick Children as a multimedia developer and a consultant on writing and health literacy. She teaches courses in pathological and bioscientific illustration, research methods in biomedical communication, and writing for healthcare. Medical illustration of the mid-twentieth century is one of her particular research passions. Shelley is also coeditor, for the Association of Medical Illustrators, of the *Journal of Biocommunication*.

**Thom Graves** is Associate Creative Director for IOMEDIA’s Healthcare Division. In this role, Thom oversees all aspects of production for the studio and leads a talented team of medical illustrators and animators. Working closely with clients and his internal team, Thom offers the unique ability to oversee the process of bringing the scientific and creative aspects together while ensuring complete accuracy and delivering focused results.
From the first cerebral angiogram performed by Egas Moniz in 1927 to the high-resolution 3D acquisitions obtained nowadays, interventional neuroradiology (INR) has evolved into an important new field that provides minimally invasive treatment options for a wide range of conditions involving the brain, head and neck, and spine. The advent of interventional and advanced fluoroscopic techniques has resulted in a management shift towards new procedures that offer shortened hospital stays, reduced recovery times, and decreased procedural risks when compared to open surgery in certain cases. This presentation will focus on the evolution of neuroangiographic techniques, reviewing newly introduced diagnostic modalities such as 3D-DSA and C-arm CT, and a range of new endovascular devices that are applied when treating neurovascular conditions. This presentation will also address the illustration and animation of neurointerventional procedures, as well as the utilization of large datasets acquired during these procedures.

Dr. Philippe Gailloud received his medical degree from the University of Geneva, Switzerland, and completed his residency in diagnostic and interventional radiology at Geneva University Hospital. He completed a research fellowship in morphology at the University of Geneva and clinical fellowships in both diagnostic and interventional neuroradiology at Johns Hopkins University. He joined the Division of Interventional Neuroradiology at Johns Hopkins University in 2000. He is now Director of the Division of Interventional Neuroradiology at The Johns Hopkins University School of Medicine and Codirector of The Johns Hopkins Center for Pediatric Neurovascular Diseases. Besides the diagnosis and treatment of cerebrovascular diseases in adult patients, Dr. Gailloud also specializes in the management of neurovascular disorders in children, and in vascular conditions involving the spine and spinal cord. Dr. Gailloud has extensively written and presented on a wide range of topics related to diagnostic and interventional neuroradiology. The development of interventional techniques, the percutaneous treatment of brain, spinal cord and spine lesions, and the anatomy and embryology of the cerebral and spinal vasculature are among his main topics of interest.

Lydia Gregg received her master of arts degree in medical and biological illustration from the Department of Art as Applied to Medicine at The Johns Hopkins University School of Medicine. Lydia specializes in depicting the neurovascular and spine conditions treated in the Division of Interventional Neuroradiology with a special interest in the anatomy and embryology of the blood vessels of the brain and spinal cord. In addition, she develops targeted patient education material such as brochures and interactive media. Lydia is also cofounder of ProAtlanttal studio, a medical illustration and animation business, along with her husband and colleague, Fabian de Kok-Mercado.

Over fifteen years ago someone broke in to the sub-basement of the student dorms at the Yale University School of Medicine. As far as we know, nothing was stolen—but much was discovered. That someone turned out to be Christopher J. Wahl ’96 MD, he was taking part in a ritual to visit “the brain room.” He was so inspired by what he found there that he spent the next year writing his thesis on The Cushing Brain Tumor Registry. Harvey Cushing, MD (1869–1939), considered “the father of modern neurological surgery and a pioneer of brain surgery, had compiled the collection as a teaching tool and database of clinical information. The materials stored in “the brain room” consisted of 650 jars of whole brain and tumor wet specimens, along with thousands of 5” x 7” glass plate and film negatives dating from the early 1900s through 1932. The photographs bear witness to Cushing’s insistence on detailed documentation of each of his patients. Pognant, powerful, haunting, and amazing—these words have been used to describe the black and white images of Cushing’s patients. They survive as visual records of patients undergoing early intracranial surgical procedures, in some cases documenting the progression of a disease from initial examination to autopsy. Yet many of the photographs transcend their mission as medical documentation, and allow viewers to reflect on them with empathy, compassion, and even a hint of their subjects’ desperation.

Lydia Dagradi received her BFA from Tyler School of Art of Temple University, majoring in studio arts and photography. Since 1988, she has worked as a photographer and designer at the Yale School of Medicine. She has taken hundreds of portraits, documented events and architecture, and covered editorial and medical assignments. Documenting brain surgery has been one of the highlights of her work. Ms. Dagradi cofounded the New Haven Photo Arts Collective in 1996, with a mission that people connected by a similar passion for photography can make great things happen together while supporting and encouraging the visions of individuals. She has served as Director & Curator of the Yale Medical Group Art Place Exhibitions since 2000, transforming a busy clinic building into a vibrant public gallery space.

But it was a box of 5” x 7” glass plate negatives of Dr. Harvey Cushing’s brain surgery patients that Ms. Dagradi encountered over 15 years ago, which started a journey leading to her position as Curator of The Cushing Center at Yale School of Medicine. She has printed the negatives to produce striking pre- and post-operative images of the patients. Her work was described and presented in the form of a multimedia slideshow, in the New York Times (August 23, 2010) and is featured in The Legacy of Harvey Cushing: Profiles of Patient Care (Thieme, 2007). Ten thousand of those same negatives are still patiently waiting to be digitized and discovered.
From the iPad to the Xoom every major tech manufacturer is churning out tablets to enhance our media consumption. Americans eked out 1 trillion text messages last year. Everybody it seems including President @BarackObama is tweeting. This Forum will explore opportunities for the medical illustrator afforded by social networks, mobile computing and the globalization of the creative space. What does all this mean for our lives, work and economy when mobile, social, and global reaches critical mass? Join us for the discussion and continue the conversation on Twitter (#AMI2011FF).

### Bang Wong

is the Creative Director of the Broad Institute of MIT and Harvard and an Adjunct Assistant Professor in the Department of Art as Applied to Medicine at the Johns Hopkins University. His research focuses on the analytical challenges posed by the unprecedented scale, resolution, and variety of data in biomedical research. He established the Data Visualization Initiative at Broad to explore how informative visual encodings of data along with the researchers’ knowledge of the subject under investigation is a potent combination for discovery. He also writes a monthly column for Nature Methods on applying art and design principles to science communication. Bang currently serve as a member of the program committee and an invited session chair for the IEEE Symposium on Biological Data Visualization, an elected board member of the Association of Medical Illustrators, a member of the advisory board for Science for the Public and a cochair for the International Visualizing Biological Data workshop series. He holds a masters degree in immunology and a masters degree in medical and biological illustration, both from The Johns Hopkins University School of Medicine.

### Patrick J. Lynch

is the Director of Design and User Experience in the Office of Public Affairs and Communications at Yale University. In his 40 years with Yale University, he has been a medical illustrator, biomedical and scientific photographer, audiovisual producer, and for the past 30 years a Director of media and communications service units, and a designer of interactive multimedia teaching, training, and informational software and web sites. Lynch has won over 30 national and international awards for his medical illustration, publications, and software design, including the 2005 Pirelli INTERNETional Awards for Best Overall multimedia teaching site, and best site from higher education, the 1992 Best-in-Show Award from the Health Sciences Communications Association and a Gold Medal, Silver Medal, and Award of Excellence in the international INVISION Multimedia Awards.

### Brooke Neugebauer

is an app graphic designer for mobile devices and web desktops apps, creating custom layouts and graphics for developers. Her background was in designing for print materials. She made the switch to designing for apps in the fall of 2010, after completing an iPhone and iPad project for the development company Element84, whom she met through the online networking group, B’more Creatives. This past spring she created her own company called Rockit Design Group, has started a helpful app design blog, and is currently gearing up with Shawnbits.com to teach app design via webinars to other graphic designers. Brooke graduated from University of Maryland, Baltimore County (UMBC) in 1999 and lives outside of Annapolis, Maryland with her husband and two young children. In 2005, Brooke, along with fellow women graphic designers recognized the need in Baltimore for a design group where they could learn from each other and feel safe asking design-related questions. They created a Yahoo Group called B’more Creatives and decided to only ask other women in or around the graphic design field to join. Today, B’more Creatives is hosted on the Groupsite.com website, is a very active group both online and with networking events, and has over 800 members.

### Ron Schmelzer

Managing Partner at ZapThink, is a well-known expert in IT, XML, Web Services, and Service-Oriented Architecture (SOA). He is well regarded as a startup marketing and sales adviser, and is currently mentor and investor in the TechStars seed stage investment program, and has been involved since 2009. In addition, he has started a number of successful IT startup companies including VirtuMall, ChannelWave, and ZapThink. He also sat on the working group committees for standards bodies such as RosettaNet, UDDI, and ebXML. Ron Schmelzer was the lead author of XML And Web Services Unleashed (SAMS 2002) as well as coauthor of Service-Orient or Be Doomed (Wiley 2006) with Jason Bloomberg. Ron was named “Geek of the Week” in Internet Magazine and was listed in Boston Magazine’s Internet Top 40. Ron received a BS degree in computer science and engineering from the Massachusetts Institute of Technology (MIT) and an MBA from The Johns Hopkins University.

### 6pm – 7:30pm

**Awards Banquet**

Our meeting will conclude with the annual awards banquet. The banquet will be held on the 5th floor in Edinburgh Hall and the Mirror Room. After the banquet, attendees are invited to the awards ceremony to be held on the 2nd floor. Serbin is sponsoring a raffle for a Medical Illustration Sourcebook page at this event.

### 7:30pm – 9pm

**Awards Ceremony**

Following the awards banquet will be the presentation of awards. This will include the Salon awards, AMI fellow presentation, The Brödel Award for Excellence in Education, and the AMI Lifetime Achievement Award.
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