CONFERENCE AGENDA
OCTOBER 25 – 27, 2017
UNIVERSITY OF WYOMING, LARAMIE

Unless otherwise noted, all events take place at the University of Wyoming Conference Center (UWCC) located at 2229 Grand Avenue, Laramie, WY 82070 (adjacent to the Hilton Garden Inn).

Wednesday, October 25, 2017
Afternoon  Lunch on Own

Noon  Registration Opens (UW Conference Center Lobby)
      Light refreshments available

1:00 PM – 1:20 PM  Conference Welcome
      Emma-Jane Alexander, Shell 3D Visualization Center Manager, University of Wyoming
      Diana Hulme, Director of Operations and Communications, School of Energy Resources, University of Wyoming
      Kurt Hoffmeister, PE, Chief Technologist and Co-Founder, Mechdyne

1:20 PM – 2:00 PM  Round Room facilitated by Dr. Winifred Newman, Head of Department of Architecture for the Fay Jones School of Architecture, University of Arkansas
      Sharing of professional and personal goals and objectives for the conference. What are you going to contribute and what would you like to gain?

2:00 PM – 2:45 PM  Keynote Presentation: Maxine Brown, Director, Electronic Visualization Laboratory, University of Illinois at Chicago
      Insight through Images: Visualization and Collaboration Technologies for Exploring Big Data

2:45 PM – 3:15 PM  Visualization Technology Showcase

3:15 PM – 3:25 PM  Afternoon Break

3:25 PM – 3:45 PM  Abstract #1: Dr. Paul Rea, Senior Lecturer, College of Medical, Veterinary and Life Sciences University of Glasgow (via Skype)
      Visualization in Teaching and Learning with a Medical Focus

3:45 PM – 4:15 PM  Abstract #2: Mike Nutt, Director of Visualization Services, North Carolina State University and Shelby Hallman, Libraries Fellow, North Carolina State University
      Visualizing Digital Scholarship across Institutions

4:15 PM – 4:45 PM  Technical Talk: Kyle Summerfield, Assistant Research Scientist, School of Energy Resources, University of Wyoming
      Practical Multiplatform Deploying using Unity 3D

6:00 PM – 7:30 PM  Reception at the Historic Laramie Depot located at 1st Street (arrange own travel downtown)
Thursday, October 26, 2017

Morning Breakfast on Own (We suggest with new THE CAAV friends at hotel!)

7:30 AM Registration Opens (UW Conference Center Lobby)
Coffee, tea and water available

8:15 AM Day #2 Welcome
Emma-Jane Alexander, Shell 3D Visualization Center Manager, University of Wyoming

8:25 AM Dr. Ed Synakowski, Vice President for Research and Economic Development, University of Wyoming

8:30 AM – 9:00 AM Abstract #3: Dr. James Money, Applied Visualization Laboratory Lead, Idaho National Lab
Transitioning to Rapid Development for Immersive Environments

9:00 AM – 9:30 AM Abstract #4: Rajiv Khadka, PhD Candidate Dept. of Computer Science, University of Wyoming
Collaborative Data Visualization using Asymmetric Virtual Reality Systems

9:30 AM – 10:00 AM Abstract #5: Dr. Mary Katherine Scott, Program Developer, Global Engagement Office,
University of Wyoming
Perceptions of Value: Art and Authenticity in the Digital Age

10:00 AM – 10:30 AM Visualization Technology Showcase and Morning Break

10:30 AM – 11:25 AM Discussion and Debate: Dr. Henry Neeman, Associate VP for Information Technology, Research
Strategy Advisor and Director, Supercomputer Center for Education & Research Center,
University of Oklahoma (OSCER)
Successful Technology Orientated Facilities

11:25 AM – 11:45 AM Abstract #6: Dr. Amy Banic, Associate Professor, Department of Computer Science, University
of Wyoming
On the Road to Insights: 3D Interaction Design to Get More Out of Your Immersive Data
Visualizations

11:45 PM – 12:00 PM Lunch (Provided by the conference)
Please help yourself to lunch from the buffet and take your seat for our keynote presentation

12:00 PM – 12:45 PM Lunch Speaker: Kurt Hoffmeister, PE, Chief Technologist and Co-Founder, Mechdyne
Advances in Technology

12:45 PM – 1:00 PM THE CAAV Executive Committee Update

1:00 PM – 1:30 PM Abstract #7: Dr. James Sochacki, Professor of Mathematics, James Madison University
STEM Undergraduate Scientific Visualization

1:30 PM – 2:00 PM Abstract #8: Dr. Patrea Andersen, Associate Professor, University of the Sunshine Coast
Using 3D Artifacts to Enhance Learning of Core Concepts in Anatomy and Physiology,
Pathophysiology and Drug Therapy in Undergraduate Health Degrees

2:00 PM – 2:30 PM Abstract #9: Ross Tredinnick, Systems Programmer, Institute for Discovery, University of
Wisconsin
UniCAVE – A Unity3D Plugin for Non-Head Mounted Virtual Reality Display Systems
2:30 PM – 3:00 PM  Abstract #10: Brandon Gellis, Assistant Professor of Graphic Design, University of Wyoming  
*Virtual Reality Prototyping for Graphic Design Education*

3:00 PM – 3:15 PM  Shuttles to Energy Innovation Center (EIC) for tours of the Shell 3D Visualization Center, University of Wyoming School of Energy Resources (SER)

3:15 PM – 4:45 PM  Visualization Technology Showcase at SER  
*Snacks available in the SER Lobby on the 2nd Floor*

4:45 PM – 5:00 PM  Return shuttles from SER to Hilton and Holiday Inn

5:00 PM – 6:00PM  THE CAAV Executive Committee Annual Meeting (UWCC Boardroom -- Closed Session)

Evening  Dinner with THE CAAV friends (sign-up sheets available during the day)

**Friday, October 27, 2017**

Morning  Breakfast on Own (We suggest with new THE CAAV friends at hotel!!)

7:30 AM  Registration Opens (UW Conference Center Lobby)  
*Coffee, tea and water available*

8:30 AM  Day #3 Welcome  
Emma-Jane Alexander, Shell 3D Visualization Center Manager, University of Wyoming

8:35 AM – 9:05 AM  Abstract #11: Mark Murnane, Faculty Research Assistant, University of Maryland, Baltimore County (UMBC) and Dr. Don Engel, Assistant Vice President for Research, UMBC  
*Optimizing a Multimodal Data Visualization Tool*

9:05 AM – 9:30 AM  THE CAAV Non-profit Progression Update

9:30 AM – 10:00 AM  Abstract #12: Dr. Kenneth Orimma, Director, Virtual Science Laboratory, Bahamas Institute of Business and Technology  
*Simulation Based Learning for STEAM Education*

10:00 AM – 10:30 AM  Visualization Technology Showcase

10:30 AM – 10:50 AM  Break

10:50 AM – 11:10 AM  Technical Talk: Simon Alexander, Software Developer, University of Wyoming  
SimViz, Off-Shore Wind Turbines, Bat CAVEs and the Importance of Agile Development!

11:10 AM – 11:30 AM  Way Forward for 2018. Debate amongst all members regarding THE CAAV future, influence, how to contribute and benefits

11:30 AM – 12:00 PM  Feedback, closing summary and thanks

Presentations = Keynotes and/or focused strategic sessions  
Abstracts = Academic and/or technical in focus  
Technical Talks = Short punchy 15 minute session project and output related
PRESENTER BIOGRAPHIES (in alphabetical order)

Emma-Jane Alexander  
*Shell 3D Visualization Manager, University of Wyoming School of Energy Resources*

With a computing and mathematics degree in Visualization from the University of Teesside and an Executive MBA from the University of Hull (both UK), Emma-Jane takes great pleasure in utilizing both technical and management skills to explore and nurture the successful adoption of technology and software in visualization centers. Currently the manager of the Shell 3D Visualization Center based within the School of Energy Resources, Emma-Jane enjoys the challenge of bringing together 3D visualization technical experts with teaching/research faculty and students to enhance teaching and learning. Emma-Jane is eager to seek out and develop new multi-disciplinary collaborative relationships with faculty at UW to leverage research opportunities. Alongside nurturing usage of the Shell 3D Viz Center for UW and businesses, Emma-Jane has particular interest in considering how schools can have access to the technology to widen their awareness by staff and pupils of opportunities in STEM. Emma-Jane has focused research interests in the application of therapeutic virtual reality treatment of obesity.

Simon Alexander  
*Software Developer, University of Wyoming*

Simon Alexander earned a BSc in Math/Computer Science from Sheffield University, followed by an MSc in Computer Graphics from Teesside University. At Teesside, he started a PhD in Soft Cellular Modeling with emphasis on the development of a real time minimal invasive surgery simulator, before becoming a Senior Lecturer in Visualization. Simon was a Senior Animation Programmer, at Orange UK, developing the 3D talking and animated ‘Ananova’ avatar, as well as exploring other multimedia technology including text-to-speech and voice recognition. Changing careers, Simon earned a PGCE Teaching Qualification for Mathematics in Secondary Schools. Returning to academia as a Research Programmer at the University of Hull, Simon worked on developing a wind-turbine maintenance virtual training system, and a variety of 3D immersive teaching demos including using geoscience data to explore the Humber Estuary, and allowing school children to explore mathematical nets and volumes.

Simon is currently a software engineer working within the Business Intelligence team at the University of Wyoming. He actively continues to work within the Visualization area having recently presented on the use of Virtual Reality within Education, and is starting the PhD program within the Computer Science department, exploring the area of Immersive Analytics.
Dr. Patrea Andersen  
*Associate Professor, University of the Sunshine Coast*

Associate Professor Patrea Andersen has extensive academic experience in Nursing Education. As Associate Professor for Nursing and Academic Director for Simulation and Visualization for the University of the Sunshine Coast (USC), Patrea’s primary focus is on simulation development and curricula integration. Her research interests include clinical education, simulation (including visualization and game-based simulation, AR and VR applications), patient safety, professional competence and issues impacting on the preparation and development of health professionals. Her success is evidenced in collaborative research grants totaling $1,768,101, publications, 16 keynote presentations and 33 referred conference presentations. Patrea was the recipient of an OLT citation for leadership in simulation in 2015. She holds a number of governance roles. She is Portfolio Leader for Simulation and Practice Learning for Undergraduate Programs for the School of Nursing, Midwifery and Paramedicine at USC, chair of national simulation education collective InSPIRE and The Australian chair for SimGHOSTS Australia.

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Dr. Amy Banic  
*Associate Professor, Department of Computer Science, University of Wyoming*

Amy Banic is an Associate Professor in the Department of Computer Science at the University of Wyoming. Additionally, she holds a joint appointment at the Idaho National Laboratory. Her research specializes in 3-Dimensional User Interfaces and Interaction for Virtual Reality, Immersive Visualizations, and Virtual Humans. She directs the 3D Interaction and Agents (3DIA) research laboratory, as well as the VR Innovators Student group. Prior to her appointment at the University of Wyoming in 2010, Banic was a Post Doctoral Fellow at Clemson University and she received her Ph.D. in 3D User Interfaces and Virtual Reality at the University of North Carolina at Charlotte in 2008. For more information: www.AmyBanic.com or email: abanic@cs.uwyo.edu
**Dr. Don Engel**  
*Assistant VP for Research; Affiliate Assistant Professor of Physics and of Computer Science and Electrical Engineering, University of Maryland, Baltimore County (UMBC)*

Dr. Don Engel is Assistant Vice President for Research at UMBC and is an Affiliate Assistant Professor in both the Department of Physics and the Department of Computer Science and Electrical Engineering. He is principal investigator on the NSF award which established UMBC’s Pi Squared visualization facility (a six-column MechDyne ARC display) and serves as the Associate Director of UMBC’s Interactive Robotics and Language Lab. Previously, Dr. Engel was a postdoctoral fellow at the Johns Hopkins, where he also served as a resident in the radiation oncology medical physics clinical residency program. Before Hopkins, Dr. Engel completed his Physics Ph.D. and an earlier postdoctoral fellowship, both at the University of Pennsylvania. He holds a master’s degree in Computer Science from Brown University, where he also completed his Sc.B. in Math-Physics. Outside academia, Dr. Engel served as a AAAS Congressional Fellow and as a Deloitte consultant to federal agencies (HHS, DOT, DHS). In addition to research and teaching activities, Dr. Engel is the principal deputy to UMBC’s Vice President for Research in managing internal awards, limited solicitations, research centers, core facilities, internal and external research partnerships, the enhancement of UMBC’s research culture and the development of the UMBC community’s research skills.

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**Maxine Brown**  
*Director of the Electronic Visualization Laboratory (EVL) at the University of Illinois at Chicago*

Maxine Brown is the Director of the Electronic Visualization Laboratory (EVL) at the University of Illinois at Chicago (UIC), responsible for fundraising, outreach, documentation, and promotion of its research activities. Her research interests include computer graphics, scientific visualization, collaboration, human-computer interfaces, high-performance computing, and international network infrastructure. Brown has been active in the ACM SIGGRAPH organization and in SIGGRAPH and ACM/IEEE Supercomputing conferences; she recently served as a General Co-Chair of IEEE Visualization 2015.

In recognition of her services to UIC and the community at large, Brown is a recipient of the 1990 UIC Chancellor's Academic Professional Excellence (CAPE) award; the 2001 UIC Merit Award; and the 1998 ACM SIGGRAPH Outstanding Service Award. In 2009, Chicago’s award-winning multimedia public affairs series “Chicago Matters: Beyond Burnham” designated Brown as one of 15 Global Visionaries for her role in co-developing the StarLight national/international communications exchange, located in downtown Chicago.

Brown is co-principal investigator of the US National Science Foundation’s (NSF) International Research Network Connections program’s StarLight Software Defined Networking Exchange (SDX) initiative, and was previously co-principal investigator of the NSF-funded TransLight / StarLight, EuroLink and STAR TAP / StarLight initiatives. Brown was also the project manager of the NSF-funded OptIPuter project. She is a founding member of the Pacific Rim Applications and Grid Middleware Assembly (PRAGMA) and the Global Lambda Integrated Facility (GLIF). Brown is also the UIC representative and Past President of the Board of Directors of the Great Lakes Consortium for Petascale Computing. She co-created and co-chaired the international grid (iGrid) Workshops in 1998, 2000, 2002 and 2005.
Brandon Gellis
Assistant Professor of Art, Graphic Design, University of Wyoming

Brandon Gellis is a new media artist creating work around contemporary issues of identity and place across intersections of art, science and technology. www.brandongellis.com

A native of Los Angeles, he received his B.A. from the University of California at Santa Cruz, and earned his M.F.A. in Emergent Digital Practices, at the University of Denver.

In 2014, Brandon was an invited art-scientist at the Museum für Naturkunde, Berlin where he created works helping to advance knowledge of evolutionary and biological sciences through interactive exhibits.

In 2015, he joined the Department of Art & Art History faculty at the University of Wyoming. Brandon has been exhibiting art work and scholarly papers at juried national and international exhibitions and conferences since 2012.

In 2017, he won the First-Place Juror’s Choice Award at Circle Gallery’s “Focal Point,” a Maryland Federation of Art’s Juried Exhibition, and the Third-Place Juror’s Choice Award at the Annapolis Maritime Museum’s, “Flora or Fauna,” a Maryland Federation of Art’s Juried Exhibition.

Shelby Hallman
Fellow, North Carolina State University Libraries

Shelby Hallman is a Fellow at North Carolina State University Libraries working in the Research Engagement department and on an initiative in the Digital Libraries Initiatives department. Her initiative focuses on an Andrew W. Mellon Foundation grant titled “Visualizing Digital Scholarship in Libraries and Learning Spaces”. She recently completed a Master of Library and Information Science at the University of Illinois at Urbana-Champaign iSchool, with specializations in Data Curation and Special Collections.
**Diana Hulme**  
*Director of Operations and Communications, School of Energy Resources, University of Wyoming*

Diana Hulme serves as the Director of Operations and Communications for the University of Wyoming (UW), School of Energy Resources (SER) managing the research and outreach functions of the School. Along with a Master of Science degree in Environmental Engineering from Stanford University and a Bachelor of Science degree in Molecular Biology from the University of Wyoming, Diana has over 25 years’ experience in natural resources and energy.

Prior to that, she spent nine years with the Wyoming Department of Environmental Quality (DEQ), serving three years managing groundwater remediation projects and six years as an air quality permitting engineer and compliance inspector. While at DEQ, she held an 18 month fellowship in the Wyoming Governor’s Office under Governor Geringer working on natural resource policy issues and spent two legislative sessions monitoring the House of Representatives for the Governor.

Diana is a graduate of Leadership Wyoming and currently serves as vice-chair on the Wyoming Department of Environmental Quality, Air Quality Advisory Board.

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**Kurt Hoffmeister**  
*PE, Chief Technologist & Co-Founder, Mechdyne Corporation*

Mr. Hoffmeister serves as Chief Technologist for the Mechdyne Corporation since co-founding that company in 1996. Mr. Hoffmeister is a recognized pioneer and worldwide expert in large-screen virtual reality and simulation system design, integration, installation, and operation. A licensed professional engineer with several patents, he has a master’s degree in mechanical engineering from Iowa State University. Mr. Hoffmeister’s responsibilities include the evaluation and implementation of new AV/IT technology and components into the solutions offered by Mechdyne. Mr. Hoffmeister has been involved in nearly every Mechdyne solution offered for the past 20 years, serving in a variety of capacities, including Researcher, Consultant, Systems Designer and Systems Engineer.

Mr. Hoffmeister’s previous experience includes 10 years in technical and management roles with the Michelin Tire Company’s North American Research Center as well as being an early employee and consultant at Engineering Animation, Inc. (now a division of Siemens) plus an instructor and research scientist at Iowa State University. Mr. Hoffmeister is a member of InfoComm, the American Society of Mechanical Engineers (ASME), and the International Society for Optical Engineering (SPIE). He is also an invited member of the Air Force National Security Forum (NSF).

Kurt resides in Marshalltown, Iowa with his wife, Ellen. He enjoys 3D movies, reading fiction, woodworking, geode hunting, and fishing.
Rajiv Khadka  
*PhD Candidate, Department of Computer Science, University of Wyoming*

Rajiv Khadka is currently a Ph.D. student at the University of Wyoming working with 3D Interaction and Agents (3DIA) Research Lab. He is interested in 3D user interfaces and interaction, immersive visualization and collaborative technologies.

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Dr. James Money  
*Applied Visualization Laboratory Lead, Idaho National Laboratory*

Dr. James H. Money is Applied Visualization Laboratory Lead for Idaho National Laboratory. He has more than 20 years of experience in a variety of fields including immersive visualization in both academic and industry settings. His experience includes leading the first Department of Defense initiative to provide live data sets inside a Cave Automatic Virtual Environment (CAVE), touch displays, and large format video walls from 2007 to 2011. Before coming to INL, he led multiple efforts in the modeling & simulation community to bridge 30-year-old solutions to leading edge products, both in the areas of computations and visualization. He also has worked extensively in geospatial technologies over his career, including seven years working at National Geospatial-Intelligence Agency (NGA) as well as several other intelligence agencies. Dr. Money earned his doctorate and master’s degrees in mathematics from the University of Kentucky, and a bachelor’s degree in computer science from James Madison University. His prior academic work includes variational methods for image processing, numerical differential equations and linear algebra, and cluster computing. His industrial work includes large-scale data analysis of intelligence for the government and leading clients through transformational change that has resulted in an order of magnitude of costs savings in their projects.
Mark Murnane  
*Faculty Research Assistant, University of Maryland, Baltimore County*

Mark Murnane is a senior computer engineering student at the University of Maryland, Baltimore County (UMBC). During the summer of 2015, he interned at Direct Dimensions Inc. where he helped construct the photogrammetry rig now used by the IRC. After IRC purchased DDI and the rig, Murnane now develops new software for the rig and provides operational support to the researchers and clients using it. In addition, Mark is working with a resident artist in the IRC to develop embedded systems to help create interactive art installations.

In his free time, Mark works on building home automation systems and volunteering for MAGFest, a local art festival focusing on gaming and music.

Dr. Henry Neeman  
*Associate Vice President for Information Technology, Research Strategy Advisor and Director of OSCER, University of Oklahoma*

Henry Neeman is the founding Director of the OU Supercomputing Center for Education & Research (OSCER), Assistant Vice President for Information Technology - Research Strategy Advisor, Associate Professor of Engineering, and Adjunct Associate Professor of Computer Science at the University of Oklahoma (OU).

He received his BS in Computer Science and his BA in Statistics with a minor in Mathematics in 1987 from the University at Buffalo, State University of New York, his MS in CS from the University of Illinois at Urbana-Champaign (UIUC) in 1990 and his PhD in CS from UIUC in 1996.

Prior to coming to OU, Dr. Neeman was a postdoctoral research associate at the National Center for Supercomputing Applications (NCSA) at UIUC, and before that served as a graduate research assistant both at NCSA and at the Center for Supercomputing Research and Development, also at UIUC.

Dr. Neeman and his counterpart at Oklahoma State University, Dr. Dana Brunson, have been appointed joint co-leads of the Campus Engagement program of the Extreme Science and Engineering Discovery Environment (XSEDE), the umbrella organization over the National Science Foundation's national supercomputing centers.
Mike Nutt
Director of Visualization Services in the Digital Library Initiatives Department, North Carolina State University Libraries

Mike Nutt is Director of Visualization Services in the Digital Library Initiatives department at North Carolina State University Libraries. Nutt is the lead principal investigator on the Mellon-funded Visualizing Digital Scholarship in Libraries and Learning spaces grant. He serves as co-chair of the Libraries’ Visualization Services Team, which designs, builds, and improves the systems and services that support visualization-intensive research and learning. He is the editor-in-chief of the content program for the video wall installations in the James B. Hunt Jr. Library, partnering with faculty and students to create new forms of scholarly communication and public engagement. Nutt has a Master of Science in Information Science and a Bachelor of Arts in Communication Studies, both from the University of North Carolina at Chapel Hill.

Dr. Winifred E. Newman
Professor of Architecture, Fay Jones School of Architecture, University of Arkansas

Winifred E. Newman is a professor of architecture in the Fay Jones School. She received a Bachelor of Architecture and a Bachelor of Science in history, with psychology and anthropology minors, all from the University of Texas at Austin. She also received a Master of Architecture, a Master of Philosophy in history of technology and science, and a Doctor of Philosophy in architecture, urban design, planning and landscape architecture, all from Harvard University. She arrived at the Fay Jones School in July 2015 and served for two years as head of the Department of Architecture.

Newman received fellowships from the Harvard Faculty of Arts and Sciences, the Harvard Graduate School of Design and the Graham Foundation, among others. In 2014, she received a Florida International University Top Scholar award for her research efforts. She is also an inaugural Fellow of the STEM Transformation Institute and a founding member of the FIU Sustainable Building Environments Informatics Organized Research Unit. She has published work in the United States and Germany and served on the editorial board of the Journal of Architectural Education. She was a designer with HOK for eight years on projects in the United States and abroad and a partner in FieldOffice LLC since 2003.
Dr. Kenneth Orimma

*Director of Virtual Science Laboratory Project at the Bahamas Institute of Business and Technology*

Dr. Kenneth Orimma is a Resident in Psychiatry at the School of Clinical Medicine and Research University of the West Indies Bahamas with an interest in virtual reality simulation in learning environments. He is the Director of the Virtual Science Laboratory Project at the Bahamas Institute of Business and Technology. He is also a member of the International Society for Technology in Education.

Dr. Orimma holds a Bachelor of Science Degree in Medical Radiography; Master of Science Degree in Medical imaging technology; Bachelor of Medicine & Bachelor of Science (MBBS); and Certificate in Emerging Technologies in Education.

Dr. Orimma is one of the recipients of the Prof. Elrond Waldron scientific award, University of the West Indies, Barbados Campus and he has presented papers on virtual reality application and integration in learning environments at the following technology conferences:

- Learning with Innovative Technology Conference, Sunny Empire State College, Spring Field Saratoga, New York
- The Digital Education Show; Empowering Learning Through Technology, Johannesburg, South Africa
- Caribbean Regional Cardiology Society, Barbados
- Bahamas Medical Laboratory Association Annual Technology Conference, Bahamas

He is presently piloting a project on effectiveness of virtual reality in STEAM education at the Bahamas Institute of Business and Technology Bahamas.

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Dr. Paul Rea

*Senior Lecturer, College of Medical, Veterinary and Life Sciences
University of Glasgow*

Paul graduated in Medicine from the University of Glasgow and went into clinical training. Subsequently he was appointed as an Associate Lecturer in Anatomy.

In that post, he was awarded a scholarship to undertake a part time MSc in craniofacial anatomy alongside his teaching duties. This won the Scottish Royal Medico-Chirurgical Society of Glasgow prize. He returned to clinical practice in pathology receiving training in all areas of histopathology, including post-mortem analysis.

He returned to the University of Glasgow appointed as a University Teacher and promoted to Senior Lecturer. He is a Licensed Teacher of Anatomy and teaches across the medical, dental and science programmes. He holds a PhD in neuroscience, DipFMS, SFHEA and FRSA.

Paul has published over 130 items, was a Meet the Expert with the Glasgow Science Centre, and was key to the anatomical input to the international exhibition BodyWorks.

His research involves a partnership with the School of Simulation and Visualisation, The Glasgow School of Art. This has led to investment in creating world leading 3D digital datasets. This successful collaboration has resulted in the creation of the first taught MSc in Medical Visualisation and Human Anatomy and he is the Programme Leader for this degree.
Dr. Mary Katherine Scott
Program Developer, Global Engagement Office, University of Wyoming

Mary Katherine Scott is the Program Developer in the University of Wyoming Global Engagement Office where she focuses on international education initiatives, especially in the energy sector. She formerly served as the Acting Director for UW’s International Programs Office from 2015-2017. In addition to her administrative role, Scott is an adjunct faculty member at UW and has taught a range of classes in art history, museum studies, anthropology and Spanish.

Scott received a Ph.D. in World Art Studies with a specialization in Latin American Art from the Sainsbury Research Unit for the Arts of Africa, Oceania and the America, University of East Anglia (U.K.). Her previous degrees in Fine Arts (BFA, University of Wyoming), Spanish (M.A., University of Wyoming), Art History (M.A., Northern Illinois University) and Museum Studies (certificate, Northern Illinois University) broadened her training and academic interests in Latin America early on. Scott’s ongoing ethnographic research focuses in how Mexican tourist arts circulate and acquire value within local and international art markets. Her research in virtual reality likewise explores how audiences negotiate the value and authenticity of objects within simulated environments.

James Sochacki
Professor of Mathematics

James Sochacki developed many of the undergraduate courses in applied mathematics, mathematical modeling and scientific computing and visualization at James Madison University (JMU). He directed the creation of the Center for Computational Mathematics and Modeling (CCMM) at JMU. The CCMM houses NSF funded parallel computers and a flat panel array parallel visualization computer system. The CCMM mission is to help foster undergraduate research in applied and computational mathematics that involves scientific computing and visualization. Sochacki’s main area of research is in the numerical solutions of ordinary and partial differential equations and mathematical modeling of dynamical systems. Sochacki is also a member of the board for the Institute of Visual Studies at JMU.
Kyle Summerfield  
*Visualization Specialist and Virtual Reality Developer*

Kyle Summerfield is the Unity developer at the Shell 3D Visualization Center at the University of Wyoming. He works with professors, faculty, and the private sector to deliver custom software to a variety of platforms to suit their needs. These range from educational and scientific programs to architecture and product visualizations. The student internship program is another passion of Summerfield's, where he is able to teach students the entire digital asset creation pipeline (including modeling, texturing, animation, and scripting in a variety of languages). Summerfield has been with the center nearly since its inception, first as an intern and now as a full-time employee.

Dr. Edmund “Ed” Synakowski  
*Vice President for Research and Economic Development, University of Wyoming*

Dr. Ed Synakowski serves as the VP for Research and Economic Development at the University of Wyoming. He is also a professor in the UW Department of Physics and Astronomy. Prior to assuming his current role, Synakowski served as Associate Director of Science in the Department of Energy, since 2009. There he administered a budget of about $400 million annually to develop nuclear fusion as an energy source. His agency supported research at more than 50 universities, eight national and two federal laboratories, and 15 industry groups.

Synakowski previously led the Fusion Energy Program at the Lawrence Livermore National Laboratory in California and held a number of roles at Princeton University’s Plasma Physics Laboratory.

Synakowski earned a bachelor's degree in physics at Johns Hopkins University in 1982 and a Ph.D. in physics from the University of Texas at Austin in 1988. He is the author of more than 160 peer-reviewed journal articles, primarily in the area of plasma fusion science.

He is a Fellow of the American Physical Society (APS) and a recipient of the APS Award for Excellence in Plasma Physics Research (2001) and Princeton University’s Kaul Foundation Prize for Excellence in Plasma Physics Research and Technology Development (2000).
Ross Tredinnick

Systems Programmer, University of Wisconsin – Madison, Wisconsin Institute for Discovery

Ross Tredinnick (pronounced: Tre-din-nick) is a fourth generation Madison native and a sixth generation Wisconsinite. Prior to working at the Wisconsin Institute for Discovery (WID), Ross worked in the video game development industry for six years as a technology programmer.

He received his Bachelor of Science, Computer Science at the University of Wisconsin – Madison and his Masters of Science, Computer Science at the University of Minnesota - Twin Cities.

While at Minnesota, Ross Tredinnick’s primary research centered on combining the study of Virtual Environments and Computer Graphics with Architecture and Design. Through his work at the University of Minnesota, Tredinnick gained experience programming with a variety of Virtual Reality devices and displays such as HMD’s, tracking systems, wands, multi-projection, and dome-based displays. Since joining WID in 2012, Tredinnick has been involved in a multitude of collaborative research projects, ranging from the digital humanities to astrophysics and cultural preservation to healthcare in the home. Centered upon all of these projects is a common theme of applying virtual reality technologies to these research areas and developing computer graphics and virtual reality software to aid in answering research questions.

In his spare time, Tredinnick enjoys camping, cooking, gardening, running, playing slow pitch softball, and following Wisconsin collegiate and professional sports teams. Ross enjoys spending time with his wife Allison and two year old son Weston.

In Memory of Chelsie Worth

THE CAAV Executive Committee would like to bring to your attention that Chelsie Worth, a staff member with THE CAVEA (Center for Advanced Visualization and Experiential Analysis) sadly passed away in March 2017. Chelsie provided invaluable support to the first THE CAAV conference last year, and was a huge asset to the organization. The Executive Committee would like to remember and celebrate Chelsie, her passion for science and her dedication to her work.

To donate to the Chelsie Worth Scholarship Fund, please follow the link below.
https://sites.msudenver.edu/geospatial/2017/03/27/chelsie-worth-scholarship-fund-to-support-women-in-earth-sciences/
THE CAAV is a volunteer-driven organization. Its purpose is to act as an information resource to worldwide higher education focusing on immersive visualization platforms, advanced video screen formats, advanced visualization software and issues of sustainability and operation for high-tech visualization facilities.

Founded in 2015, THE CAAV is now transitioning into a non-profit organization, and hopes to achieve its official status before the end of the year, with the support of Mechdyne. THE CAAV international membership roster now proudly rests at 150 members worldwide, represented by a wide variety of teaching and research-oriented higher education institutions, national labs, and colleges. To become a member of THE CAAV please complete the membership form available at: https://thecaav.wordpress.com/membership-form/

For further information about THE CAAV organization, please visit the website at https://thecaav.wordpress.com/ or contact Emma-Jane Alexander, THE CAAV President at emmajane.alexander@uwyo.edu or via phone at 307.343.2926.

THANKS TO OUR SPONSORS:

About Mechdyne Corporation
Mechdyne is one of the world’s leading providers of innovative visual information technologies. The company bends technology in ways that transform complex data into insights and ideas. To ensure clients succeed, Mechdyne provides comprehensive, customized solutions that include consulting, software, technical services and hardware integration. Mechdyne, with offices around the world, serves a global customer base. Clients include: leading government laboratories, energy companies, universities, manufacturing and design firms, U.S. armed forces and other users of visual information technologies. Visit www.mechdyne.com for more information.

The Energy Innovation Center’s (EIC) Shell 3D Visualization Center (Viz Center) proudly houses the only four-walled, 3D CAVE (Cave Automatic Virtual Environment) in Wyoming. The Viz Center’s mission is “To create and maintain a community of empowered users who will drive the enhancement of teaching and research at UW, by utilizing visualization technology and embracing collaborative multidisciplinary opportunities”. The Viz Center beautifully complements the primary function of the EIC-- to enable scientists and engineers to visualize and interact with highly complex data sets.

Designed, engineered and integrated by Mechdyne Corporation, one of the world’s leading providers of innovative visual information technologies, the laboratory combines high-resolution stereoscopic projections and 3D computer graphics to create a virtual environment where researchers can analyze, interpret and share a wide variety of spatially related data. One of the laboratory’s many capabilities is its ability to model oil, gas, and water movements and interactions in the subsurface environment, which will aid researchers and energy companies in deriving maximum value from their mineral resources. The laboratory connects via 10-gigabit lines to one of the most powerful supercomputers in the region — the Wyoming National Center for Atmospheric Research Supercomputing Center (NWSC) located west of Cheyenne and UW’s Advanced Research Computing Center (ARCC) — both of which are essential for the complex simulations required in today’s energy research. The Shell 3D Visualization research laboratory is an amazing tool for discovery and is open to the UW community as a university-wide teaching and learning resource.
Please visit our Technology Showcase
See the conference agenda for scheduled times.

Owner: Wesley A. Kenison, Jose M. Lopez
Institution: Metropolitan State University of Denver
Title: Project Designer
Description: AGI Systems Tool Kit (STK) Simulation of the Great American Solar Eclipse. Useful as a real time educational tool to teach people about astronomical event. Presentation utilized full CAVEA theater with live presentation to create a shared interactive experience. During the solar eclipse. Windows Laptop/ AGI STK software.

Owner: Nikhil Shetty
Institution: University of Wyoming
Title: VueNix
Description: VueNix is a scientific software visualization tool. The goal is to be able to perform scientific workflows inside Virtual Reality environments. Often researchers have to move in and out of Virtual Environments to leverage some of the advantages of Virtual Reality in scientific visualization. This work helps scientists and researchers remain inside virtual environments to do their scientific visualization work in a single unified environment. HTC VIVE VR device with Vive Compatible hardware, Windows, ParaView (customised).

Owner: Kyle Summerfield
Institution: University of Wyoming
Title: GPU-based particle rendering
Description: This demonstration will showcase the use of GPU-based particle rendering to display 70,000 particles in a VR environment at over 90 frames per second. Users can manipulate the positions of each particle to produce colorful, meditative patterns.

Owner: Patrea Andersen, Mark Barry
Institution: University of the Sunshine Coast
Title: The use of serious games in simulation and visualization

Owner: Winfred Newman
Institution: University of Arkansas
Title: STEM Education Using AR

In addition to the technology listed above, Digital Projections will feature its new direct-view LED product on Friday, October 27th.