Focus areas

Virtual and Augmented Reality .............. 1
Applied Neuroscience ............................. 4
Drones in journalism ............................... 5
Interaction Design & Simulation .............. 6
Psychosocial Effects in Media .................. 8
Resilience Systems ................................. 10
Culture Community ............................... 11

Facilities and Centers

TRAC ....................................................... 12
Center for Digital Media
Entrepreneurship ................................... 13
M.I.N.D. Lab ............................................. 14

Researcher Bios ................................. 15
Non-fiction Virtual Reality Narrative Experiences

We work with partners, such as Gannett Digital (publisher of USA Today and 120 regional news sites) to create and publish virtual reality news stories. The first, Harvest of Change, recreated a 5-generation family farm in rural Iowa and used a game interface to connect users to eleven 360-degree videos of the same location.

Augmented Reality & Virtual Reality

Wireless “Holodeck” environments

Utilizing the NoirFlux body tracking system and a wireless video bridge, any 3D environment can be made wireless so that a user walks around a room while feeling physically present in the virtual environment rendered in the Oculus Rift.

2D Gesture Interface Walls

Media Effects of Real-World Virtual Experiences

We will soon begin researching how people respond and use the new 30-foot NoirFlux gesture interface wall in the Newhouse Gerry Center for Media Innovation. Students will create content in HTML5 and WebGL to display on the wall and analyze data on how people walking past it interact with the content using their hands.

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Research into the effects on people who enter a virtual news experience compared to people who read a similar story online or watch a 2D video.
Augmented Reality & Virtual Reality

Digital Tattoo for Augmented Reality

Design of hand based menu system for use with mobile augmented reality.
Project Leaders: Charles Owen, Frank Biocca
Funder: National Science Foundation

Mobile Face-to-Face 3D, mobile face telecommunication system

The Mobile Face-to-Face system captures a 3D, animated face model of a mobile user for 3D face-to-face communication in augmented reality systems. The system is designed to model the face without any front facing cameras. The face was reconstructed from one side camera only but was able to reconstruct a full moving video or animation of use speaking. In summary the system goal was a full, 3D, hand free system for capturing the face of speaking users in any mobile setting.
Project Leaders: George Stockman, Frank Biocca, Manuel Figueroia.
Funder: National Science Foundation

Augmented Reality Interface: The attentional funnel (AF)

This project designs an individual 3D spatial search tool to be used in an augmented reality system. The system guides users to quick object discovery in small space or to assist in navigation in larger environments. The interface support micronavigation to individual objects including single tools in a surgical simulation. Unlike other methods the technique can cue objects outside the field of vision. Composed of a dynamic Hermite curve and interlocking attention sink patterns the system can guide navigation at all scales. In experiments the system significantly decreased user mental workload, improved object search times by 27% and decrease variability in search performance by 35%.
Project Leaders: Frank Biocca, Corey Bohil, Charles Owen
Funder: National Science Foundation
**The Psychology of Presence and Social Presence in Mediated Virtual Environments**

This project explores the experience of the sense of “being there” in virtual environments. The goal of many advanced communication systems such as virtual reality, augmented reality, and immersive displays such as IMAX is to create a strong sense of being in the virtual environment. The project examines the psychology of this experience, the measurement of this key feature of mediated environments, and the effect of the sense of physical or social presence on user performance.

Project leader: Frank Biocca

Funders:
- AT&T Endowment,
- European Union,
- Newhouse Endowment

**Mobile Infospaces for Augmented Reality**

Mobile infospaces looks the design of 3D spatial menu systems for immersive, mobile augmented reality systems. The project seeks to leverage human, body centered spatial cognition to support large fields of body centered data, menus, and interactive tools.

Project Leaders: Frank Biocca, Corey Bohil, Charles Owen

Funder: National Science Foundation
We have a long track record measuring and predicting computer users’ cognitive load and their emotional states with our physiological sensors. Some examples of mental states that we have predicted include spatial and verbal workload, frustration, stress, and excitement. We use this information to enhance usability testing and as an additional input into adaptive systems.

**Improving Human Decision Making**

We develop real-time interventions that can help improve a person’s decision making capabilities based on the knowledge we have about their current mental state.

**Trust and Suspicion Measurement and Cyber Operator Training**

This line of research uses brain measurement to measure the mental states of cyber operators while they work on computer systems. We measure mental states related to trust, distrust, suspicion, and complacency and we use that information to help the operators improve their capabilities to detect cyber security breaches.

**Neuromarketing**

This line of research, which involves collaborations with the Advertising department at Newhouse, uses functional near-infrared spectroscopy to measure the brain activity of people while viewing advertisements.

**Cognitive and Emotional State Prediction**

Recent advancements in biotechnology have enabled us to measures users’ cognitive and emotional state changes, non-invasively, and in real-time.

**Applied Neuroscience**

“Recent advancements in biotechnology have enabled us to measures users’ cognitive and emotional state changes, non-invasively, and in real-time.”
Our lab has one DJI Phantom 2 and, through partnership with the student-run SkyWorks Project which the lab advises, access to a higher-end DJI Naza. In order to comply with FAA regulations, the faculty does not fly university-owned equipment outside, but advises the SkyWorks Project on how to stay within the legal requirements of the longstanding FAA hobbyist guidelines. This allows us to study the types of outdoor footage that will be able to be obtained by news organizations in the future while also giving instructions to students on how to keep themselves and the public safe from accidents.

We are also involved in various projects with the NUAIR drone test site at Griffiss Air Base near Rome, New York, of which Syracuse University is a member.
MIND Games: International Games for Landmine Avoidance in Third World Countries (MGI)

M.I.N.D. games in health communication project involved the creation of game for use in warm town areas. The games was tailored for children living in high risk areas of the world near landmine fields. The games to run on the One Laptop per Child platform helped train children in rural areas how to detect and avoid landmine in their area. The game has been tested in Cambodia.

Project Leaders: Corey Bohil, Frank Biocca, Charles Owen  
Team members: Neil Owen  
Partner: Golden West  
Funder: US Department of State

Interface Design and Adaptive Systems

With expertise in Human-Computer Interaction, we evaluate a range of interface designs to ensure they maintain users' trust, and that users' workload is kept at an optimum state while interacting with the interfaces. We also conduct research building adaptive systems, which are designed to promote trust and modify difficulty levels based on a users’ current mental state.

Faculty contact: Leanne Hirshfield
This project explores the effects of realism, high levels of interactivity, and game flow on user experience. The project focuses on the effects of game features on users sense of presence, arousal, memory, and violent cognitions. The project explores the ways in which games might be harnessed for learning, memory enhancement, and persuasion. The studies consider this in the context of education, advertising, and training.

**Project leader:** Steve Jeong, Frank Biocca  
**Current Team Members:** Stephen Song, Scott Duschene  
**Past Team Members:** Su Kim  
**Funders:** AT&T Endowment, Newhouse Endowment

M.I.N.D. games in health communication project involved the creation of tailored health persuasion environment designed to alter heath behaviors. The game called Nightlife is a full, night city simulation with bars, stores, and other environment. Created by a team of 25 writer, designers, and animators the game is characterized by heavy social interaction with characters and includes heavy dialog engine and intimate interaction.

The game has been tested nationally and proven to be relatively effective. In this first version the game was targeting young, urban males and was designed to encourage safe sex behaviors and condom use.

**Project Leaders:** Frank Biocca, Charles Owen  
**Partners:** Leslie Snyder  
**Team members:** See main site.

**Funder:** Centers for Disease Control, Center for Health Communication and Marketing, University of Connecticut

**MIND Games for Health Communication: Nightlife (NL)**
GRIM lab encompasses multiple projects that address the psychological effects of demographic representation on identity, attitudes, and behaviors. Studies qualitatively assess expectations of culture, experimentally manipulate the composition of promotional materials, and critically explore the composition of user-produced content like blogs, selfies, and music videos.

Group Representation, Identity, and Marketing (GRIM)

Psychosocial Effects In Media

The Communities Creating Healthy Environments

The Virtual Sex Project

L’Pree on set developing experimental materials.
The Communities Creating Healthy Environments (CCHE)

CCHE at LMU’s Psychology Applied Research Center (funded by the Robert Wood Johnson Foundation) seeks to increase self-efficacy among low-income youth, and promote civic engagement and community-wide change. CCHE supports community-based groups organizing around issues of food and recreational justice in communities of color nationwide.

The Virtual Sex Project (VSP)

VSP at USC’s Annenberg School for Communication (funded by NIMH) uses interactive media to engage and promote healthy behaviors among high-risk youth. VSP develops interactive virtual worlds to encourage young gay men to incorporate condoms into their sexual scripts as an HIV prevention technique.

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The Situational Theory of Problem Solving (STOPS) and Environmental Engagement

This current project for this line of research is named “Air Pollution in China (Particulate Matter 2.5) and Environmental Engagement: A Situational Theory of Problem Solving (STOPS) Analysis.” Based on survey data, this study examines how Chinese citizens’ perceptions of Particulate Matter 2.5 and communication-related behaviors would lead to their varied levels of environmental engagement. This project will be presented in November for East Asia Program, the Moynihan Institute of Global Affairs at the Maxwell School.

Work-Life Fit and Employee Engagement

Professor Hua Jiang and her coauthor Dr. Rita Linjuan (Southern Methodist University) have been working on several projects (with employee engagement and work-life enrichment as the central constructs) in which they examine how leadership, reputation management, organizational culture, communication structure, and relationship cultivation are related to the cultivation of an engaged workforce.

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Community resilience is based on a simple economic rationale: communities have a quantifiable level of functional capacity. In a crisis situation, that capacity declines at a rate and to a depth that is largely dependent upon the nature of the disruption, the community’s level of preparedness for that specific disruption, and the rapidity and effectiveness of that response. More importantly, the recovery rate depends on those same factors.

Related Publications


Longstaff, Patricia H. et. al., 2010, “Building Resilient Communities: A Preliminary Framework for Assessment.” Homeland Security Affairs VI, no. 3


Golan’s research focuses on international political communications with an emphasis on public diplomacy. Golan examines the interplay between media coverage of international events, elite discussion and public opinion outcomes. Golan has published more than 30 academic journal articles in such journals as Communication Research, Journalism and Mass Communication Quarterly, Mass Communication and Society, Journal of Public Relations Research, Journal of Computer Mediated Communications and the Journal of Interactive Advertising. Golan also co-edited International Media Communication in a Global Age (Routledge) and the upcoming International Public Relations and Public Diplomacy: Communication and Engagement (Peter Lang). In addition, Golan is also the editor in chief and founder of thepublicdiplomat.com a website dedicated to all things dealing with international engagement and public diplomacy.

Guy Golan is involved with this program, which aims to develop a conceptual model of social media engagement. The study co-authored by Newhouse department of public relations faculty Dr. Joon Soo Lim and Dr. Hua Jiang proposes the 3i model of social media engagement that includes three levels of consumer-organization engagement as reflected by three outcome dimensions. The study will be applicable to social media scholars in the areas of marketing, mass communications and information sciences.

Golan is dedicate to examining the role of Twitter in shaping online discussion of the Ukraine revolution of 2014. Based on a network analysis perspective, the study examines the nature of the protest movement network as related to the #Euromaidan hashtag. The study looks at the role that media, organized interest and governments play in shaping the distribution and mobilization of the protest movement over a six months period.
Transactional Records Access Clearinghouse (TRAC) specializes in using the Freedom of Information Act (FOIA) to obtain federal government administrative records, processing more than a quarter million records a month. TRAC also obtains thousands of additional records about federal criminal enforcement from both the courts and the Justice Department. It performs sophisticated statistical analyses on the records it collects to make sense of and verify these complex relational files. TRAC then builds data mining tools that enable it -- along with journalists, policy makers, citizens, and other researchers -- to analyze, assess, and report on federal policies and practices.

The TRAC team consists of Co-Directors Susan Long and David Burnham, Assistant Research Professor Greg Munno, computer and technical experts Michael Hasan and Jeffrey Lamicela, Administrative Specialist Paula Ben Gabr, and dozens of “TRAC Fellows” working at universities around the world. TRAC is a joint project of the Whitman School and Newhouse School based at Newhouse.

Recent TRAC Reports

- As Workloads Rise in Federal Courts, Judge Counts Remain Flat

This report examined the growth of caseloads and disposition times, and the differences in those times from judge-to-judge and district-to-district.

- Environment Prosecutions Decline Under Obama

- New Data on Unaccompanied Children in Immigration Court

- Official Corruption Prosecutions Decline Under Obama

- After Two Year Decline, Foreclosure Civil Filings Beginning to Rise

- Changes in Criminal Enforcement of Immigration Laws

- Targeting of ICE Detainers Varies Widely by State and by Facility

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Newhouse's Center for Digital Media Entrepreneurship promotes new media innovation and entrepreneurship opportunities to students. The center provides courses, coaching and connections for student entrepreneurs in a fast-changing, digital media environment.

Located in the S.I. Newhouse School of Public Communications at Syracuse University, the Center teaches digital media trends, business modeling, and the latest in venture development. The work of the Center is reinforced through one-on-one coaching and supporting resources both on- and off-campus, including: mentoring, team development, and assistance with legal, funding, technology, and management issues.

 Courses
The Center offers three interesting courses to help cultivate and actualize the ideas of student entrepreneurs.

Lean Digital Media Startups
is a one-credit course on the “Lean Startups” movement—an emerging approach to launching new business ventures that applies especially well to digital media.

New Media Entrepreneurship enables enterprising students to explore, validate, and prepare new business concepts to launch as start-up companies.

Trendspotting in Digital Media identifies issues posed by the evolving new media sphere, answering questions about privacy, entrepreneurship, and emergent technologies and services.

 Coaching
On/Off Campus Resources
Bringing together the reputation of the Newhouse School; the business savvy of the Whitman School of Management; and the technical expertise of the iSchool, The Center cooperates with Syracuse University’s various career and resource centers to provide student entrepreneurs with practical advice and direction.

Mentors
Newhouse’s famous network not only provides students with practical and theoretical knowledge, but also support, direction, and contacts within their respective fields. For a complete list of Mentors, click here.
Newhouse M.I.N.D. Lab is debuting its new world-class research and design center, featuring large-format new media technology and visualization space, augmented reality, 3D computer graphics and human computer interaction. SU Arts Engage is opening co-located new community performance space, combining physical expression, such as dance and theater, with the world of 3D projection and virtual reality—melding artistic and scientific visualization.

The new M.I.N.D. Lab has various functions, such as large-format 3D rear projection, full multi-wall projection, multi-screen visualization tools, advanced graphics and virtual reality capability, along with advanced brain measurement systems. Research applications for this work are also varied, from the military to industrial, medical, commercial and entertainment sectors. Technology pioneered through the M.I.N.D. Lab network spans health communication, 3D interactive television, medical and scientific visualization, brain imaging and adaptive computing, new media design, augmented cognition and augmented reality design.

M.I.N.D Lab also gives the Syracuse technology community a global reach. The new Syracuse lab will be the lead facility in a network that includes four international core labs in the United States and Korea, and networked labs in five European countries: Netherlands, Spain, Portugal, Russia and Germany. The open house will also be supported by local and international M.I.N.D. Lab partners: Kongkuk University, Seoul; Lab Human, Valencia, Spain; Kaywon School of Art and Design, Seoul; and VisualTec, Syracuse.

"This space is an interesting, dynamic and visually appealing focal point featuring visual and performance arts and visualization science." -- Frank Biocca

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Charisse L’Pree Corsbie-Massay’s work examines the intersection of psychology and communication to understand how media images and narratives affect viewer identity, attitudes and behaviors, and how individuals use traditional, new and interactive media to express themselves and connect with others. Her current projects investigate the psychological effects of intersectional identities and the media’s role in personal and social identity conflict through quantitative, qualitative, and experimental research.

As an actively interdisciplinary scholar, L’Pree has collaborated with researchers from psychology, communications, anthropology, sociology, political science, medicine, and engineering.

L’Pree’s projects apply these theories to a wide range of real world phenomena, including symbolic annihilation, or not seeing one’s social group in media, health interventions that utilize interactive media to change attitudes and behavior, and youth-oriented media literacy strategies.

Patricia Longstaff’s most recent work is a multidisciplinary analysis of the concept of “resilience” and its implications for public policy planning for “surprises” such as terrorism and natural disasters. This puts together ideas come from her previous work in regulating networks and complex systems. She received funding from the National Science Foundation to lead a cross-disciplinary study of resilience. She pursued this work further as a Senior Visiting Scholar at Oxford University in 2010-11. She has published extensively on topics related to resilience and security. She has been invited to speak on these topics to groups all over the world.

Her research affiliations include the Institute for National Security and Counterterrorism (INSCT) at Syracuse University and the Harvard University Program on Information Resources Policy (PIRP). She is a member of the Advisory Board of the Community and Regional Resilience Institute (CARRI) of the U.S. Department of Energy. Longstaff is also a research associate at Harvard University’s Center for Information Policy Research, where she works on issues of global communications policy.
Leanne Hirshfield specializes in the area of Human-Computer Interaction (HCI), and she has a wealth of experience designing and evaluating various user interfaces. Hirshfield’s research explores the use of non-invasive brain measurement to passively classify people’s mental states in order to enhance usability testing and adaptive system design, and to advance research in communications and new media. She focuses on the use of a relatively new, non-invasive brain imaging device called functional near-infrared spectroscopy (fNIRS). The device is safe, portable, robust to noise and can be implemented wirelessly, making it ideal for research in HCI. Hirshfield also works extensively with EEG, galvanic skin response sensors and eyetracking devices in her lab.

In addition to her basic research, Hirshfield oversees military-oriented research efforts that focus on measuring and predicting trust, suspicion and situational awareness using the lab’s sensors. She also oversees research that explores the potential of brain measurement as a biometric reader for human identification.

Hua Jiang’s teaching and research interests include organization-public relationships, social media, leadership in public relations, work-life conflict, activism, identities, ethics and global public relations.


Jiang’s professional experiences focus on media relations, community outreach, social cause marketing, fundraising, relief work, social media management, disease prevention and care and statistics support for nonprofits located in the U.S. and China.

Huang Jiang

Education:
Ph.D. University of Maryland, College Park
M.A. Nanjing University
B.A. Nanjing University

Expertise:
Internal Communications
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Guy Golan’s research focuses on international political communications with an emphasis on public diplomacy. Golan examines the interplay between media coverage of international events, elite discussion and public opinion outcomes. Golan has published more than 30 academic journal articles in such journals as Communication Research, Journalism and Mass Communication Quarterly, Mass Communication and Society, Journal of Public Relations Research, Journal of Computer Mediated Communications and the Journal of Interactive Advertising. Golan also co-edited International Media Communication in a Global Age (Routledge) and the upcoming International Public Relations and Public Diplomacy: Communication and Engagement (Peter Lang). In addition, Golan is also the editor in chief and founder of thepublicdiplomat.com a website dedicated to all things dealing with international engagement and public diplomacy.

Dan Pacheco is a digital journalist with 18 years of experience in news and information startups and new product development. After a year as a feature writer for The Denver Post, he joined the launch team for Washingtonpost.com in 1994, where he produced its first business, technology and community sections. He later spent six years at America Online, launching and managing user-contributed content services that were used by tens of millions of people daily.

In 2007, Pacheco was awarded an $837,000 Knight News Challenge grant to run Printcasting, an experiment in cloud-based magazine creation. The service evolved into BookBrewer, an e-book and print-on-demand startup that is used by journalists and news organizations as well as hundreds of self-published authors.

Pacheco is a proponent of constant innovation and reinvention for individuals and industries. He believes future historians will see the present as the golden age of digital journalism, and that its impact will overshadow turmoil in legacy media.
Susan B. Long is the co-founder and co-director of the Transactional Records Access Clearinghouse (TRAC), a joint research data center sponsored by the Newhouse School and the Whitman School based at Newhouse.

TRAC specializes in using the Freedom of Information Act (FOIA) to obtain federal government administrative records. It preforms sophisticated statistical analyses on the records it collects to make sense of and verify these complex relational files with millions of individual, case-by-case records. TRAC then builds data mining tools that enable it—along with journalists, policy makers, citizens, and other researchers—to analyze and assess federal policies and practices. TRAC’s information is utterly unique in the marketplace of ideas, and its findings are frequently cited in major news reports and research journals.

Her current research focuses on reliability and validity issues in database systems, measurement, organization evaluation methods, and the design of data mining and analysis tools for non-statisticians. Long is also an associate professor of managerial statistics at the Martin J. Whitman School of Management.

Greg Munno joined the Transactional Records Access Clearinghouse (TRAC) as an assistant research professor in June 2014.

Before coming to Syracuse University—first as an Executive Masters of Public Administration student at the Maxwell School and later as a Ph.D. student in Newhouse’s Mass Communication research program—Munno spent 13 years as a reporter and editor at the Syracuse Post-Standard. At The Post-Standard, Munno served in a variety of positions including City Hall Reporter, Government Editor and Civic Engagement Editor. He won numerous awards, including a first-place New York State Publisher’s Association Business Reporting Award for an investigation into how slumlords avoid prosecution by hiding behind limited liability corporation laws, and the New York State Associated Press Association’s Best Online Content Award for the CNYSpeaks civic engagement initiative.
Frank Biocca directs the Newhouse School’s M.I.N.D. Lab, part of a network of collaborative research labs for scholarly work in communication, cognitive science and human-computer interaction. He is a World Class University Professor at Sunkyunkwan University in Seoul, South Korea.

Biocca is interested in how mind and media can be coupled to extend human cognition and enhance human performance. He has conducted research on the psychology of presence in virtual environments, spatial cognition and information organization in high-bandwidth and mobile system collaborative augmented reality systems and adapting interfaces to cognitive styles and sub-cultural differences.

He is the author of Communication in the Age of Virtual Reality. He holds patents on augmented reality technology. He participated in the introduction of the first portable computer. Biocca was previously an associate professor at the University of North Carolina at Chapel Hill’s School of Journalism and Mass Communication, and the AT&T Endowed Chair Professor at Michigan State University.

Media-NXT is a mechanism for representing and promoting media research and design through industry and academic partnerships. By connecting with Media-NXT, your company will have access to a team of over 50 world-class, media researchers and professionals with industry, government, and non-profits.