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Matthew Swarts **matthew.swarts@coa.gatech.edu**

Education

2011-Present **Ph.D. Architecture**, Georgia Institute of Technology, Atlanta, GA, USA
Major in Design Computing, Minor in Psychology
Expected Graduation May 2015

2008-2011 **M.S. Architecture**, Georgia Institute of Technology, Atlanta, GA, USA

2000-2006 **B.S. Architecture**, Georgia Institute of Technology, Atlanta, GA, USA

2003-2004 International Exchange Student, Yonsei University, Seoul, South Korea

Professional Appointments/Employment

2013-Present **Research Scientist II**, Georgia Institute of Technology, Atlanta, GA, USA

2006-2013 **Research Scientist I**, Georgia Institute of Technology, Atlanta, GA, USA

Publications

Refereed Journal Articles

Economou, A. and Swarts, M., "Performing Palladio," International Journal of Architectural Computing, vol. 4, no. 3, pp. 47-61, 2006.

Book Chapters

Kim, H., Swarts, M., Lee, S. and Do, E., "Get Up! Promoting Physical Activity through Spatial Interaction in the Workplace," in Advances in Medicine and Biology, (L. V. Berhardt, Ed.), Nova Science Publishers (2011).

Conference Proceedings

Gentry, T. R., Baerlecken, D., Swarts, M., & Wonoto, N. (2013). Parametric design and non-linear analysis of a large-scale deployable roof structure based on action origami Structures and Architecture (pp. 771-778): CRC Press.

Wonoto, Nixon, Baerlecken, Daniel, Gentry, Russell, & Swarts, Matthew. (2013). Parametric Design and Structural Analysis of Deployable Origami Tessellation. Computer-Aided Design & Applications, 10(6), 939-951. doi: 10.3722/cadaps.2013.939-951

Swarts, Matthew, Gomez, Paula, Soza, Pedro, Shaw, Jonathan, MacDaniel, James, & Moore, David. (2013). CLIM: An Interactive Tabletop for Landscape Modeling. In C. Stephanidis (Ed.), HCI International 2013 - Posters' Extended Abstracts (Vol. 374, pp. 691-695): Springer Berlin Heidelberg.

Swarts, Matthew, & Noh, Jin. (2013). Ultra Low Cost Eye Gaze Tracking for Virtual Environments. In R. Shumaker (Ed.), Virtual Augmented and Mixed Reality. Designing and Developing Augmented and Virtual Environments (Vol. 8021, pp. 94-102): Springer Berlin Heidelberg.

Gómez, Paula, Shaw, Jonathan, Swarts, Matthew, MacDaniel, James, Soza Ruiz, Pedro Alejandro, & Moore, David. (2013). Campus Landscape Information Modeling: Intermediate Scale Model that Embeds Information and Multidisciplinary Knowledge for Landscape Planning. Paper presented at the XVII Congreso de la Sociedad Iberoamericana de Grafica Digital, Chile.

Keshani, Smruti, & Swarts, Matthew. (2013). Virtualization of Medication Delivery in Intensive Care Unit Layouts to Analyze Impact on Nurse Behavior. Paper presented at the XVII Congreso de la Sociedad Iberoamericana de Grafica Digital, Chile.

Soza Ruiz, Pedro Alejandro, Gómez, Paula, Swarts, Matthew, & Shaw, Jonathan. (2013). On the Process of Building Knowledge to Support the Design of Digital Tools: A Case Study for Future Residential Buildings on Campus. Paper presented at the XVII Congreso de la Sociedad Iberoamericana de Grafica Digital, Chile.

Swarts, Matthew. (2013). Symmetry Fields of Palladian Villas. Paper presented at the XVII Congreso de la Sociedad Iberoamericana de Grafica Digital, Chile.

Swarts, M., & Noh, J. (2013). Ultra Low Cost Eye Gaze Tracking for Virtual Environments. In Virtual Augmented and Mixed Reality. Designing and Developing Augmented and Virtual Environments (pp. 94-102). Springer Berlin Heidelberg.

Swarts, M., Gomez, P., Soza, P., Shaw, J., MacDaniel, J., & Moore, D. (2013). CLIM: An Interactive Tabletop for Landscape Modeling. In HCI International 2013-Posters' Extended Abstracts (pp. 691-695). Springer Berlin Heidelberg.

Wonoto, N., Baerlecken, D., Gentry, R., & Swarts, M. (2013). Parametric Design and Structural Analysis of Deployable Origami Tessellation.

Baerlecken, D., Swarts, M., and Gentry, R. "Bio-Origami: Form Finding and Evaluation of Origami Structures," Proceedings of the 30th International Conference on Education and research in Computer Aided Architectural Design in Europe, 2012.

Kim, H., Swarts, M., Lee, S. and Do, E., "HealthQuest: Technology that Encourages Physical Activity in the Workplace," Proceedings of the 8th International Conference on Smart Homes and Health Telematics, pp. 263-266, 2010.

Kim, H., Swarts, M., Lee, S. and Do, E., "Spatial Interaction that Motivates Physical Activity in the Workplace," Proceedings of the 2010 Design and Emotion Conference, 2010.

Swarts, M. and Sheward, H., "Using multi-level virtual environments as a medium for conducting design review through a shared IFC dataset," Proceedings of the 2009 CAAD Futures Conference, pp585-597, 2009.

Mamoli, M., Swarts, M. and Economou, A., "Paper Space: The Library of Nysa Revisited," Proceedings of the 11th Iberoamerican Congress of Digital Graphics: Communication in the Visual Society, 2007.

Swarts, M., Monoghan, M. and Econmou, A., "Opus Palladio," Proceedings of the 9th Iberoamerican Congress of Digital Graphics: Vision and Visualization, 2005.

Awards and Honors

2010 "Academy Encouragement Award" in the 2010 3D VR Simulation Contest hosted by FORUM8 in Tokyo, Japan

2009 "Academy Encouragement Award" in the 2009 3D VR Simulation Contest

2009 Winner for the 2009 IBPSA-England student competition group award

2008 Research Service Award in the Georgia Tech College of Architecture 2008 Awards Ceremony

2008 1st Place in the IMS Research Competition with Mobile Tour Guide 3D

Patents and Inventions

2009 Provisional Patent for GTRC ID No. 4665 entitled "Mobile Tour Guide3D: A 3D Visualization, Location Tracking, and Community interaction Application" was filed on January 29, 2009 in the USPTO. It was given serial number 61/148,137

2008 Invention Disclosure entitled "Mobile TourGuide3D: A 3D Visualization, Location Tracking and Community Interaction Application" with identification number 4665 on October 20, 2008. It is noted that the invention was the result of sponsored research by National Science Foundation

Teaching Experience

2014 Designing for Interaction, School of Industrial Design
2013 Design Scripting, School of Architecture
2013 Design of Interactive Environments, School of Industrial Design
2012 Design Scripting, School of Architecture
2011 Design Scripting, School of Architecture
2010 Design Scripting, School of Architecture
2009 Architectural Scripting, School of Architecture
2008 Algorithmic Architecture, School of Architecture

Research Experience

Interactive Media Architecture Group in Education (IMAGINE) Lab
2001-2002 3D Modeling and Animation for Campus Planning
2004-2006 3D Modeling and Animation for Campus Planning
2006-Present 3D Modeling and Animation for Campus Planning

SimTigrate Design Lab
2012-2013 Children's Healthcare of Atlanta – EMR Implementation
2013-2014 Sibley Heart Cardiology Center – Model of Care
2013-2014 Hill-Rom Sleep Detection Review
2014-2014 Evidence Based Design of Trauma Hospital in Qatar

Center for Assistive Technology and Environmental Access (CATEA)
2014-2014 Accessible Voting - QuickBallot
2013-2015 Virtual Home Modifications Education Assistant (VHMEA)

Human Spatial Performance Lab
2013-2013 Perkins and Will Spatial Analysis Software Development

School of Psychology
2013-2014 Perceptual Dimension of Human Physical Attraction

Digital Fabrication Lab
2012-2014 Reconfigurable CNC Concrete Molds

Viginia Tech ICAT
2013-2014 4D Point Cloud Scanner for Capturing Canine Puppy Socialization

Department/University Service

College of Architecture Information Technology Committee Member
College of Architecture Facilities and Space Task Force Member
GVU Faculty Member

Related Professional Skills

Programming Languages:
Java, C#, Python, C/C++, VisualBasic, Processing, Arduino, ActionScript, JavaScript, VBScript, Rhinoscript, MaxScript, UnrealScript, MATLAB,
Objective-C, Pascal

Software:
Notepad++, GIT, Excel, VisualStudio, Eclipse, Monodevelop, FlashDevelop, Unity3D, UDK, 3D Studio Max, Rhino, AutoCAD, Revit, SolidWorks, Photoshop, Illustrator, InDesign, AfterEffects, Flash, Processing, Arduino, AVR Studio, ArcMap, ArcScene, City Engine, AnyLogic, Modelica, R, MATLAB, JMP, SPSS, EQS, EndNote, MeshLab, OpenGL, OpenNI, OpenCL, Depthmap

Languages

Native English
Fluent Korean

Professional Memberships/Affiliations

Associate AIA Member

Startups

2009-2010 Co-Founder/Member of MagicMirror3D LLC
Creating custom 3D navigation and tour services for mobile platforms

2012-2014 Co-Founder/Member of Mitto Design LLC
Providing design consultancy for all things interactive

2014-2014 Co-Founder/Member of Paracision LLC
Developing workshops and custom software solutions for design firms around parametric modeling and decision making