Dumitru Adrian Ilie

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Professional Summary

I am a seasoned researcher and developer interested in using the latest computer-based techniques to find innovative solutions for unsolved problems. I am seeking a position that would allow me to leverage my experience to help develop and apply research results to solving real-world issues.

Education

Doctor of Philosophy in Computer Science | *2003–2010*
University of North Carolina at Chapel Hill, Chapel Hill, NC
Thesis: On-line Control of Active Camera Networks

Master of Science in Computer Science | *2000–2002*
University of North Carolina at Chapel Hill, Chapel Hill, NC

Bachelor of Science in Economic Informatics | *1995–2000*
Academy of Economic Studies, Bucharest, Romania

Research Experience

Senior Research Scientist | *March 2014–present*
University of North Carolina at Chapel Hill, Chapel Hill, NC
- Investigating a wide range of problems in computer vision, telepresence, virtual and augmented reality, sensor fusion in the "Enhancing Human Capabilities through Virtual Personal Embodied Assistants in Self-Contained Eyeglasses-Based AR Systems" project.
- Helping author publications and supervise students.

Post-Doctoral Research Associate | *Dec. 2010–Jan. 2013*
University of North Carolina at Chapel Hill, Chapel Hill, NC
- Worked with robots to achieve better telepresence in the "Humanoid Robotic Avatar" project.
- Implemented an indoor on-line camera control approach in the "Behavior Analysis and Synthesis for Intelligent Training (BASE-IT)" project.

Graduate Research Assistant | *Aug. 2000–Dec. 2009*
University of North Carolina at Chapel Hill, Chapel Hill, NC

- Implemented an approach for controlling multiple PTZ cameras for 3D reconstruction of dynamic scenes in the "Behavior Analysis and Synthesis for Intelligent Training (BASE-IT)" project.
- Helped with a 3D teleconferencing system using multiple cameras and an auto-stereo display in the "Prototype for Two-station, Four-Person, Proper Eye-Gaze Telepresence System (CISCO)" project.
- Implemented methods for photometric and geometric calibration of multiple cameras used in a 3D reconstruction system in the "Three-Dimensional Tele-Presence for Medical consultation: Extending Medical Expertise Throughout, Between & Beyond Hospitals (3DMC)" project.
- Worked on the design and implementation of a hybrid head-mounted and projector-based display system for surgical training; then on 3D reconstruction and photometric calibration of multiple cameras in the in the "Electronic Books for the Tele-Immersion Age (eBooks)" project.
- Helped implement a projector-based approach to visualizing re-creations of real and imaginary sites in the "Being There" project.
- Worked with and integrated the PostgreSQL DBMS, GRASS GIS, and R statistical programming language into a unified environment model specification interface in the "EPA Modeling" group.

Intern | *Dec. 2002–Jan. 2003*
Mitsubishi Electric Research Laboratories, Cambridge, MA
- Worked on methods for gradient-domain enhancement of images and videos, patented in 2004.

Industry Experience

President/CEO | *Oct. 2010–present*
Intelligent Development Corporation, Chapel Hill, NC
- President/CEO of an IT consulting company, developing custom software for a wide range of clients.

Software Consultant | *Dec. 2009–Mar. 2020*
The Burwell School Historic Site, Hillsborough, NC
- Designed a genealogical database for the school's former students and implemented a web interface to present the research results gathered by the site's historians.

Software Consultant | *Jan. 2013–Sep. 2016*
KindHeart, Inc., Chapel Hill, NC
- Designed and developed a prototype fluoroscopy training simulator, patented in 2014.

Software Designer | *Dec. 2010–Jan. 2015*
"The Uncanny Valley" Play, Chapel Hill, NC

- Programmed a system for capture of an actor's movements, likeness, and voice for on-demand playback by a robot acting opposite the same actor in a live theater play.

Senior Software Engineer | *Jan. 2010–Sep. 2010*
Educational Microsystems, Inc., Cary, NC
- Business analysis and prototype development for the overhaul of a school system's database application.

Software Consultant | *Jan. 2004–Mar. 2006*
InterFaith Council for Social Service, Carrboro, NC
- Designed a Microsoft Access database to track client intakes and developed a separate user interface application for easier data entry.

Lead Programmer | *Jan. 2000–Aug. 2000*
DentExpert SRL, Bucharest, Romania
- Designed and developed a dental practice management software system.

Lead Programmer | *Dec. 1998–Aug. 2000*
Pagini Aurii SA, Bucharest, Romania
- Designed and developed an automatic pagination system for yellow pages books, the company's commercial CD containing the Romanian phone and business directory, and a client-server application for building customer reports.

Publications

- Young-Woon Cha, Husam Shaik, Qian Zhang, Fan Feng, Andrei State, **Adrian Ilie**, Henry Fuchs (2021) "Mobile, Egocentric Human Body Motion Reconstruction Using Only Eyeglasses-mounted Cameras and a Few Body-worn Inertial Sensors", *Proceedings of VR 2021 (IEEE Virtual Reality)*, Lisbon, Portugal. March 27-April 2, 2021. Awarded Best Paper in the Conference Track.

- Young-Woon Cha, True Price, Zhen Wei, Xinran Lu, Nicholas Rewkowski, Rohan Chabra, Zihe Qin, Hyounghun Kim, Zhaoqi Su, Yebin Liu, **Adrian Ilie**, Andrei State, Zhenlin Xu, Jan-Michael Frahm, Henry Fuchs (2018) "Towards Fully Mobile 3D Face, Body, and Environment Capture Using Only Head-worn Cameras", *Proceedings of ISMAR (IEEE Transactions on Visualization and Computer Graphics)*, Munich, Germany. October 16-20, 2018.

- Rohan Chabra, **Adrian Ilie**, Nicholas Rewkowski, Young-Woon Cha and Henry Fuchs (2017). "Optimizing placement of commodity depth cameras for known 3D dynamic scene capture", *Proceedings of IEEE Virtual Reality 2017*, Los Angeles, California. March 18-22, 2017.

- **Adrian Ilie** and Greg Welch (2014). "On-Line Control of Active Camera Networks for Computer Vision Tasks", In *Transactions on Sensor Networks*, vol. 10, no. 2, January 2014.

- **Adrian Ilie** and Greg Welch (2013). "Automated camera selection and control for better training support", *Proceedings of the 15th International Conference on Human-Computer Interaction*. July 21-26, 2013, Las Vegas, NV. Published in *Foundations of Augmented Cognition (D. Schmorrow and C. Fidopiastis, eds.), vol. 8027 of Lecture Notes in Computer Science, pp. 50-59, Springer Berlin Heidelberg.*, July 2013

- **Adrian Ilie** and Greg Welch (2011). "On-Line Control of Active Camera Networks for Computer Vision Tasks", *Proceedings of 5th ACM/IEEE International Conference on Distributed Smart Cameras.* Ghent, Belgium. August 22-25, 2011. Awarded 2nd Prize Best ICDSC 2011 Paper.

- Greg Welch, Diane H. Sonnenwald, Henry Fuchs, Bruce Cairns, M.D., Ketan Mayer-Patel, Ruigang Yang, Andrei State, Herman Towles, **Adrian Ilie**, Srinivas Krishnan, and Hanna M. Soderholm (2011). *Remote 3D Medical Consultation, in Virtual Realities: Dagstuhl Seminar 2008 (S. Coquillart, G. Brunnett, and G. Welch, eds.),* Ch. 8, pp. 139-160, Springer, 2011.

- Peter Lincoln, Greg Welch, Andrew Nashel, Andrei State, **Adrian Ilie**, and Henry Fuchs (2010). "Animatronic Shader Lamps Avatars", *Virtual Reality (Springer), special issue on Augmented Reality*, pp. 1-14, 2010

- Peter Lincoln, Greg Welch, Andrew Nashel, **Adrian Ilie**, Andrei State , and Henry Fuchs (2009). "Animatronic Shader Lamps Avatars", *Proceedings of 8th IEEE and ACM International Symposium on Mixed and Augmented Reality (ISMAR'09)*, October 19-22, 2009.

- Peter Lincoln, Andrew Nashel, **Adrian Ilie**, Herman Towles, Greg Welch, and Henry Fuchs (2009). "Multi-view lenticular display for group teleconferencing", *Proceedings of IMMERSCOM 2009*, May 27-29, 2009.

- Greg Welch, Diane H. Sonnenwald, Henry Fuchs, Bruce Cairns, Ketan Mayer-Patel, Hanna M. Söderholm, Ruigang Yang, Andrei State, Herman Towles, **Adrian Ilie**, Manoj K. Ampalam, Srinivas Krishnan, Vincent Noel, Michael Noland, and James E. Manning (2009). "3D medical collaboration technology to enhance emergency healthcare", *The Journal of Biomedical Discovery and Collaboration*, 4:4, 2009.

- **Adrian Ilie**, Greg Welch, and Marc Macenko (2008). "A Stochastic Quality Metric for Optimal Control of Active Camera Network Configurations for 3D Computer Vision Tasks", *Workshop on Multi-camera and Multi-modal Sensor Fusion Algorithms and Applications (M2SFA2),* Marseille, October 2008.

- Ram Krishan Kumar, **Adrian Ilie**, Jan-Michael Frahm, and Marc Pollefeys (2008). "Simple Calibration of Non-overlapping cameras with a mirror", *Proceedings of the 2007 IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR' 08),* 2008.

- Hua Yang, Marc Pollefeys, Greg Welch, Jan-Michael Frahm, and **Adrian Ilie** (2007). "Differential camera tracking through linearizing the local appearance manifold", *The 2007*

IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR' 07), 2007.

- Greg Welch, B. Danette Allen, **Adrian Ilie**, and Gary Bishop (2007). "Measurement Sample Time Optimization for Human Motion Tracking/Capture Systems", *Trends and Issues in Tracking for Virtual Environments, Workshop at the IEEE Virtual Reality 2007 Conference (Charlotte, NC USA) (Gabriel Zachmann, ed.), Shaker,* March 11, 2007.

- Greg Welch, Vincent Noel, Hua Yang, Andrei State, **Adrian Ilie**, Ruigang Yang, Marc Pollefeys, and Henry Fuchs (2006). "GPU-Based View Synthesis Using an Orbital Reconstruction Frustum", *The 2006 Workshop on Edge Computing Using New Commodity Architectures (EDGE 2006)*, May 23-24, Chapel Hill, NC, USA.

- Andrei State, Greg Welch, and **Adrian Ilie** (2006). "An Interactive Camera Placement and Visibility Simulator for Image-Based VR Applications", *Proceedings of the Engineering Reality of Virtual Reality 2006 (3D Imaging, Interaction, and Measurement; IS&T/SPIE 18th Annual Symposium on Electronic Imaging Science and Technology), San Jose, CA*, January 2006.

- **Adrian Ilie** and Greg Welch (2005). "Ensuring Color Consistency across Multiple Cameras," *The 10th IEEE Conference on Computer Vision (ICCV), Beijing, China, 2:1268-1275*, October 17-20, 2005.

- Greg Welch, Ruigang Yang, Sascha Becker, **Adrian Ilie**, Dan Russo, Jesse Funaro, Andrei State, Kok-Lim Low, Anselmo Lastra, Herman Towles, Bruce Cairns, M.D., Henry Fuchs, and Andy van Dam (2005). "Immersive Electronic Books for Surgical Training", *IEEE Multimedia, 12(3):22-35*, July-September 2005.

- Ramesh Raskar, **Adrian Ilie** and Jingyi Yu (2004). "Image Fusion for Context Enhancement", *the 3rd International Symposium on Non-Photorealistic Animation and Rendering (NPAR), Annecy, France.* June 7-9, 2004.

- **Adrian Ilie** (2004). "Ensuring Color Consistency across Multiple Cameras," UNC-CH Department of Computer Science Technical Report 04-012, April 2004.

- **Adrian Ilie**, Kok-Lim Low, Greg Welch, Anselmo Lastra, Henry Fuchs, and Bruce Cairns (2004). "Combining Head-Mounted and Projector-Based Displays for Surgical Training," *Presence: Teleoperators and Virtual Environments, vol. 13, issue 2, pp. 128-145.*

- **Adrian Ilie**, Ramesh Raskar and Jingyi Yu (2004). "Gradient Domain Context Enhancement for Fixed Cameras," *Proceedings of ACCV 2004, Jeju Island, Korea,* January 27-30, 2004.

- Kok-Lim Low and **Adrian Ilie** (2003). "Computing a View Frustum to Maximize an Object's Image Area, " *Journal of Graphics Tools, vol. 8, no. 1, pp. 3-15.*

- Kok-Lim Low, **Adrian Ilie**, Greg Welch, and Anselmo Lastra (2003). "Combining Head-Mounted and Projector-Based Displays for Surgical Training," *Proceedings of IEEE Virtual Reality 2003, Los Angeles, California.* March 22-26, 2003.

- Andries van Dam, Henry Fuchs, Sascha Becker, Loring Holden, **Adrian Ilie**, Kok-Lim Low, Anne Morgan Spalter, Ruigang Yang, and Greg Welch (2002). "Immersive Electronic Books

for Teaching Surgical Procedures," *Pre-ICAT CREST Symposium on Telecommunication, Teleimmersion, and Telexistence. The University of Tokyo, Tokyo, JAPAN*. December 3, 2002.

Patents

- Richard Feins, Hadley Wilson, **Adrian Ilie** (2014). "Radiation-free simulator system and method for simulating medical procedures"

- Ramesh Raskar, Jingyi Yu, **Adrian Ilie** (2004). "Reducing Texture Details in Images"

- Ramesh Raskar, **Adrian Ilie**, Jingyi Yu (2004). "Enhancing low quality images of naturally illuminated scenes"

Skills

- *Programming languages:* C#, C, C++, MatLab, Delphi, Java, Python, JavaScript, PhP

- *Database management systems:* SQL, MySQL, Oracle, Microsoft Access, Interbase, PostgreSQL
- *Extensive familiarity with hardware:* cameras, inertial sensors, motion tracking systems, projectors, head-mounted displays

Personal Interests

I enjoy tinkering with emerging technologies, from home automation and kitchen gadgets to building my own PCs and trying on consumer VR headsets and motion tracking systems.

References

- Henry Fuchs, fuchs@cs.unc.edu
- Greg Welch, welch@cs.unc.edu
- Herman Towles, herman.towles@gmail.com
- Ramesh Raskar, raskar@mit.edu