

DENNIS G. BROWN

dgbrown @ pixesthesia.com

SUMMARY

Over 10 years of experience in software development, system building, and project leadership in commercial, defense, and research/academic settings, from quick prototypes to user-ready applications.

- Development: C#, ASP .NET, SQL, Java, C, C++, 3D graphics, Windows, Linux
- Management: Team Lead, Technical Writing, Proposal Writing, Project Management
- Research: Modeling and Simulation, Algorithm Development, Augmented Reality, Virtual Reality, Simulation and Training
- Writing: Over 30 peer-reviewed journal (5) and conference (25+) articles; presented work at conferences.
- DoD Secret clearance.

EXPERIENCE

Program Analyst Lead, March 2007-present

Alion Science and Technology, Warner Robins, GA

- Project Manager for an application to perform predictive modeling of sustainment and obsolescence of Air Force Electronic Warfare systems, LRUs, and component pieces.
- Involved in projects modeling defense supply chains and resource management.
- Develop algorithms to produce forecasts predictive algorithms using statistical techniques and fuzzy logic.
- Implement web applications in ASP .NET, C#, and MS SQL Server.

Computer Scientist NP-1550-III (GS-13 equivalent), 2003-2007.

Naval Research Laboratory, Washington, DC

- Performed research and development focused on uses of augmented reality (AR) and virtual reality (VR) for Department of Defense applications
- Developed several prototype hardware & software systems applying AR and VR to operational and training scenarios, including assembling systems, writing custom code, working with vendors and users
- Ran user studies and published papers in academic and trade venues
- Co-Principal Investigator, "Augmented Reality for Urban Skills Training," (ONR 2006)
- Technical Lead for "Battlefield Information Display Technologies" (Cong. Plus-Up, 2004)
- Technical Lead for "Embedded Training for Dismounted Soldiers," (Army RDECOM 2003)
- Member of Research Team, "Battlefield Augmented Reality System," (ONR 2000-2006)
- Recruited, mentored, and supervised students.
- Received NRL's Alan Berman Research Publication Award in March 2004.

Senior Software Engineer, 1999-2003

ITT Advanced Engineering and Sciences, Alexandria, VA

- On-site contractor at Naval Research Laboratory--worked on same projects as listed under NRL experience above, but as a contractor.
- Technical Lead for Battlefield Information Display Technology program.
- ITT AES "Employee of the Quarter" Q4 2002 / ITT Ring of Quality award May 2003.

Software Engineer, 1998-1999

International Business Machines (IBM), Research Triangle Park, NC

- Worked on Tivoli IT Director 1.1 and 2.1 and Tivoli LAN Access, network management products written in Java and deployed to Windows, Linux, OS/2, and AIX machines. Implemented new features, fixed reported problems, and created and documented test cases.

EDUCATION

M.S. in Computer Science, May 1998

University of North Carolina, Chapel Hill, NC

- Thesis: "An Architecture for Collaborative Virtual Environments With Enhanced Awareness."
- NSF Graduate Research Fellowship 1996-1998.

B.A. in Computer Science (cum laude), May 1996.

Rice University, Houston, TX

PROFESSIONAL SERVICE

- Finance Chair, IEEE Virtual Reality Conference, 2006—2008
- Member of Mixed Reality tutorial panel at I/ITSEC 2003

PUBLICATIONS

Refereed Journal Articles

- G. S. Schmidt, D. G. Brown, E.B. Tomlin, J.E. Swan II, Y. Baillot (2006). Probabilistic Algorithms, Integration, and Empirical Evaluation for Disambiguating Multiple Selections in Frustum-Based Pointing. *Journal of Multimedia*, Academy Publisher, June 2006.
- D.G. Brown, S.J. Julier, Y. Baillot, M.A. Livingston, & L.J. Rosenblum (2004). Event-Based Data Distribution for Mobile Augmented Reality and Virtual Environments. *Presence: Teleoperators and Virtual Environments* 13 (2), 211-221.
- S.J. Julier, Y. Baillot, D. Brown, & M. Lanzagorta (2002). Information Filtering for Mobile Augmented Reality. *IEEE Computer Graphics and Applications* 22 (5), 12-15.
- T.H. Höllerer, S. Feiner, D. Hallaway, B. Bell, M. Lanzagorta, D. Brown, S.J. Julier, Y. Baillot, & L.J. Rosenblum (2001). User Interface Management Techniques for Collaborative Mobile Augmented Reality. *Computers & Graphics* 25 (5), 799-810.
- A. Parrish, D. Cordes, & D.G. Brown (1996). An Environment to Support Micro-Incremental Class Development. *Annals of Software Engineering* 2, 213-236.

Proceedings

- D.G. Brown, R. Stripling, & J.T. Coyne (2006). Augmented Reality for Urban Skills Training. *IEEE Virtual Reality 2006 Conference*, Alexandria, VA, March 2006.
- M.A. Livingston, D.G. Brown, S.J. Julier, and G.S. Schmidt (2006). Military Applications of Augmented Reality. *NATO Human Factors and Medicine Panel Workshop on Virtual Media for Military Applications*, West Point, NY, 13--15 June 2006.
- M.A. Livingston, S.J. Julier, and D.G. Brown (2006). Situation Awareness for Teams of Dismounted Warfighters and Unmanned Vehicles. *Enhanced and Synthetic Vision Conference*, SPIE Defense and Security Symposium, 17 April 2006, Orlando, FL.
- S.J. Julier, D.G. Brown, M.A. Livingston, and J. Thomas (2006). Adaptive Synthetic Vision. *Enhanced and Synthetic Vision Conference*, SPIE Defense and Security Symposium, 17 April 2006, Orlando, FL.
- J.E. Swan II, M.A. Livingston, H.S. Smallman, D.G. Brown, Y. Baillot, J.L. Gabbard, & D. Hix (2006). A Perceptual Matching Technique for Depth Judgments in Optical, See-Through Augmented Reality. *IEEE Virtual Reality 2006 Conference*, Alexandria, VA, March 2006.
- G. Schmidt, D.G. Brown, E.B. Tomlin, J.E. Swan II, & Y. Baillot (2006). Toward Disambiguating Multiple Selections for Frustum-Based Pointing. *3D User Interface Symposium*, Alexandria, VA, March 2006.
- D.G. Brown, Y. Baillot, M.P. Bailey, K.C. Pfluger, P. Maassel, J. Thomas, & S.J. Julier (2005). Using Augmented Reality to Enhance Fire Support Team Training. *2005 Interservice/Industry Training, Simulation, and Education Conference*, Orlando, FL, December 2005.
- E. Klein, G.S. Schmidt, E.B. Tomlin, & D.G. Brown (2005). Dirt Cheap 3D Spatial Audio. *Linux Journal*, October 2005. Also in *2005 ACM Symposium on Interactive 3D Graphics and Games*, Washington, D.C., April 3-6, 2005.
- M.A. Livingston, D.G. Brown, J.E. Swan II, B. Goldiez, Y. Baillot, & G.S. Schmidt (2005). Applying a Testing Methodology for Augmented Reality Interfaces to Simulation Systems. *2005 International Conference on Human-Computer Interface Advances for Modeling and Simulation*. New Orleans, LA, January 2005.
- D.G. Brown, Y. Baillot, S.J. Julier, P. Maassel, D. Armoza, M.A. Livingston, & L.J. Rosenblum (2004). Building a Mobile Augmented Reality System for Embedded Training: Lessons Learned. *2004 Interservice/Industry Training, Simulation, and Education Conference*, Orlando, FL, December 2004.
- B. Goldiez, M.A. Livingston, J. Dawson, D.G. Brown, P. Hancock, Y. Baillot, & S.J. Julier (2004) Advancing Human Centered Augmented Reality Research. *2004 Army Science Conference*, Orlando, FL, November 2004.
- M.A. Livingston, J.E. Swan II, S.J. Julier, Y. Baillot, D.G. Brown, L.J. Rosenblum, J.L. Gabbard, & T.H. Höllerer (2004). Evaluating System Capabilities and User Performance in the Battlefield Augmented Reality System. *Performance Metrics for Intelligent Systems Workshop*, Gaithersburg, MD, August 2004.
- D. Armoza & D.G. Brown (2004). Embedded Mobile Augmented Reality Trainer Within a Distributed HLA Simulation. *Spring 2004 Simulation Interoperability Workshop*, Alexandria, VA, April 2004.
- D. Hix, J.L. Gabbard, J.E. Swan II, M.A. Livingston, T.H. Höllerer, S.J. Julier, Y. Baillot, & D.G. Brown (2004). A Cost-Effective Usability Evaluation Progression for Novel Interactive Systems. *Hawaii International Conference on Computer Sciences 2004*, Honolulu, HI, January 2004.

- D.G. Brown, Y. Baillot, S.J. Julier, D. Armoza, J.J. Eliason, M.A. Livingston, L.J. Rosenblum, & P. Garrity (2003). Data Distribution for Mobile Augmented Reality in Simulation and Training. 2003 Interservice/Industry Training, Simulation, and Education Conference, Orlando, FL, December 2003.
- Y. Baillot, S.J. Julier, D.G. Brown, & M.A. Livingston (2003). A General Tracker Calibration Framework for Augmented Reality. Second International Symposium on Mixed and Augmented Reality, Tokyo, Japan, October 2003.
- M.A. Livingston, J.E. Swan II, J.L. Gabbard, T.H. Höllerer, D. Hix, S.J. Julier, Y. Baillot, & D.G. Brown (2003). Resolving Multiple Occluded Layers in Augmented Reality. Second International Symposium on Mixed and Augmented Reality, Tokyo, Japan, October 2003.
- S.J. Julier, M.A. Livingston, J.E. Swan II, Y. Baillot, & D.G. Brown (2003). Adaptive User Interfaces in Augmented Reality. Workshop on Software Technology for Augmented Reality Systems, at the International Symposium on Mixed and Augmented Reality, Tokyo, Japan, October 2003.
- J.L. Gabbard, D. Hix, J.E. Swan II, M.A. Livingston, T.H. Höllerer, S.J. Julier, D.G. Brown, & Y. Baillot (2003). Usability Engineering for Complex Interactive Systems Development. ANSE Human Systems Integration Symposium 2003, Vienna, VA, June 2003.
- D.G. Brown, S.J. Julier, Y. Baillot, & M.A. Livingston (2003). An Event-Based Data Distribution Mechanism for Collaborative Mobile Augmented Reality and Virtual Environments. IEEE Virtual Reality 2003 Conference, Los Angeles, CA, March 2003.
- Y. Baillot, J.J. Eliason, G.S. Schmidt, J.E. Swan II, D.G. Brown, S.J. Julier, M.A. Livingston, & L.J. Rosenblum (2003). Evaluation of the ShapeTape Tracker for Wearable, Mobile Interaction. IEEE Virtual Reality 2003 Conference, Los Angeles, CA, March 2003.
- M.A. Livingston, L.J. Rosenblum, S.J. Julier, D.G. Brown, Y. Baillot, J.E. Swan II, J.L. Gabbard, & D. Hix (2002). An Augmented Reality System for Military Operations in Urban Terrain. 2002 Interservice/Industry Training, Simulation, and Education Conference, Orlando, FL, December 2002.
- J.L. Gabbard, J.E. Swan II, D. Hix, M. Lanzagorta, M.A. Livingston, D.G. Brown, & S.J. Julier (2002). Usability Engineering: Domain Analysis Activities for Augmented Reality Systems. Conference on The Engineering Reality of Virtual Reality at SPIE and IS&T Electronic Imaging 2002, San Jose, CA, January 2002.
- Y. Baillot, D.G. Brown, & S.J. Julier (2001). Physical Model Authoring Using Mobile Computers. International Symposium on Wearable Computers, Zurich, Switzerland, October 2001.
- S.J. Julier, D.G. Brown, & Y. Baillot (2001). The Need for AI: User Interfaces for Mobile Augmented Reality Systems. Workshop on Artificial Intelligence in Mobile Systems, at the International Joint Conference on Artificial Intelligence, Seattle, WA, August 2001.
- S.J. Julier, Y. Baillot, M. Lanzagorta, D.G. Brown, & L.J. Rosenblum (2000). BARS: Battlefield Augmented Reality System. NATO Information Systems Technology Panel Symposium on New Information Processing Techniques for Military Systems, Istanbul, Turkey, October 2000.

Other

- D.G. Brown, Y. Baillot, K.C. Pfluger, S.J. Julier, & M.A. Livingston (2005). Virtual Targets for the Real World. 2005 NRL review.
- J.E. Swan II, M.A. Livingston, H.S. Smallman, J.L. Gabbard, D.G. Brown, Y. Baillot, S.J. Julier, G.S. Schmidt, C. Zanbaka, D. Hix, & L.J. Rosenblum (2005). A Methodology for Quantifying Medium- and Far-Field Depth Perception in Optical, See-Through Augmented Reality. Technical Report #MSU-05031, Department of Computer Science and Engineering, Mississippi State University.
- L.J. Rosenblum, S.J. Julier, Y. Baillot, D. Brown, & M. Lanzagorta (2001). Augmenting the Urban Battlefield. 2001 NRL Review, 136-138.
- S.J. Julier, Y. Baillot, M. Lanzagorta, L.J. Rosenblum, & D.G. Brown (2001). Urban Terrain Modelling for Augmented Reality Applications. In M. Abdelguerfi (Ed.), 3D Synthetic Environments Reconstruction (p 119-136). Dordrecht, The Netherlands: Kluwer Academic Publishers.
- D.G. Brown (1998) An Architecture for Collaborative Virtual Environments With Enhanced Awareness (M.S. Thesis). University of North Carolina at Chapel Hill Department of Computer Science.