
Design and Programming Experience

7/04–present **Polyhedron Learning Media, Inc., Wheeling, WV**

Director of Software Development/Co-Founder

Design, development, and programming of instructional software/multimedia products for K-12 science, math, and social studies education.

- 3/10—3/12 - PLM, in partnership with Total Learning Research Institute, will be developing *New Frontiers—Journeying to Mars with Interactive Technologies*: On-line college-level physics and engineering simulations, a NASA-funded project.
- 6/10-12/10 - PLM was awarded a Phase I Department of Education SBIR grant for *Virtual High School Physics Laboratory*: On-line high school-level physics simulations.
- 6/07-5/09 - PLM was awarded a Phase II Department of Education SBIR grant to complete development of a college-level, on-line virtual physics course in partnership with Cengage Learning.
- 6/06-12/06 - PLM was awarded and completed a Phase I Department of Education SBIR grant to develop a prototype of a college-level, on-line virtual physics course in partnership with Thomson Learning.
- 6/05-6/07 - PLM, in a partnership with West Liberty State College, was awarded a two-year NASA Explorer Schools grant to enhance and modernize existing NASA educational materials.
- 10/04-6/05 - PLM developed displays and touchscreen kiosk software for the Children's Museum of the Ohio Valley's "Planets and Stars and Me...Oh My!" exhibit.

2/93–5/04 **NASA Classroom of the Future, Wheeling Jesuit University, Wheeling, WV**

Senior Instructional Designer/Programmer

Design, development, and programming of instructional software/multimedia products for K-12 science, math, and social studies education.

- Project manager and programmer for the Foundations of Freedom[®] project.
- Project manager and lead programmer for the ExoQuest[®] project.
- Assistant project manager and lead programmer for the BioBLAST[®] project.
- Programmer and curriculum writer for the Astronomy Village: Investigating the Universe[®] project.

1991–present **Independent Software Developer**

Most recently, contracted with Wadsworth Publishing to market and distribute *InSight*[™], a college-level multimedia curriculum supplement for vision science and experimental psychology (http://homepage.mac.com/jabaro/insight_software/). Also developed previous versions of *InSight*[™], published by Intellimation, and developed several shareware and freeware applications.

12/03–3/04 **Wadsworth Publishing Company, Belmont, CA**

Contractor - Script Writer

Wrote voice-over narration scripts for several modules of the Power Study 2.0 CD-ROM.

2/99–8/99 **Education Innovations, Inc., Leesburg, VA**

Contractor - Programmer/Interface Designer

Programming and interface design for the educational game *Colonial Age*, a curriculum supplement for middle school history.

6/87–1/93 **School of Optometry, University of Missouri–St. Louis, St. Louis, MO**

Postdoctoral Fellow/Research Associate

Primarily involved with research and teaching. Software development included data acquisition, data analysis/number crunching, and instructional software.

- 7/90 **Department of Psychology, Dartmouth College, Hanover, NH**
Consultant
Software development for Dr. Howard C. Hughes, developing color and animated visual stimulus display software for the Macintosh computer.
- 9/81-5/87 **Department of Psychology, Washington University, St. Louis, MO**
Graduate Research Assistant
Primarily involved with research and teaching. Software development included data acquisition and instructional software.
- 9/85-5/86 **Computer Science Department, Washington University, St. Louis, MO**
Consultant
Center for Engineering Computing Personal Computer Facility, assistance with undergraduate classes in the facility's IBM PC laboratory.

Technical Skills and Tools

- **Authoring**—Unity 3D, Director/Lingo/Shockwave/3D/Xtras, Javascript, SuperCard, MetaCard, HyperTalk/XCMDs
- **Programming**—Xcode (Apple/Carbon), CodeWarrior, C, Pascal
- **Nonlinear Digital Video**—Final Cut Pro, Premiere, Media 100, QuickTime, DVD Studio Pro, iDVD, Cleaner
- **3D Modeling and Animation**—Unity 3D, Shockwave 3D, Cinema 4D, Strata Studio Pro, Bryce, Softimage
- **Other**—Dreamweaver, Photoshop, ImageReady, QTVR, script writing, content writing, editorial, technical documentation, multimedia CD and DVD, video DVD
- **Platforms**—iPad/iPhone/iPod, Macintosh OS X and OS 9, Windows

Teaching and Consulting Experience

- 1/98-12/98 **Department of Psychology, Wheeling Jesuit University, Wheeling, WV, 26003**
Instructor
Class: Sensation and Perception.
- 7/90-12/92 **Computer Science Department, Washington University, St. Louis, MO 63130**
Consultant
Design and analysis of psychophysical experiments that assess the effects of various compression algorithms on the quality of video images transmitted across a computer network (the Fast Packet Project).
- 8/90-9/90 **MarketVision, 3663 Lindell Boulevard, St. Louis, MO 63108**
Consultant
Design of a visual acuity test for the company's line of optometric testing and diagnostic products.
- 9/87-5/88 **School of Optometry, University of Missouri—St. Louis, St. Louis, MO 63121**
Laboratory Instructor
Classes: Monocular Sensory Processes Laboratory, Binocular Vision Laboratory.
- 9/83-5/87 **Department of Psychology, Washington University, St. Louis, MO 63130**
Instructor
Classes: Perception and the Senses, Computer Methods in Psychology, Experimental Psychology.
- 6/84-9/85 **Vatterott and Sullivan Educational Centers, St. Ann, MO 63074**
Instructor
Classes: BASIC Programming, Introduction to Data Processing, Data Processing Systems and Applications.

Education

Washington University, St. Louis, MO
Ph.D., Experimental Psychology

Washington University, St. Louis, MO
M.A., Experimental Psychology

Valparaiso University, Valparaiso, IN
B.S., Psychology

Publications

Software and Related Articles & Book Chapters

- Baro, J.A. & Lehmkuhle, S. (2004). *InSight™* [computer program]. Pacific Grove, CA: Wadsworth Publishing Company.
- Ruberg, L.F. & Baro, J.A. (2003). Designing graphical, interactive simulations to model scientific problem solving. In S. Naidu (Ed.), *Learning & Teaching With Technology: Principles and Practices* (pp. 43-54). London: Kogan Page.
- Ruberg, L.F., & Baro, J.A. (1999). BioBLAST: A multimedia learning environment to support student inquiry in the biological sciences. In: W.C. Bozeman (Ed.), *Educational Technology: Best Practices from America's Schools* (2nd Ed.) (pp. 62-71). Larchmont, NY: Eye on Education.
- Baro, J.A. Simple algorithms for creating random-element stereograms on the Macintosh. (1996). *Behavior Research Methods, Instruments, and Computers*, 28, 611-621.
- Baro, J.A. & Lehmkuhle, S. (1993). Design and pedagogical issues in the development of the InSight series of instructional software. *Journal of Optometric Education*, 18(4), 107-110.
- Baro, J.A. & Baro, A.N. (1993). *DinoBlocks™* [computer program]. Santa Barbara, CA: Intellimation.
- Baro, J.A., Lehmkuhle, S. & Sesma, M.A. (1992). A comment from the authors of InSight [a response to the review of InSight by P. Thompson]. *Psychology Software News*, 3, 55.
- Baro, J.A. & Lehmkuhle, S. (1992). *InSight 2- InColor* [computer program]. Santa Barbara, CA: Intellimation.
- Baro, J.A. & Hughes, H.C. (1991). The display and animation of full-color images in real time on the Macintosh computer. *Behavior Research Methods, Instruments, and Computers*, 23, 537-545.
- Baro, J.A., Lehmkuhle, S. & Sesma, M.A. (1991). InSight: A series of interactive experiments and demonstrations in vision science for the Macintosh computer. *Journal of Optometric Education*, 16(3), 82-87.
- Baro, J.A., Lehmkuhle, S. & Sesma, M.A. (1991). *InSight™* [computer program]. Santa Barbara, CA: Intellimation.
- Baro, J.A. & Lehmkuhle, S. (1988). A software system for recording and analyzing transient evoked potential data with an Apple II computer. *Behavior Research Methods, Instruments, and Computers*, 20, 515-516.

Scientific Articles and Book Chapters

- Peck, C.K., & Baro, J.A. (1997). Discharge patterns of neurons in the rostral superior colliculus of cat: activity related to fixation of visual and auditory targets. *Experimental Brain Research*, 113, 291-302.
- Fuhrmann, D.R., Baro, J.A. & Cox, J. (1995). Experimental evaluation of psychophysical distortion metrics for JPEG-encoded images. *Journal of Electronic Imaging*, 4, 397-406.
- Baro, J.A., Garzia, R.P. & Lehmkuhle, S. (1995). Visual evoked potentials in reading disability. In R.P. Garzia (Ed.), *Vision and Reading* (pp. 193-206). Dubuque, IA: Carlisle.
- Peck, C.K., Baro, J.A. & Warder, S.M. (1995). Effects of eye position on saccadic eye movements and on the neuronal responses to auditory and visual stimuli in cat superior colliculus. *Experimental Brain Research*, 103, 227-242.
- Baro, J.A., Hughes, H.C. & Peck, C.K. (1995). Express saccades in cat: Effects of task and target modality. *Experimental Brain Research*, 103, 209-217.
- Lehmkuhle, S., Garzia, R.P., Turner, L., Hash, T. & Baro, J. A. (1993). A defective visual pathway in reading disabled children. *New England Journal of Medicine*, 328, 989-996.

- Peck, C.K., Baro, J. A., & Warder, S. M. (1993). Sensory integration in the deep layers of the superior colliculus. In: T. P. Hicks, S. Molotchnikoff, & T. Ono (Eds.) *The Visually Responsive Neuron: From Basic Physiology to Behavior, Progress in Brain Research* (pp. 91-102).
- Baro, J.A., Brzezicki, L., Lehmkuhle, S. & Hughes, H.C. (1992). The perceived duration of gratings. *Perception*, *21*, 161-166.
- Lovegrove, W.J., Lehmkuhle, S., Baro, J.A. & Garzia, R. (1991). The effect of uniform field flicker and blurring on the global precedence effect. *Bulletin of the Psychonomic Society*, *29*, 289-291.
- Baro, J.A. & Lehmkuhle, S. (1990). The effects of a luminance-modulated background on human grating-evoked cortical potentials. *Clinical Vision Science*, *5*, 265-270.
- Baro, J.A., Lehmkuhle, S. & Kratz, K.E. (1990). Electroretinograms and visual evoked potentials in long-term monocularly deprived cats. *Investigative Ophthalmology and Visual Science*, *31*, 1405-1409.
- Baro, J.A. & Lehmkuhle, S. (1989). The effects of a luminance-modulated background on grating-evoked cortical potentials in the cat. *Visual Neuroscience*, *3*, 563-572.
- Baro, J.A. & Levinson, E. (1988). Apparent motion can be perceived between patterns with dissimilar spatial frequencies. *Vision Research*, *28*, 1311-1313.
- Baro, J.A., Lehmkuhle, S. & Applegate, R.A. (1988). Contrast-increment thresholds are related to variability in the apparent contrast function. *Perception & Psychophysics*, *44*, 463-472.

Invited Lectures

- The InSight series of interactive software for the Macintosh computer: Laboratory exercises in vision science. Presented as part of a symposium, *Goals of the Trade: Enhancing Teaching with Computers*, at the annual meeting of the American Academy of Optometry, Anaheim, CA, December, 1991.

Selected Presentations-Education/Instructional Technology

- Vigil, M.A., Simon, M., Loyd, D., Finstein, J. & Baro, J.A. (2008, July). An online lab experience for physics students. Presented at the *American Association of Physics Teachers* annual conference, Edmonton, AB.
- Smock, R., Finstein, J. & Baro, J.A. (2004, May). Foundations of Freedom DVD demonstration. Presented at the *Association of Centers for the Study of Congress* annual conference, Washington, DC.
- Baro, J.A. & Croft, S. (2002, April). ExoQuest: Astrobiology in high school. Presented at the *Second Astrobiology Science Conference*, NASA Ames Research Center.
- Baro, J.A., Coffield, J.E. & Ruberg, L.F. (1999). An integrated model of an ALS system for use in the high school classroom. Presented at the 29th *International Conference on Environmental Systems*, Denver, CO.
- Ruberg, L.F. & Baro, J.A. (1997, April). Jigsaw teams: Experimental investigations in NASA's controlled life support systems. Presented at the *National Science Teachers Association* annual meeting, New Orleans, LA.
- Baro, J. A. (1997, April). Implementing science education reform: What does it look like in the classroom? Presented at the *National Science Teachers Association* annual meeting, New Orleans, LA.
- Ruberg, L.F. & Baro, J. A. (1996, June). Lunar base simulation: Experimentation, multimedia, and modeling of life processes. Presented at the *National Educational Computing Conference*, Minneapolis, MN.
- Baro, J. A. (1996, March). A demonstration of multimedia instructional materials under development at the NASA Classroom of the Future. Presented at the *National Science Teachers Association* annual meeting, St. Louis, MO.
- Baro, J. A. (1996, January). Astronomy as a thematic approach to teaching physics. Presented at the *American Association of Physics Teachers* annual meeting, Reno, NV.
- Baro, J. A. (1995, November). Multimedia at NASA's Classroom of the Future. Presented at the *Fall School Improvement Conference*, Massillon, OH.
- Baro, J. A. (1995, February). Multimedia at NASA's Classroom of the Future. Presented at the *Math, Science, and Technology Tools for Changing Schools Conference*, Chicago, IL.
- Blurton, C. & Baro, J. A. (1993, November). Visualization and image processing in elementary education. Presented at the *Image Processing in the Classroom Workshop*, San Juan Capistrano, CA.

Presentations-Science

- Peck, C.K., Warder, S.M., Morris, D.A. & Baro, J.A. (1993). Enlargement of visual receptive fields in cat superior colliculus by saccades. *Society for Neuroscience Abstracts*, *19*, 857.

- Baro, J.A. & Lehmkuhle, S. (1993). The perception of structure from motion at isoluminance. *Investigative Ophthalmology and Visual Science Supplement*, 34, 1032.
- Fuhrmann, D.R., Baro, J.A. & Cox, J. (1993). Experimental evaluation of psychophysical distortion metrics for JPEG-encoded images. *Human Vision, Visual Processing, and Digital Display IV*. B. Rogowitz & J. Allebach (Eds.), Proc. SPIE 1913, 179-190.
- Lehmkuhle, S., Baro, J.A. & Guido, W. (1992). Relay and burst response modes in the LGN vary with the alertness of the cat. *Society for Neuroscience Abstracts*, 18, 139.
- Baro, J.A. & Lehmkuhle, S. (1992). Alertness affects responsivity of X cells in the dorsal lateral geniculate nucleus of the cat. *Investigative Ophthalmology and Visual Science Supplement*, 33, 1131.
- Lehmkuhle, S., Garzia, R.P., Turner, L. & Baro, J.A. (1992). The effects of uniform field flicker on visual evoked potentials in children with reading disability. *Investigative Ophthalmology and Visual Science Supplement*, 33, 718.
- Peck, C.K., Baro, J.A. & Warder, S.M. (1992). Eye position effects on visual responses in the superior colliculus. *Investigative Ophthalmology and Visual Science Supplement*, 33, 1357.
- Baro, J.A., Peck, C.K. & Warder, S.M. (1991). Saccadic latencies vary with inter-stimulus interval in the cat. *Investigative Ophthalmology and Visual Science Supplement*, 32, 898.
- Baro, J.A. & Lehmkuhle, S. (1991). InSight 2 - A series of full-color, interactive demonstrations in vision science for the Macintosh computer. *Society for Neuroscience Abstracts*, 17, 523.
- Lehmkuhle, S. & Baro, J.A. (1991). The influences of eye position on the responses of X and Y cells in the dorsal lateral geniculate nucleus of the awake, behaving cat. *Society for Neuroscience Abstracts*, 17, 629.
- Baro, J.A. & Lehmkuhle, S. (1991). The effect of eye position on amplitude and latency of the visual evoked potential in the awake, behaving cat. *Optometry and Vision Science Supplement*, 68, 180.
- Lehmkuhle, S., Baro, J.A. & Sesma, M.A. (1990). Temporal flow of visual information along the retino-geniculostriate pathway in the cat. Presented at the *Spring Brain Conference*, Gulf Shores, Alabama, March 1990.
- Baro, J.A., Brzezicki, L., Lehmkuhle, S. & Hughes, H.C. (1990). Visible persistence of sine-wave gratings assessed with onset and offset reaction times. *Investigative Ophthalmology and Visual Science Supplement*, 31, 328.
- Lehmkuhle, S., Baro, J.A. & Hughes, H.C. (1990). Response persistence of X and Y retinal ganglion cells in cat. *Investigative Ophthalmology and Visual Science Supplement*, 31, 210.
- Lehmkuhle, S., Baro, J.A. & Hughes, H.C. (1990). Responses to stimulus offset of ganglion and geniculate X and Y cells in the cat. *Society for Neuroscience Abstracts*, 16, 711.
- Baro, J. A., Lehmkuhle, S. & Sesma, M.A. (1990). InSight: A series of interactive experiments and demonstrations for the Macintosh computer. *Optometry and Vision Science Supplement*, 67, 204.
- Baro, J.A., Lehmkuhle, S. & Kratz, K.E. (1989). Flash and pattern electroretinograms in long-term deprived cats. *Investigative Ophthalmology and Visual Science Supplement*, 30, 302.
- Lehmkuhle, S., Baro, J.A. & Hughes, H.C. (1989). Response persistence of X- and Y-cells in the cat lateral geniculate nucleus. *Investigative Ophthalmology and Visual Science Supplement*, 30, 296.
- Peck, C.K. & Baro, J.A. (1989). Multisensory interactions in cat superior colliculus during active fixation. *Society for Neuroscience Abstracts*, 15, 806.
- Baro, J.A., Lehmkuhle, S. & Applegate, R.A. (1988). Contrast increment thresholds are correlated with variability in magnitude estimates of contrast. *Investigative Ophthalmology and Visual Science Supplement*, 29, 448.
- Lehmkuhle, S. & Baro, J.A. (1988). The effect of background flicker on evoked potential amplitude and latency in the cat. *Investigative Ophthalmology and Visual Science Supplement*, 29, 329.
-