

**Dr. Ron Eglash**  
Curriculum Vita

**Education**

PhD. History of Consciousness, University of California, Santa Cruz, 1992  
M.S. Systems Engineering, University of California, Los Angeles, 1983  
B.S. Cybernetics, University of California, Los Angeles, 1981

**Work Experience**

2018-Present: Professor, School of Information, University of Michigan  
2010-2018: Professor, Science and Technology Studies, Rensselaer  
2003-2009: Associate Professor, Science and Technology Studies, Rensselaer  
1999-2002: Assistant Professor, Science and Technology Studies, Rensselaer  
1995-1998: Lecturer, Comparative Studies, Ohio State University  
1994-1995: Postdoctoral Fellow, Center for the Humanities, Oregon State University  
1993-1994: Fulbright Senior Research Scholar, University of Dakar, Senegal  
1992-1993: Lecturer, Humanities and Anthropology, University of California, Santa Cruz  
1986-1992: T. A., Humanities and Anthropology, University of California, Santa Cruz  
1983-1984: Human factors software engineer, National Semiconductor, Santa Clara, California

**Teaching**

List of courses taught available at <http://homepages.rpi.edu/~eglash/eglash.htm>

**Graduate supervision**

Doctoral chair: Lawrence Eng, Tolu Odumosu, Logan Williams, Jessica Lyons, William Babbitt, Michael Lachney, David Banks, Dan Lyles, Kevin Fodness, Laquana Cook, Sabrina Weiss.  
Masters' thesis chair: Louis Guterrez, Kathryn Bennett, Kathleen Tully.

**Monographs**

Eglash, R. *African Fractals: modern computing and indigenous design*. New Brunswick: Rutgers University Press 1999.

**Edited Anthologies**

Barta, Jim, Eglash, Ron, and Barkley, Cathy. *Math Is a Verb: Activities and Lessons from Cultures Around the World*. Reston, VA: National Council of Teachers of Mathematics, 2014.

Eglash, R., Croissant, J., Di Chiro, G., and Fouché, R. (ed) *Appropriating Technology: Vernacular Science and Social Power*, University of Minnesota Press. 2004.

**Articles in anthologies**

Eglash, R. "Generative Technologies from Africa". Pp. 270-279 in Dorothy Hodgson and Judith Byfield (ed) *Global Africa: Into the Twenty-First Century*. Oakland: UC Press 2017.

Eglash, R., Babbitt, W., Bennett, A., Bennett, K., Callahan, B., Davis, J., ... & Lachney, M. (2017). "Culturally situated design tools: Generative justice as a foundation for stem diversity." In Rankin Y and Thomas J. (eds) *Moving students of color from consumers to producers of technology*, IGI Global, pp.32-151.

Eglash, R. and Foster E. "On the Politics of Generative Justice: African Traditions and Maker Communities." Pp.117-136 in Mavhunga, Clapperton (ed) *What do Science, Technology and Innovation mean from Africa?* Boston: MIT Press 2017.

J. F. Drazan, H. Danielsen, M. Vercelletto, A. Loya, J. Davis and R. Eglash, "A case study for integrated STEM outreach in an urban setting using a do-it-yourself vertical jump measurement platform," 2016 38th

Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Orlando, FL, 2016, pp. 3027-3030. doi: 10.1109/EMBC.2016.7591367

Drazan, John F., Laquana Cooke, and Ron Eglash. "Harmonious integration: Tuning STEM education with generative justice." *2016 IEEE Integrated STEM Education Conference (ISEC)*. IEEE, 2016, pp. 58-64.

Eglash, R and Garvey, C. "Basins of Attraction for Generative Justice." In Santo Banerjee, Sefika Sule Erçetin, and Ali Tekin (eds) *Chaos Theory in Politics*. Berlin: Springer, 2014.

Eglash, R. (2013) "Towards a Cybernetics of Race: determinism and plasticity in ideological and biological systems." Pp. 57-82 in Hartigan, J. (ed) *Anthropology of Race: Genes, Biology, and Culture*. SAR Press 2013.

Babbitt, B., Lyles, D. and Eglash, R. "From Ethnomathematics to Ethnocomputing." Pp 205-219 In *Alternative Forms of Knowing (in) Mathematics*. Ed. Swapna Mukhopadhyay and Wolff-Michael Roth, Sense Publishers 2012.

Eglash, R. "Nanotechnology and Traditional Knowledge Systems," pp. 45-68 In Donnie Maclurcan and Natalia Radywyl (ed) *Nanotechnology and Global Sustainability*, CRC Press 2011

Eglash, R. "Indigenous Nanotechnology." In David Guston and J. Geoffrey Golson (ed) *Encyclopedia of Nanoscience and Society*, Thousand Oaks: Sage Publications, 2010.

Eglash, R. "African Inspirations for Open Architecture: the Political Economy of Self-Organization." In Gonçalo Azevedo (ed) *Open Source 2010: architecture as an open culture*. Circo de Ideias: Lisbon, March 2011.

Bennett, A., Eglash, R., Krishnamoorthy, M. "Virtual Design Studio: computer-mediated, cross-cultural communication." In Kirk St.-Amant and Filipp Sapienza (ed) *Culture, Communication, and Cyberspace: Rethinking Technical Communication for International Online Environments* Baywood 2011.

Odumosu, T and Eglash, R. "Oprah, 419 and DNA: Warning! Identity under Construction." In Pedro J. Oiarzabal and Andoni Alonso (ed) *Diasporas in the New Media Age: Identity, Politics and Community*, University of Nevada Press, 2010.

Barta, J. & Eglash, R. Teaching artful expressions of mathematical beauty: Virtually creating Native American beadwork and rug weaving. In J. Braman, (Ed.), *Handbook of Research on Computational Arts and Creative Informatics*. Hershey, PA: IGI Global Publishing 2009.

Eglash, R. "Native American Analogues to the Cartesian Coordinate System" In Brian Greer, Swapna Mukhopadhyay, Arthur B. Powell, and Sharon Nelson-Barber (ed) *Culturally Responsive Mathematics Education*. New York: Routledge 2009.

Eglash, R. "Computing Power." In Matthew Fuller (ed) *Software Studies: A Lexicon*. MIT Press, 2008. .

Tedre, Matti and Eglash, R. "Ethnocomputing." In Matthew Fuller (ed) *Software Studies: A Lexicon*. MIT Press, 2008.

Eglash, R. "Culturally Situated Design Tools." In Douglas Schuler (ed) *Liberating Voices! A Pattern Language for Communications Revolution*, MIT Press, 2008. .

Eglash, R. "Appropriating Technology." In Douglas Schuler (ed) *Liberating Voices! A Pattern Language for Communications Revolution*, MIT Press, 2008.

Eglash, R. "From Hip-Hop to Flip-Flop." In Paul Miller (ed) *Sound Unbound*. New York: Routledge 2008.

Bennett, A., Krishnamoorthy, M., Eglash, R., and Rarieya, M. 2006. "Audience as Co-Designer: Participatory Design of HIV/AIDS Awareness and Prevention Posters in Kenya." In *Design Studies: Theory and Research in Graphic Design*, edited by Audrey Bennett. New York: Princeton Architectural Press 2006.

Eglash, R. "Race and Gender in Culturally Situated Design Tools." Pp. 1054-1061 in Eileen M. Trauth (ed) *Gender and Information Technology Encyclopedia*, Idea Group, 2006.

Eglash, R. and Odumosu, T. "Fractals, Complexity, and Connectivity in Africa." In Giandomenico Sica (ed) *What Mathematics from Africa?* Milano: Polimetrica 2006.

Eglash, R. "Ethnocomputing with Native American Design." In Laurel Evelyn Dyson, Max Hendriks and Stephen Grant (ed) *Information Technology and Indigenous People*, Idea Group 2006.

Eglash, R. "Technology as Material Culture." In Christopher Tilley, Webb Keane, Susanne Kuechler, Michael Rowlands and Patricia Spyer (ed) *The Sage Handbook of Material Culture*. 2005.

Eglash, R. "Appropriating Technology: an Introduction."pp. vii-xxi in Eglash, R., Croissant, J., Di Chiro, G., and Fouché, R. (ed) *Appropriating Technology: Vernacular Science and Social Power*, University of Minnesota Press. 2004.

Eglash, R. "The American Indian Computer Art Project: an Interview with Turtle Heart."pp. 181-206 in Eglash, R., Croissant, J., Di Chiro, G., and Fouché, R. (ed) *Appropriating Technology: Vernacular Science and Social Power*, University of Minnesota Press. 2004.

Eglash, R. "Information Technologies."pp. 101-105 in Eglash, R., Croissant, J., Di Chiro, G., and Fouché, R. (ed) *Appropriating Technology: Vernacular Science and Social Power*, University of Minnesota Press. 2004.

Eglash, R. "Computation, Complexity and Coding in Native American Knowledge Systems." Pp. 251-262 in Judith Hanks (ed) *Native American Mathematics*, NCTM 2002.

Eglash, R. "Chaos Theory." Pp. 123-124 in Arne Hessenbruch (ed) *Readers Guide to the History of Science*. London: Fitzroy Dearborn Publishers 2001.

Eglash, R. "Indigenous Knowledge Systems." Pp. 372-373 in Arne Hessenbruch (ed) *Readers Guide to the History of Science*. London: Fitzroy Dearborn Publishers 2001.

Eglash, R. "Anthropological perspectives on ethnomathematics." Pp. 13-22 in *Mathematics across Cultures*, ed Helaine Selin, Kluwer 2000.

Eglash, R. "African influences in cybernetics." Pp. 17-28 in Chris Gray (ed) *The Cyborg Handbook*. New York: Routledge 1995.

Eglash, R. "Interview with Patricia Cowing." Pp. 93-100 in Chris Gray (ed) *The Cyborg Handbook*. New York: Routledge 1995.

Eglash, R. "Appropriating Technology." pp. 65-74 in Andrew Feenberg, Torben Hviid Nielsen and Langdon Winner (eds) *Technology and Democracy*, University of Oslo 1997.

### **Journal Special Issues**

Guest editor; special issue of Critical Interventions on "Fractals in Global Africa," Oct 2012, [http://www.aachron.com/editions/critical\\_interventions/index.php?option=com\\_content&view=section&layout=blog&id=11&Itemid=17](http://www.aachron.com/editions/critical_interventions/index.php?option=com_content&view=section&layout=blog&id=11&Itemid=17)

Guest editor, special issue of *Teknokultura* on Generative Justice.

[http://revistas.ucm.es/index.php/TEKN/user/setLocale/en\\_US?source=%2Findex.php%2FTEKN%2Fissuue%2Fview%2F2944](http://revistas.ucm.es/index.php/TEKN/user/setLocale/en_US?source=%2Findex.php%2FTEKN%2Fissuue%2Fview%2F2944).

### Journal Articles

Lokko, Mae-Ling and Eglash, Ron. "Transforming the poor man's building block: value creation, translation and circulation for upcycled indigenous building materials." *FOLIO: Journal of African Architecture*, Vol. 1, May 2017 pp 237-249.

Eglash, Ron, Bennett, Audrey, Lachney, Michael, Drazan, John, and Babbitt, William. "A mathematical tool kit for generative justice." *ETD - Educação Temática Digital*, Campinas, SP, v. 19, n. 3, p. 761-785, July 2017. ISSN 1676-2592.

Eglash, Ron. "An introduction to Generative Justice." *Teknokultura* 13, no. 2 (Dec 2016). rev\_TK.2016.v13.n2.

Eglash, Ron. "Of Marx and Makers: An Historical Perspective on Generative Justice." *Teknokultura* 13, no. 1 (June 30, 2016). doi:10.5209/rev\_TK.2016.v13.n1.52096.

Lachney, Michael, Audrey Bennett, Jorge Appiah, and Ron Eglash. "Modeling in ethnocomputing: replacing bi-directional flows with recursive emergence." *International Journal for Research in Mathematics Education* 6, no. 1 (May 12, 2016): 219–43.

Lachney, M, Babbitt, W and Eglash, R. "Software Design in the 'Construction Genre' of Learning Technology: Content Aware versus Content Agnostic : *Computational Culture*. no. 5, January 2016.

Babbitt, W, Lachney, Bulley, E, and Eglash, R. "[Adinkra Mathematics: A study of ethnocomputing in Ghana](#)." *REMIE - Multidisciplinary Journal of Educational Research* Vol. 5 No. 2 June 2015 pp. 110-135.

Eglash, R. "On Intellectual Courage and Accountability." *Social Epistemology* 4, no. 3 (2015): 36-39. <http://social-epistemology.com/2015/02/14/on-intellectual-courage-and-accountability-ron-eglash/>.

Eglash, R. and Banks, D. "Recursive Depth in Generative Spaces: Democratization in Three Dimensions of Technosocial Self-Organization." *The Information Society* 30(2):106-115 (March 2014).

Bennett, Audrey, and Ron Eglash. "CSELF Computer Science Education from Life: Broadening Participation through Design Agency." *Int. J. Web-Based Learn. Teach. Technol.* 8, no. 4 (October 2013): 34–49.

Eglash, Ron, Juan E. Gilbert, Valerie Taylor, and Susan R. Geier. "Culturally Responsive Computing in Urban, After-School Contexts Two Approaches." *Urban Education* 48, no. 5 (September 1, 2013): 629–656.

Eglash, Ron, Juan E. Gilbert, and Ellen Foster. "Toward Culturally Responsive Computing Education." *Commun. ACM* 56, no. 7 (July 2013): 33–36.

Eglash, R. and Bennett, A. Fractals in Global Africa. *Critical Interventions*, Oct 2012, [http://www.aachron.com/editions/critical\\_interventions/components/com\\_p2dxt/data/C19\\_eglashBennettW.pdf](http://www.aachron.com/editions/critical_interventions/components/com_p2dxt/data/C19_eglashBennettW.pdf).

Eglash, R., Krishnamoorthy M., Sanchez J., Woodbridge, A. "Fractal Simulations of African Design in Pre-college Computing Education." *ACM Transactions on Computing Education*, Vol 11, No 3, Oct 2011.

Eglash, R. and Bennett, A. "Teaching with Hidden Capital: Agency in Children's Mathematical Explorations of Cornrow Hairstyle Simulations." *Children, Youth, and Environments* vol. 19, No 1, April 2009.

Eglash, R. "Oppositional Technophilia." *Social Epistemology*, Volume 23, Number 1, January 2009 , pp. 79-86.

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Eglash, R., Bennett, A., O'Donnell, C., Jennings, S., and Cintorino, M. "Culturally Situated Design Tools: Ethnocomputing from Field Site to Classroom." *American Anthropologist*, 347-362, Vol. 108, No. 2. 2006.

Eglash, R. "Fractales Urbaines Africaines." *Pour la Science*, pp. 84-85, April/June 2005.

Eglash, R. "L'algorithmique ethnique," *Pour la Science* pp. 102-104, April/June 2005.

Eglash, R. "Re-thinking symmetry in ethnomathematics." *Symmetry: Culture and Science*. Pp. 159-166, 12:1, 2003.

Bronet, P., Eglash, R., Gabriele, G., Hess, D., Kagan, L. "Product Design and Innovation: Evolution of an Interdisciplinary Design Curriculum." *International Journal of Engineering Education*, pp. 305-318, 19:1, 2003.

Eglash, R. "Race, Sex and Nerds: from Black Geeks to Asian-American Hipsters." *Social Text*, 20:2, pp. 49-64, Summer 2002

Eglash, R. and Blecker, J. "The Race for Cyberspace: information technology in the black diaspora." *Science as Culture*, 10:3, 2001.

Eglash, R. "Cybernetics and American youth subculture." *Cultural Studies*, 12:3, 1998.

Eglash, R. "Fractals in African Settlement Architecture." *Complexity*, 4:2, nov-dec 1998.

Eglash, R. "Geometric algorithms in Mangbetu design." *Mathematics Teacher*, 91:5, pp. 376-381, May 1998.

Eglash, R. "Bamana sand divination: recursion in ethnomathematics." *American Anthropologist*, 99:1, pp. 112-122, March 1997.

Eglash, R. "When math worlds collide: intention and invention in ethnomathematics." *Science, Technology and Human Values* , 22:1, pp. 79-97, Winter 1997. (Official journal of the Society for Social Studies of Science)

Eglash, R. "The African heritage of Benjamin Banneker." *Social Studies of Science*, 27, pp. 307-15, April 1997. (Leading European journal in Social Studies of Science)

Eglash, R., Diatta, C., Badiane, N. "Fractal structure in jola material culture." *Ekistics*, 61:368, pp. 367-371, sept-dec 1994.

Eglash, R. "Inferring representation type from spectral estimates of fractal dimension in communication waveforms." *Journal of Social and Evolutionary Structures*, pp. 375-399, 16:4, 1993.

Eglash, R. "The cybernetics of cetacea." *Investigations on Cetacea*, 16, 1984.

## **Book reviews**

Review of *Masons, Tricksters, and Cartographers: Comparative Studies in the Sociology of Scientific and Indigenous Knowledge*. Turnbull, David. New York: Routledge 2000. Reviewed in *Science as Culture*, pp. 129-134, 12:1, 2003.

Review of *Cyborgs and Citadels: Anthropological Interventions in Emerging Sciences and Technologies*. Downey, Gary Lee and Dumit, Joseph (ed). Santa Fe: SAR Press 1998. Reviewed in *Ethnos*, pp. 134-8, 64:1, 1999.

Review of *The Machine in Me: An Anthropologist Sits among Computer Engineers*. Downey, Gary Lee. New York: Routledge Press, 1998. Reviewed in *American Ethnologist*, pp. 182-185, 27:1, 2000)

### Articles in non-refereed periodicals

Eglash, R. "Generative Justice: the revolution will be self-organized". *Tikkun* April 25 2014.

Ellen Foster and Ron Eglash, "Generative Justice in Africa: From Fractals to the Rise of Maker Movements." *Think Africa Press*, March 27, 2014

Eglash, R. "Adinkra Patterns and Corn Cob Energy." *New York Times* "Scientists At Work" blog: <http://scientistatwork.blogs.nytimes.com/author/ron-eglash/> July 2010.

Eglash, R. "A Geometrical Bridge Across the Middle Passage: Mathematics the in Art of John Biggers." *The International Review of African American Art*, Vol. 19, no. 3, pp. 29-33, 2004.

Eglash, R. "A Two-Way Bridge Across the Digital Divide." *Chronicle of Higher Education*, pg. B12, June 21 2002.

Eglash, R. "Fractal geometry in African material culture." *Symmetry: Culture and Science*. Vol 6-1, pp 174-177, 1995.

Eglash, R. and Broadwell, P. "Fractal geometry in traditional African architecture" *Dynamics Newsletter*, June 1989.

Eglash, R. "Ethics, Epistemology, and Ethnomathematics." *Newsletter of the North American Chapter of the International Study Group for Ethnomathematics*, pp. 10-11, Volume 2, Issue 2, April 2008

Eglash, R. "Conference Report: "Realities Re-viewed/Revealed: Divination in Sub-Saharan Africa." *West African Research Center Newsletter*, Fall 2005.

Eglash, R. "Conference Report: Embracing Complexity, MIT August 2-4 1998." *Technoscience* p. 10, 11-3, 1998.

Eglash, R. "Conference report: chaos theory and evolutionary economics." *Technoscience*, p. 9, 6-3, 1993.

Eglash, R. Software review: "Rudy Rucker's CALAB." *Dynamics Newsletter*, pp. 3-9, Sept 1990.

### Translations:

Eglash, R. "African influences in cybernetics." Pp. 17-28 in Chris Gray (ed) *The Cyborg Handbook*. New York: Routledge 1995. Trans. Portuguese in *Item*, Universidade Estadual do Rio de Janeiro 1999.

Eglash, R. "Fractales Urbaines Africaines." *Pour la Science*, pp. 84-85, April/June 2005. Trans. Portuguese as Eglash, R. (2005). *Fractais Africanos: Arquitetura e urbanismo de antigas aldeias e cidades baseiam-se nesta complexa geometria de curvas*. Edição Especial de Scientific American-Brazil: Etnomatemática. No. 11, pp. 66-67.

**Reprints:**

Eglash, R. "Ethnocomputing with Native American Design." In Laurel Evelyn Dyson, Max Hendriks and Stephen Grant (ed) *Information Technology and Indigenous People*, Idea Group 2006. Reprinted in US dept of education office of Indian Education website, [http://www.ed.gov/rschstat/research/pubs/oieresearch/research\\_conf.html](http://www.ed.gov/rschstat/research/pubs/oieresearch/research_conf.html) August 2005.

Eglash, R. "African influences in cybernetics." Pp. 17-28 in Chris Gray (ed) *The Cyborg Handbook*. New York: Routledge 1995. Reprinted in *Visual Culture: Critical Concepts in Media & Cultural Studies* New York: Routledge October 2005.

**Grants and Fellowships Funded**

2016, PI, NSF, ""Integration of Computational Thinking and Science Using Culturally-Based Topics." \$2,500,000.

2014, PI, Raspberry PI Foundation: "Adinkra Computing." \$2,375.

2010: PI, NCIIA, "BioSolar Entrepreneurship: Environmental and Social Sustainability as Mutual Bootstrapping." \$34,663.

2009: PI, NSF-GK-12 program, "Graduate Teaching Fellows in Community Situated Research: The Triple Helix of University, K-12, and Community Knowledge Production." \$2,853,743.

2009: PI, "Cultural Networks for Computing." The Computer Research Association funded a GRA trip to Auburn university, and hardware for our "Citizen Science" workshop at Dine College on the Navajo reservation. \$4,000 (reimbursements directly from CRA, not through RPI).

2008: (collaborative grant, am PI at RPI and co-PI for the collaborative grant as a whole), NSF-BPC-D: "Incorporating Cultural Tools for Math and Computing Concepts into the Boys and Girls Clubs of America" RPI: \$177,179 (with additional funding at other institutions).

2008: co-PI, NSF grant for computing diversity center workshop (all funding at TAMU).

2008: "CSDT online community": Funded by Rensselaer Open Source Center for \$2,000 per semester for fall 07-spring 09.

2008: "Buy-local Rensselaer": Funded by Rensselaer Open Source Center for \$2,000 per semester for fall 07-spring 09.

2008: Senior personnel: Ohio-Gates Stem workshop, \$109,000.

2007: PI for Minority Grad supplement to current NSF grant (\$9,000).

2007: PI for Research Experience for Undergraduates supplement to current NSF grant (\$18,000).

2007: PI, "BPC-D: Improving Minority Student Participation in the Computing Career Pipeline with Culturally Situated Design Tools." NSF 0634329; RPI: \$319,196 (with additional \$200,000 to other institutions).

2006: PI "The Computational Ethnomathematics of Dance: Simulation and Analysis of Performance Arts in Research and Education." Internal seed grant. \$25,000

2005: Senior Project Personnel, "Acquisition of System for Multi-Site Networked Motion Capture and Visually Immersive Laboratory for Social and Behavioral Research," NSF MRI-0521297. RPI: \$160,835.00

2004: PI (and primary author) for "Computer simulations of scaling structures in traditional Ghanaian design for education and development in Ghana: a pilot project proposal." Institute For Figuring: \$10,000.

2003: PI (and primary author) for Research Experience for Undergraduates supplement to current NSF grant: \$18,000.

2002: Co-PI for "Seed grant: A Virtual Design Studio Pilot Project." RPI: \$50,000.

2001-: PI (and primary author) for "Evaluation of Culturally-Situated Design Tools in the Recruitment and Retention of Under-represented Minorities for Information Technology Careers." NSF: \$543,013. Three years, starting Sept 2001.

2001-: PI (and primary author) for "Constructing a two-way bridge." COPC/HUD: \$400,000 (Switched to co-PI position to allow more administrative time for NSF and FIPSE grants). Three years, starting Sept 2001.

2001-: PI (and primary author) for "Learning Ethnomathematics: A Software Environment for Teacher Professional Development and Students' Classroom Use." FIPSE: \$358,000. Three years, starting Sept 2001.

2000: PI (and primary author) for "Community Informatics as a Two-way Bridge: development and design in a "communiversity" research program," RPI H&SS: \$6,000.

2000: PI (and primary author) for " Shoshone Simulation Project," GAD division of American Anthropological Association: \$2,000.

1998: PI (and primary author) for "International Conference on Appropriating Technology," Office of International Affairs Conference Grant, OSU: \$2,000

1997: PI (and primary author) for "The Columbus Inner City Information Network: increasing technology access in economically disadvantaged urban communities." Battelle Endowment for Technology and Human Affairs: \$48,000.

1997: Co-PI for "A.C.T.I.V.E.: Adaptive Complex Transportation In Vehicle Emulation." Honda Corporation grant: \$80,000.

1995: University of Oregon Summer Research Fellowship

1994: Oregon State University Center for the Humanities Postdoctoral Fellowship

1993: Fulbright Senior Research Scholar

1991: Institute for Global Cooperation and Conflict Dissertation Year Fellowship

1989: Institute for Intercultural Studies Research Grant

### **Awards**

The American Anthropological Association's award for "Exemplary Cross-Field Scholarship," 2009.

The Eisenhower National Clearinghouse for Mathematics and Science Education (ENC) featured "digital dozen" April 2005.

The International Society for Technology in Education, "101 Best Websites" in the world for secondary school teachers. Notification Nov 2004.

Anthropology Education Commission's "Integrating anthropology into schools" award, Nov 2001.

Finalist, SONOFON "Technology for People" software competition, May 2001.

"Book of the month," Benjamin Banneker Network, April 2001.



“Taft memorial lecture,” University of Cincinnati. April 2000.

“Book of the month,” Africanbynature.com, March 2000.

“Web site of the month,” Learning in Motion, Oct 1998.

“Teaching Assistant of the Year,” 1990.

### **Selected Academic Presentations**

#### **2017**

Nov 2017, MIT, invited presentation

Sept 2017, 4S, Boston MA, “Anti-racist Technoscience.”

#### **2016**

March 2016, IEEE Integrated STEM Education Conference.

#### **2015**

March 25-Apr 2 [Cognizance](#), Roorkee India

#### **2014**

Nov 13-15 MIT: What Do Science, Technology, and Innovation Mean from Africa?

June 27, 2014 Generative Justice conference, Troy NY

April 25, 2014 Philadelphia Science Festival

April 24, 2014 Global Distinguished Lecture, Penn State University

April 12 Science for the People, U-Mass Amherst

Jan 16 Google, Mountain View Ca

#### **2013**

Oct 11, 2013, 4S, San Diego CA.

April 2 2013, U Mass Amherst, School of Education.

Mar 5-6 2013, Mary Ann and John D. Mangels lecture, University of Washington, Seattle; Pacific Math Institute, Vancouver

Feb 12 2013, Simons Center for Geometry and Physics (SCGP) at Stony Brook University

#### **2012**

Nov 29 2012 Samuel DeWitt Proctor Lecture, Rutgers University

Nov 12 2012 MIT Media Lab

March 16, NSF GK-12 annual meeting

March 10, keynote, Pacific Math Conference, Cal Poly Pomona

March 1, National Art Educators Association, NYC.

Jan 4, 2012, "Cultivating Ensembles in STEM Education and Research", U. Conn Health Center

## **2010**

Invited lecture, "African Fractals: Indigenous Geometric Traditions and Futures." Festival Mundial Des Arts Negres, Dakar Senegal Dec 17 2010.

Keynote, "Designing Educational Media that Support Indigenous and Vernacular Knowledge Systems," GLIDE virtual global conference, Oct 27<sup>th</sup> 2010.

Invited talk, Bloomberg Innovators lecture series, New York City, Oct 2010.

Keynote, Fourth International Conference on Ethnomathematics, Towson University, July 26 2010.

Visiting Scholar, Brown International Advanced Research Institutes, June 13-14, 2010.

Invited (virtual) lecture for "Architecture as Open Source" conference, Matosinhos, Portugal, June 12 2010.

Videoconference lecture for Birla Institute of Technology and Science, Pilani India, March 11, 2010

Invited lecture, SciFest Africa, Grahamstown South Africa March 2010.

## **2009**

Invited lecture, "Cultural Cybernetics," MIT Media Lab, October 6 2009.

Invited workshop, "Design Tools: opportunities for research and development." STARS conference, Charlotte NC August 2009.

Invited workshop on "Citizen Science and Indigenous Knowledge" for Pathways Summer experience (first year Navajo students at Dine college), July 2009.

Invited workshops (4 over 2 days) for Native American middle school children at Michigan State University, June 10-12 2009.

Visiting Scholar for Brown International Advanced Research Institutes: "Towards a Global Humanities: Critical Traditions from the Global South." June 8-9, 2009.

Invited workshop, Department of computer science, Georgia Southern University, May 29 2009.

Keynote address, "Self-organization: Science, Social Justice, and Sustainability," Techkriti, Kanpur, India, March 14 2009.

Invited lecture, "Math, art and education," department of math education, NYU, February 1, 2009.

## **2008**

Paper presentation, "Towards a cybernetics of race: determinism and plasticity in ideological and biological systems." American Anthropological Association, San Francisco CA Nov 21 2005.

Appeared on PBS television program NOVA, "The Hidden Dimension" Oct 28, 2008

Keynote address, Jasper, Alberta (Canada). Mathematics Council of the Alberta Teachers Association, Oct 17 2008.

Invited talk, University of Alberta (Edmonton). "Indigenous Knowledge: Mathematics, Computing, and Chemistry," Oct 16, 2008.

Invited talk, "Self-Organization in Science and Society," Complex Systems Group at University of Alaska, Anchorage, Sept 19.

Public lecture, "Indigenous Knowledge" Williamson Auditorium, Anchorage Alaska Sept 18.

Invited talk, Governor's School West, Winston-Salem, North Carolina, July 22, 2008.

Guest on BBC World Service program "The Forum," August 3 2008

Invited workshop, "Fractals in K-12 Education," MathScience Innovation Center, Richmond VA. June 19, 2008.

Baltimore Museum of Art: public lecture on African Fractals; workshop for teachers on Culturally Situated Design Tools; workshop for children on Cornrow Curves. April 25-26 2008.

## **2007**

Paper presentation, "Epigenetics: How to be an Anti-Biological Determinist in the Age of Soft Inheritance." American Anthropological Association, Washington DC, Nov 2007.

Paper presentation, "Appropriating Nanotechnology." Society for Social Studies of Science" Montreal Oct 2007.

Co-Organized panel, "Problematizing Technological 'Appropriation'" Society for Social Studies of Science" Montreal Oct 2007.

Invited workshop, "Cornrow Curves, Richmond Public School District Sept 2007

Invited workshop, "Fractals in K-12 Education," MathScience Innovation Center, Richmond VA. August 2007.

Invited workshop, "Design Tools in Computing Education Outreach," STARS conference, Charlotte NC August 2007.

Invited talk, "African Fractals," TED Global, Arusha Tanzania Jun 2007.

Poster presentation, NSF-BPC meeting, Boulder CO, May 14-16, 2007.

Paper presentation, "Engaging African American, Latino, and Native Students with Culturally Situated Design Tools," NCSM Atlanta GA, March 21 2007 (paper read by Professor James Barta, Utah State University).

Paper presentation (co-authored with Audrey Bennett), "Cultural Robotics: on the Intersections of Identity and Autonomy in People and Machines." Science, Technology and the Influence of Race, Drexel University, March 9-10, 2007.

## **2006**

Paper presentation, "Risk and Recursion" Society for Social Studies of Science, Vancouver CA, November 2006.

Invited talk, "Ethnocomputing," Intel corporation, Beaverton OR, July 16 2006.

Invited talk, "Cultural Embodiments of Mathematics in Ethnocomputing," Graduate School of Education, Portland State University, May 31 2006.

Invited talk, "Cultural Cybernetics," Seedbed Initiative for Transdomain Creativity, UIUC, April 27 2006.

Invited talk, "Ethnocomputing," Graduate School of Library and Information Science, UIUC, April 26 2006.

Invited talk, National Council of Supervisors of Mathematics, St Louis MO, April 24 2006.

Invited talk, "Computational Ethnomathematics," dept of Computer Science, Auburn university, March 15 2006.

## **2005**

Invited talk at "Realities Re-viewed/Revealed: Divination in Sub-Saharan Africa." National Museum of Ethnology, Leiden, The Netherlands, July 4-5.

Invited talk, "Fractals in African Design," Connecticut College, April 2005.

Paper, "Culturally Situated Design Tools: Ethnomathematics Through African, African-American, Latino, and Native American Designs." Annual meeting of the American Educational Research Association, Montréal Canada April 2005.

Presentation, "Teaching Math with Simulations of Native American Artifacts." National Council of Teachers of Mathematics Anaheim CA April 2005

Presentation (with Luis Ortiz-Franco), "Latino Ethnomathematics." National Council of Teachers of Mathematics Anaheim CA April 2005

Workshop, "African American ethnomathematics online: free software for freeing minds." National Council of Teachers of Mathematics Anaheim CA April 2005

Invited talk, "Ethnomathematics in the classroom," Benjamin Banneker Association, Chicago, Jan 22 2005.

## **2004**

Paper presentation, "Preliminary Evaluation of Culturally Situated Design Tools," NSF-ITWF/ITR & EWF PI Conference, Philadelphia, Oct 25 2004.

Workshop presentation, "The Distinction between Complexity and Things that are Complicated." RPI Oct 20 2004.

Paper presentation, "Visualizing Translation; Visualization as Translation: Two Levels of Visual Analysis in STS." Society for Social Studies of Science, Paris, August 2004.

Paper presentation, "Computing Cornrows: online software for African ethnomathematics." National Council of Teachers of Mathematics, Washington DC, April 2004.

Invited talk, "African Fractals in Design." First International Conference on Fractal Foundations for 21st Century Architecture and Environmental Design, Madrid Spain, March 26 2004.

Poster Presentation, "Fractal Simulations of African Settlement Architecture." First International Conference on Fractal Foundations for 21st Century Architecture and Environmental Design, Madrid Spain, March 27 2004.

Invited talk, "African Fractals," NAACP, Syracuse University March 2004.

Keynote address at "Africa, the Fractal, and the Third Millennium" conference, Morehouse College, "Feb 4 2004.

**2003**

Paper Presentation, "Ethnomath software using African-American, Latino, and Native American designs." California Math Council, Monterey CA Dec 2003.

Poster Presentation, "The Role of Culture in Improving Access and Retention for Minority Populations." Round table participant, "Innovative Teacher Preparation Programs." FIPSE annual meeting, Denver CO Dec 2003.

Paper presentation, "Culturally Situated Design Tools: Cornrows and Graffiti as Computational Capital.." American Anthropological Association, Chicago, Nov 2003.

Keynote address, Indian Educators Conference, Northern Michigan University, Nov 2003.

Keynote address, Research Symposium at the Appalachian Collaborative Center for Learning and Instruction in Mathematics Education (ACCLAIM), McArthur OH, Nov 2003.

Chaired panel, "Environment and Culture," NSF-ITWF PI conference, Albuquerque, NM, Oct 2003.

Paper presentation, "The Co-construction of Math and Culture: Opportunities in Computational Media," Society for Social Studies of Science, Atlanta GA Oct 2003.

Discussant, "IT and Education" panel, Society for Social Studies of Science, Atlanta GA Oct 2003.

Paper presentation, "Culturally Situated Design Tools: software for teaching ethnomathematics through African, African-American, Latino, and Native American designs." National Council of Teachers of Mathematics, April 2003.

Rhythm Wheels workshop, Troy Junior Museum, April 03.

Rhythm Wheels demo at Ark Charter School Dance Expo, The Arts Center of the Capital Region, June 03.

Invited lecture, "Mathematics across the Middle Passage." Black History Month at SUNO (Southern University at New Orleans), Feb 12 2003.

**2002**

"Computational perspectives on urban graffiti." American Anthropological Association, New Orleans, Nov 2002.

"Indigenous knowledge and information technology: when does hybridity help?" Society for Social Studies of Science, Milwaukee, Wisconsin, Nov 2002.

"Evaluation of Evaluation of Culturally-Situated Design Tools in the Recruitment and Retention of Under-represented Minorities for Information Technology Careers," NSF-ITWF PI conference, College Park, Maryland, October 2002.

Virtual presentation, "African Fractals Online," Subtle Technologies conference, Toronto Canada May 2002.

"Computing Cornrows," Philadelphia Urban Systemic Program, May 2002.

"African Fractals in the Classroom," National Council of Teachers of Mathematics, Las Vegas, April 2002.

"Culturally Situated Design Tools," National Society of Black Engineers (local chapter), RPI, Feb 2002.

"Mathematics across the Middle Passage." Invited lecture, Black History Month at SUNO (Southern University at New Orleans), Feb 12 2003.

"African Fractals," American Association for the Advancement of Science, Washington DC, Jan 2002.

## **2000**

"When Terabyte Makes Right: The Changing Role of Computing Power in the Social Authority of Simulations." American Anthropological Association, November 2000

"Cultural Cybernetics: the Mutual Construction of People and Machines." Society for Social Studies of Science, Oct 2000.

## **Previous to RPI**

"Geometry from African American Hairstyles." National Council of Teachers of Mathematics, Washington DC 1998.

Video: [Math and science through the eyes of culture](#) by the Nebraska Educational Telecommunication Coalition for Higher Education (NETCHE), 1998.

"Vernacular cybernetics." American Anthropological Association, Washington D.C. 1995.

"Cybernetics and the African diaspora." Society for Social Studies of Science, New Orleans, Oct 1994.

"The African geometry of fractals." West African Research Center, Dakar, Senegal, April 1994.

"A nonlinear model for the history of nonlinear mathematics." Chaos Theory and Evolutionary Economics, University of Amsterdam, May 1993.

"Decentralized information technologies: implications for conflict and stability." Institute for Global Cooperation and Conflict, Graduate Fellows Conference, Nov 1991.

"Chaos in science and society." Exploratorium, San Francisco California Nov 1990.

"Postmodern cybernetics and popular culture: holistic military technology." Social Studies of Science Conference, UCI, Nov 1989.

## **Professional Societies**

Advisory committee, American Society for Cybernetics 2010 conference.

Editorial Review Board, International Journal of Technoethics, 2009

Vice President, North American Chapter of the International Study Group on Ethnomathematics, 2009.

Chair, Coalition for Diversity in Computing (joint organization of the Association for Computing Machinery, IEEE-CS, and Computing Research Association). Fall 2009.

Chair-elect, Coalition for Diversity in Computing (joint organization of the Association for Computing Machinery, IEEE-C, and Computing Research Association), Fall 2008.

Advisory committee, Global Interaction in Design Education conference, 2008.

Program Committee of the 4th IEEE International Conference on Advanced Learning Technologies (ICALT 2004)

Webmaster and Editorial Board, Journal of Mathematics and Computing, 2006-present.

Webmaster, International Study Group on Ethnomathematics, 1996-present.

Vice President for Communications, North American Chapter of the International Study Group on Ethnomathematics, 2006-present.

Secretary, North American Chapter of the International Study Group on Ethnomathematics, 1996-2006.

Member: American Anthropological Association (1996-present), Coalition for Diversity in Computing (2008-present), Committee for Anthropology of Science, Technology, and Computing (1996-present), Society for Social Studies of Science (1989-present), TODOS (2003-2007), National Council of Teachers of Mathematics (1999-2007), American Studies Association (2000-2002), African Studies Association (1997-1998).