Curriculum Vitae

Mark R. Henderson, Professor
The Polytechnic School
Arizona State University at the Polytechnic Campus
Mesa, AZ 85212

EDUCATION

Ph.D.	Purdue University, Mechanical Engineering, 1984
Secondary Teaching Certificate	University of Michigan, 1975
M.S.M.E.	Purdue University, Mechanical Engineering, 1972
B.S.M.E.	Purdue University, Mechanical Engineering, 1971

ACADEMIC EXPERIENCE:

2019 –	President's Professor Emeritus, ASU.
2016 - 19	Distinguished Sustainability Scientist, Global Institute of Sustainability, ASU
2016	Fellow, PLuS Alliance, ASU/UNSW/Kings College London
2016	President's Professor, ASU
2015 -	Affiliate Faculty, School for the Future of Innovation for Society, ASU
2011-	Associate Dean, Barrett Honors College, ASU.
2011-	Affiliate Faculty, School of Public Affairs, ASU.
2010-11	Program Director, Dept of Technological Entrepreneurship and Innovation Management, College of Technology and Innovation, ASU Polytech.
2010-	Senior Sustainability Scientist, Global Institute of Sustainability, ASU.
2007-	Executive Director, GlobalResolve, Arizona State University.
2007	Leverhulme Visiting Professor, University of Leeds, UK, Spring 2007.
2006-08	Associate Director, Advanced Technology Innovation Collaboratory (ATIC), ASU Polytech.
2005-	Affiliate Professor, Dept. of Industrial Engineering, Arizona State University.
2005-	Professor of Engineering, Department of Engineering, College of Technology and Applied Sciences, Arizona State University at the Polytechnic Campus
2005-08	Fellow, School of Global Studies, Arizona State University
2004-05	Board of Advisors, Partnership for Research in Spatial, Modeling (PRISM), Arizona State University
2003-07	Co-Director, InnovationSpace Entrepreneurship Program
2001-05	Ford Faculty Fellow, College of Engineering, Arizona State University
1997-2005	Professor of Engineering, Industrial Engineering, Arizona State University
1995-2004	Co-Director, Partnership for Research in Stereo Modeling (PRISM), Arizona State University
1995-97	Professor of Engineering, Mechanical and Aerospace Engineering, Arizona State University
1995-97	Co-Director (interim), Manufacturing Institute, Arizona State University (with Co-Director from College of Business)
1994-97	Director, Manufacturing Across the Curriculum, College of Engineering and Applied Sciences, Arizona State University
1994-95	Director (interim), CIM Research Center, Arizona State University
1992-94	Associate Director, CIM Research Center, Arizona State University
1990-95	Associate Professor, Arizona State University
1984-90	Assistant Professor, Arizona State University
1980-84	Research and Teaching Assistant, Purdue University
1974-75	Research Assistant, University of Michigan
1971-72	Research Assistant, Purdue University

PROFESSIONAL EXPERIENCE

2014 - 15	Member, Engineering Advisory Board, Ashesi University, Accra, Ghana.
2014 - 16	Member Advisory Board, GAIA (Growth Alternatives in Action)

2012- 16	<u>Member</u>, Advisory Board, Carbon Roots, Intl, Haiti
2000-2003	<u>Board of Governors</u>, Delta Search Labs, Cambridge, MA.
1990	<u>Summer Faculty</u>, Allied Signal, Phoenix, AZ.
1985-1992	<u>Senior Instructor</u>, Computer Graphics, Integrated Computer Systems, Inc., Culver City, CA
	Computer graphics algorithms and software development, X-Window Programming
1985	<u>Summer Faculty</u>, Sandia National Labs, Albuquerque, NM
	Developed a logic program in Prolog to extract geometric patterns from CAD data
1977-1980	<u>Product Design Engineer</u>, Orthopedic Prostheses, DePuy Mfg., Inc., Warsaw, IN
	Designed and manufactured orthopedic prostheses.
1972-1974	<u>Project Engineer</u>, Airbag Crash Testing, General Motors Proving Grounds, Milford, MI
	Supervised airbag crash tests. Developed improvements in dummy.

PRINCIPAL AREAS OF TEACHING AND RESEARCH

- Global Product Development, Social Entrepreneurship, Innovation in Product Design, Mechanical Design, Mechatronics, Product Development, Feature-based Product Modeling, Rapid Fabrication, Computer-Aided Design and Manufacturing, Computer Graphics, Solid Modeling, Geometric Pattern Recognition, Geometric Modeling

Courses Taught:
> New Product Development, Innovative Product Development, InnovationSpace, Global Engineering Design Teams, Robotics and Automated Manufacturing, Rapid Prototyping, Collaborative Engineering, Computer-aided Manufacturing, Engineering Design, Computer Modeling, Data Structures, Computer Graphics and C++, Geometric and Solid Modeling, Engineering Design Tools, Integrated Product and Process Development (IPPD), Dynamics

HONORS AND DISTINCTIONS

- Fellow, PLuS Alliance, ASU, UNSW, Kings College London
- Named President's Professor, Arizona State University, May 2016
- Humanitarian Award (Making a World of Difference), Tempe Sister Cities, 2014.
- Dean's Award for Excellence in Teaching and Instruction, College of Technology and Innovation, 2012-13
- James W. Creasman Award for Excellence, ASU Alumni Association, 2009
- President's Innovation Award for InnovationSpace, ASU, 2008
- Ford Faculty Fellow, 2001-05
- Professor of the Year, Corporate Leaders Program, College of Engineering, Arizona State University, 1995
- Departmental Nominee, Graduate Teaching Award, 1992
- Presidential Young Investigator, 1987-93.
- Pi Tau Sigma
- Tau Beta Pi
- Sigma Xi

INNOVATION IN UNDERGRADUATE TEACHING/ADVISING

2015	Director, Alliance for Global Impact
2014	Co-PI, Broadening the Reach of Engineering in Community Engagement, NSF
2014	EGR202 Restructuring to allow Practice-Apply Scaffolding.
2006-	Founding Director, GlobalResolve including curriculum, projects, trips, collaborations
2006	Project Director, Hopi Wind Power Project
2005-06	Founding Faculty Member, Engineering Curriculum and Development at Polytech
2003-5	Director, Nomadic Design Team – ASU Undergraduates studying European Design – one week each in four different universities learning design
2002-2005	Co-PI, PREparing Students To work In the Global Economy (PRESTIGE) - Undergraduate Student Mobility between US and EU with 4 EU partner universities, Penn State and U/Washington
1998-2006	Founder and Director, Global Engineering Design Team Program (GEDT) (ASU, Leeds, NTU)

1994-99   PI, Manufacturing Across the Curriculum Grant, NSF $1.3M, funded the Integrated
                 Manufacturing Engineering Laboratory and Student Robot Competition Projects

STUDENT ENTREPRENEURSHIP

* Co-Founder, Daylight Solutions, LLC with Michael Pugliese (Student), Brad Rogers and John Takamura, 2011-13.

STUDENT STUDY ABROAD - GlobalResolve

GlobalResolve Trips (Selected)	Location	Date	Students	Faculty
Exploration, Networking	India	Jan 2006	0	2
Exploration, Networking	Ghana	Sep 2006	0	1
Working Trip in Villages	Ghana	May 2007	2	4
Working Trip in Villages	Ghana	Jan 2008	8	4
Working Trip, install still, dist. water filters	Ghana	Sep 2008	6	1
Working Trip	Ghana	Jul 2009	10	4
Working Trip, Kenya Conference	Ghana, Kenya	May 2010	12	6
Village Immersion Trip	Ghana	May 2011	10	4
Project Organization Trip – Jaipur Foot	India	Jan 2012	0	6
Working Trip – Install Photovoltaics	Navajo Nation	May 2012	18	4
Working Trip – Install MFC Pit Latrine	Ghana	May 2012	2	3
Working Trip – San Antonio Buena Vista	Mexico	Jun 2012	6	1
Working Trip – Biochar for Agriculture	Peru	June 2013	6	2
Exploration, Networking	Cambodia	Mar 2014	0	1
Study Abroad, Working Trip Energy and Ag.	Trinidad & Tobago	May 2014	15	4
Working Trip – San Antonio Buena Vista	Mexico	Jun 2014	6	1
Exploration, Study Abroad Logistics Planning	Nepal	Jan 2015	2	2
Install Solar Grid for Orphanage	Peru	Mar 2015	8	1
Continue Greenhouse Development	Peru	Mar 2016	6	1
Install Generator, Fair Mkt Coffee Processor	Costa Rica	Mar 2016	6	0
Study Abroad Trip Preparation	Nepal	Mar 2017	0	4
Deliver Biochar Capabilities; Install Solar Irrigation	Nepal	May 2017	11	3
Build Volunteer Campsite; AMOR	Mexico	May 2017	8	2
Teach STEM; Build Stoves w/ Prescott College	Kenya	Jun 2017	9	2
		Total	**145**	**59**

STUDENT PROJECTS SUPERVISED

GlobalResolve Independent Projects

* Palm Oil Coop in Ghana, Stephen Annor-Wiafe, CGI Resolution Fellowship, 2014.
* Biochar in Peru, Kathleen Stefanik, IDEO Award Winner, Established non-profit, 2014.
* Smokeless Stove Design, Aaron Smith, ASU Innovation Challenge Winner, 2011.
* Gel Fuel for Smokeless Cooking Team, ASU Innovation Challenge Winner, 2011.
* Twig Light Team, ASU Innovation Challenge Winner, 2011.
* Caleb Rogers, Independent Study, "Global Coordination in Non-collocated Teams", 2013.

- Weather Warning System Team (Tyler Spurlock, Caleb Rogers, Brian Lau, Xiaolong Zou), Ghana, Computing Studies, 2013

iProjects

- iProject Team, Twig Light (Ebony Cleveland, Kevin Flinn, Jacob Armstrong, Matt Cenci, Eric Ramirez, Fidel Hernandez, Nick Gruman), 2009-10.
- iProject, Solar Hot Water (Terry Buntrock, Yolanda Cunjuca, Joseph Gallo, Angie Garcia, Lex McCoy, Jeff Schulze, Ryan Williams), SRP Sponsor, 2011-2012
- iProject Team, Energy for Daily Life (John Houghtelin, Michael Sheppard, Gloria Trejo, Spencer Klimpke, Bryan Bergman, Brent Sucher), 2012-2013.
- iProject Team, Low Cost Hearing Aid for the Developing World, 2015.

Global Engineering Design Team Projects (GEDT)

- GEDT I, 1998-99, 4 Leeds students, 6 ASU students.
- GEDT II, 1999-2000, 5 Leeds students, 6 ASU students, summer internships in opposite country
- GEDT III, 2000-01, 4 Leeds students, 6 ASU students, summer internships
- GEDT IV, 2001-02, 4 Leeds students, 6 ASU students.
- GEDT V, 2002-03, 5 Leeds students, 6 ASU students.
- GEDT VI, 2003-04, 5 Leeds students, 6 ASU students.
- GEDT VII, 2004-05, 4 Leeds students, 5 ASU students.
- GEDT VIII, 2005-06, 4 Leeds students, 4 ASU students.

STUDENT DISSERTATIONS/THESES SUPERVISED

UNDERGRADUATE HONORS THESES

1. Stephen Annor-Wiafe, Palm Oil Entrepreneurship in Ghana, 2017.
2. Derek Sanchez, Business Solutions in Global Development, 2015.
3. Vid Micevic, Honors Thesis, Preparing Students/Agents of Change, 2015.
4. Kaitlyn Fitzgerald, Honors Thesis, Preparing Students/Agents Of Change, 2015.
5. Carolina Lopez and Yihyun Jeong, Honors Thesis, GlobalResolve Website, 2015.
6. Nico Radda, Nate Chaisson, Ian Jacobs, Honors Thesis, Fatigue Testing the Jaipur Foot, 2015.
7. Dan Frigon, Honors Thesis, Vertical Farming, 2014.
8. Connor Wiegand, Honors Thesis, 33 Buckets, 2014
9. Kathleen Stefanik, Honors Thesis, Biochar and GAIA, 2014
10. Pankti Shah, Honors Thesis, 33 Buckets, 2013
11. Martin Cisneros, Honors Thesis, Water is Life, 2013.
12. Paul Strong, Honors Thesis, 33 Buckets, 2013.
13. Mark Huerta, Honors Thesis, 33 Buckets, 2013.
14. Kelsey Booth, Honors Thesis, Theatrical Set Design, 2013.
15. Rawn Richardson, Honors Thesis, Clean Water in Ghana, 2013.
16. Matt Dion, Ethanol Gelling Agent for Gel Fuel, 2012
17. Charlie Tafoya, Honors Thesis, Business Planning in the Developing World, 2008
18. Lucas Rogers, Honors Thesis, Off-grid Refrigeration for the Developing World, 2009
19. Torrey Kolesar, Honors Thesis, Off-grid Refrigeration for the Developing World, 2009
20. Jenny Yi, Honors Thesis, Business Development in Ghana, 2008
21. Vidula Patki, Honors Thesis, Gel Fuel Business Plan, 2008
22. Garret Halbach, Honors Thesis, Gel Fuel Business Plan, 2008
23. Morgan Bellinger, Honors Thesis, Gel Fuel, 2008

MASTERS THESES AWARDED

- Vasudevan, S., *Integration of a Solid Model Database With Planning of Machining Processes*, M.S., Spring 1986.
- Vaitinadin, C., *Development of an Expert System for Discrete Computer Simulation*, M.S., Spring 1986.
- Musti, Satyadev, *Automated Group Technology Part Coding from 3-D CAD Data*, M.S., March 1987.
- Chang, Gwo-Jer, *FRAPP: Feature Recognition and Process Planning from a Solid Model*, M.S., October 1987.
- Razdan, Anshuman, *Feature-based Decomposition of Solid Models for Finite Element Meshing*, M.S., October 1988.
- Kersey, Scott, *Triparametric Volumes for Flow Modeling and Visualization,* M.S., December 1988.
- Hwang, Jyung-Lung, *Recognizing Manufacturing-Specific Features from a Solid Model*, M.S., November 1988.
- Ganu, Prashant, *Using Adjacency Graphs to Separate Features in a Solid Model*, M.S., November 1988.
- Tapadia, Rajendra, *Automatic Derivation of Assembly Part Codes from a Solid Model*, M.S., December 1988.
- Prabhakar, Shashikanth, *An Experiment on the Use of Neural Nets in Form Feature Recognition*, M.S., December 1990.
- Pai , Navin, *An Investigation of Vector and Parallel Processing Applied to Solid Modeling*, M.S., August 1991.
- Liu, Kunh-wel, *Interactive Definition of Feature Patterns and Generic Feature Recognition*, M.S., December 1991.
- Atmakuri, Satya Prakash Reddy, *Recognition of Sculpted Features From a Solid Model*, M.S., August 1991.
- Frayne, Kevin, *The Product Design Risk Metric: A Tool for Determining Product Design Risk* M.S.,, Dec. 1993.
- Walker, Kimberly S., *Predicting Manufacturability Using Group Technology Part Code Variation*, M.S., August 1993.
- Srinath, Gopalkrishna B., *Optimizing Neural Net Input for Form Feature Recognition*, M.S., August 1993.
- Desai, Samir, M.S., 1995
- Sharma, Jaidev, Real Time Solid Modeling using Parallelization, M.S. 1995
- Panicker, Vinod, M.S.E., 1996.
- Lu, Ying, M.S. 1996.
- Phillipson, Darrell, The RP Adviser, M.S. May 1997.
- Rothacker, Tom, M.S.E., Dec. 1997.
- Anthony Montelaro, M.S., Fall 1999, An Evaluation Process for Computer-Aided Manufacturing Planning Systems.
- Gautham Kattethota, M.S., Spring 1999, Surface Finish Optimization Tool for Rapid Prototyping.
- Geoff Duke, M.S.(MAE), Spring 1999, Physical User Interfaces for Three-Dimensional Graphics
- Senthil Ramani, M.S., Spring 2000, The Electronic Supplier Selection System.
- Umadevi Shunmugam, M.S., Spring 2001, Feedback for Automated Manufacturability Evaluation (FAME).
- Bharath Vasudeva Rao, M.S., Spring 2002, Strength Study of Fused Deposition Modeling Prototypes.
- Rabinandan Govravarjanam, MSE, Spring 2002.
- Devamuhunthan, Subburaj, Geometric Reasoning for Modular Fixturing Using Pegs, MS, Summer 2003.

- Venkat Ramamurthy, The Effect of Nozzle Geometry and Other Process Parameters on a Fused Deposition Modeling Acrylonitrile Butadiene Styrene Prototype, M.S., Fall 2003
- Suraj Mohandas, Classification of Shapes Using Discriminant Analysis, M.S., Summer 2003
- Sriram Puthocode, An Application Of Systems Thinking To Supply Base Rationalization, M.S., Summer 2004
- Kai Redinger, A Variation on the Radon transform for Quadric Surface Extraction from Point Clouds, M.S., Fall 2004.

DOCTORAL DISSERTATIONS AWARDED

- Prasad Gavankar, Graph-Based Feature Recognition, Ph.D. May 1989, (Co-Adviser with Prof. Bedworth in IIE)
- J.L. Hwang, Applying the Perceptron to 3-D Feature Recognition, Ph.D., May 1991.
- Chuang, Sheng-Hsiung Frank, Feature Recognition From Solid Models Using Conceptual Shape Graphs, Ph.D., May 1991.
- Min Liu Ye, A Computational Model for Dimensions and Tolerances, Ph.D., Aug. 1992
- Taylor, LeRoy, Meta-Physical Product Modeling, Ph.D., December 1993.
- Stage, Roger, Tool Accessibility Computation for Process Planning, Ph.D., May 1997.
- Suraj Mohandas, Ph.D., Customer Resource Management, 2006.

PUBLICATIONS

- ### *Refereed Journals*

Henry, Legena, J Bridge, M Henderson, J Keleher, M Barry, G Goodwin, D Namugayi, M Morris, B Oaks, O Dalrymple, S Shrake, A Ota, L Azevedo, B Blue, Z Boucher, S Boege, L Hager, T Mack, K Thompson, D Rodak, B Harding, B Liu, S Zhu, J Loveall, M Chavez, *Key factors around ocean-based power in the Caribbean Region via Trinidad and Tobago*, **Renewable and Sustainable Energy Reviews**, 2015.

Castro, Cynthia J., J. E. Goodwill, B. Rogers, M. Henderson and C. Butler, Deployment of the microbial fuel cell latrine in Ghana for decentralized sanitation **Journal of Water, Sanitation and Hygiene for Development,** Vol 4, No 4, pp 663–671, 2014.

Bilén, S.G., Devon, R.E., Henderson, M.R., Nguyen, H., *Global Approaches to Teaching Global Design: Stakeholders, Programmes and Assessments*, **World Transactions on Engineering and Technology Education**, Vol.3, No.1, 2004 (http://www.eng.monash.edu.au/uicee/worldtransactions/TOC5.htm).

Henderson, M*., Global Engineering Education: Issues, Strategies and Predictions*, **Journal of Design Research**, Vol 4, 2004, http://jdr.tudelft.nl/

Stage, R., C. Roberts, M. Henderson, *Generating Resource Based Flexible Manufacturing Features Through Objective Driven Clustering*, **Computer-Aided Design**, 31 (1999), pp. 119-130.

Roberts, C., Hubele, N., Henderson, M. and Stage, R*., Manufacturing Evaluation Using Resource based Template-free Features*, **Journal of Intelligent Manufacturing**, 8(4): 323-331, 1997.

Gavankar, P. S., Henderson, M. R*., Graph-based Extraction of Two-connected Topological Features From Boundary Representations*, **Journal of Intelligent Manufacturing**, vol. 6, pp. 401-413, 1995.

Chuang, S.H. Frank and M.R. Henderson*, Using Subgraph Isomorphisms to Recognize and Decompose Boundary Representation Features*, **Journal of Mechanical Design**, September 1994, pp 793-800.

Golshani, F., Nielson, G.M. and M.R. Henderson, *Multimedia Processing in Concurrent Engineering*, **Concurrent Engineering-- Research and Applications, An International Journal**, 1994 (2), pp 137-142.

Henderson, M.R. and L.E. Taylor*, A Meta-Model for Mechanical Products Based Upon the Mechanical Design Process*, **Research in Engineering Design**, Vol. 5, nrs 3 & 4, 1993, pp 140-161.

Prabhakar S. and M.R. Henderson, *Automatic form-feature recognition using neural-network-based techniques on boundary representations of solid models*, **Computer-Aided Desig**n, v. 24, n 7, July 1992, pp 381-393.

Hwang, J.L. and M.R. Henderson, *Applying the Perceptron to Three-Dimensional Feature Recognition*, **Journal of Design and Manufacturing**, December 1992, vol. 2, n. 4, pp.187-198

Chuang, S-H. and M. R. Henderson, *Compound Recognition by Web Grammar Parsing*, **Research in Engineering Design**, (1991), no. 2, pp 147-158.

Chuang, S.H. and M.R. Henderson, *Three-Dimensional Shape Pattern Recognition Using Vertex Classification and the Vertex-Edge Graph*, **Computer-Aided Design Journal**, vol. 22, no. 6, July/August 1990, pp. 377-387.

Tapadia, R.K., and Henderson, M.R., *Using a Feature-based Model for Automatic Determination of Assembly Handling Codes*, **Computers and Graphics**, 14, No. 2, 1990, pp. 251-262.

Gavankar, P. and M.R. Henderson, *Graph-Based Extraction of Protrusions and Depressions from Solid Models*, **Computer-Aided Design Journal**, Sept. 1, 1990, vol 22 no.7, pp. 442-448.

Billo R., M.R. Henderson and R. Rucker, *Applying Conceptual Graph Inferencing to Feature-Based Engineering Analysis*, **Computers in Industry**, no. 13, 1989, pp. 195-214.

Henderson M.R. and S. Musti, *Automated Group Technology Part Coding from a Three Dimensional CAD Database*, **ASME Transactions Engineering for Industry**, August 1988.

Henderson M.R. and D.C. Anderson, *Computer Recognition and Extraction of Form Features: A CAD/CAM Link,* **Computers in Industry**, vol 4, no 5, 1984, pp. 315-325.

Razdan A., M.R. Henderson, P. Chavez and P.E. Erickson, *Feature-Based Object Decomposition for Finite Element Meshing*, **The Visual Computer**, January 1990, pp. 291-303.

Staley, M.R. Henderson and D.C. Anderson, *Using Syntactic Pattern Recognition to Extract Feature Information from a Solid Geometric Data Base*, **Computers in Mechanical Engineering (CIME),** V2, N2, September 1983, pp 61-66.

Link, J.L. Glover, M.R. Henderson, J.L. Edwards, P.B. Yaw and F.P. Incropera, *Wound Healing of Mouse Skin Incised with a Plasma Scalpel*, **Journal of Surgical Research**, V 14, N 6, June 1973, pp 505-511.

Link, W.J., F.P. Incropera and M.R. Henderson, *A Model for Tissue Response to High-Intensity Energy Sources*, **Medical and Biological Engineering**, March 1974, pp.199-207.

Henderson, M.R., W.J. Link and F.P. Incropera, *Gas Transport Resulting from Plasma Scalpel Surgery*, **Medical and Biological Engineering**, March 1974, pp. 208-213.

- ## *Books/Book Chapters*

O'Neill, D, M Henderson, J Takamura, B Rogers, *Frugal Innovation*, in **Doing Good While Doing Well: Academic Programs in Engineering and Entrepreneurship Which Impact the Other 90%,** in Press, 2012.

Bedworth, D., M. Henderson and P. Wolfe, **Computer-Integrated Design and Manufacturing**, McGraw-Hill, 1991.

Henderson, A *Workbench to Evaluate Feature Definition Techniques in Automated Analysis*, Refereed Book Chapter, **Geometric Modeling for Product Engineering,** December 1989, North-Holland Publishers.

Henderson, M.R. and A. Razdan, *Feature-based Neighborhood Isolation Techniques for Automated Finite Element Meshing,* Refereed Book Chapter, **Geometric Modeling for Product Engineering**, December 1989, North-Holland Publishers.

Henderson, M.R., *Manufacturing Feature Identification*, in **Artificial Neural Networks for Intelligent Manufacturing** (Cihan H. Dagli, ed.), Chapman and Hall, London, 1994 (ISBN 0-412048050-6), pp 229-264.

Henderson, M.R., *Overview of Feature Recognition*, Preface to papers on Feature Recognition: **Geometric Modeling for Product Engineering,** December 1989, North-Holland Publishers.

Henderson, M.R., Srinath, G., Stage R., Walker, K., Regli, W., *Boundary Representation-based Feature Identification*, Refereed Book Chapter in **Advances in Feature Based Manufacturing** (J.Shah, ed.), Elsevier-North Holland Publishers, Amsterdam, ISBN 0-444-81-600-3, pp. 15-38, 1993.

Nielson, G.M. and M.R. Henderson, *Visualization in Concurrent Engineering*, in **Concurrent Engineering Techniques and Applications** (C.T. Leondes, ed.), Academic Press, 1994 (ISBN 0-12-012762-8), pp 227-274.

- ### *Refereed Conferences*

Ramakrishna, BL, B Rogers and M Henderson, Evolution of Humanitarian Engineering, Conference on Engineering Education for Sustainable Development, Vancouver, June 9-12, 2015.

Carberry, A, N Johnson, M Henderson, Work-in-Progress: A Practice-then-Apply Scaffolding Approach to Engineering Design Education, IEEE Frontiers in Education, Madrid, Spain, October 2014.

O'Neill, D, M Henderson, J Takamura, B Rogers, *From Frugal Design to Frugal Innovation*, NSF Workshop on Research in Materials and Manufacturing for Extreme Affordability, Ball State University, March 17-20, 2011.

Henderson, M., Bekki, J., Doss, A., Tsang, J., Akhavan, O., Creating Supply Chains for New Ventures in Developing Countries, NCIIA Conference, San Fancisco, March 25-27, 2010.

Rogers, B., Pugliese, M., Henderson, M., The Twig Light: Ultra Low-Cost Lighting in Ghana, NCIIA Conference, San Francisco, March 25-27, 2010.

Rogers, B., Henderson, M., Gintz, J., Danielson, S., The Development Of A Gel Fuel Processing System For Use In Rural Ghana, Proceedings of the ASEE Annual Conference, June 2008, Pittsburgh, PA.

Yasar, S, Henderson, M, McKay, A, Roberts, C, de Pennington, A, Comparing The Design Problem Solving Processes Of Product Design And Engineering Student Teams In The Us And Uk, Proceedings of the ASEE Annual Conference, June 2008, Pittsburgh, PA.

Rogers, B, Henderson, M, Sugar, T, Roberts ,C, The Development Of A Water Purification System For Use In West Africa, Proceedings of the ASEE Annual Conference, June 2008, Pittsburgh, PA.

Henderson, M, Rogers, B, The Development Of An Economic Model For Biodiesel Production In Ghana, Proceedings of the ASEE Annual Conference, June 2008, Pittsburgh, PA.

Henderson, M., Rogers, B., Jacobson, D., Sinha, R., GlobalResolve: Social Entrepreneurship Opportunities for Transdisciplinary Global Teams, Proceedings of Harvey Mudd Design Workshop, May 2007, Claremont, CA.

Roberts, C., Yasar, S., Morrell, D., Henderson, M., Danielson, S., Cooke, N., A Pilot Study Of Engineering Design Teams Using Protocol Analysis, Proceedings of the 2007 ASEE Annual Conference, June 2007, Honolulu, HI.

Morrell, D., Hinks,. R., Henderson, M., Development Of Engineering Connections Environments To Contextualize Engineering Content Modules, Proceedings of the 2007 ASEE Annual Conference, June 2007, Honolulu, HI.

Roberts, C., Morrell, D., Henderson, M., Danielson, S., Hinks, R., Grondin, R., Sugar T., Kuo, C., An Update On The Implementation Of A New Multidisciplinary Engineering Program, Proceedings of the 2007 ASEE Annual Conference, June 2007, Honolulu, HI.

Roberts, C., Yasar, S., Henderson, M., Toward The Development Of An Empirically-Based Understanding Of Engineering Design Teams, Proceedings of the 2007 ASEE Annual Conference, June 2007, Honolulu, HI.

Rogers, B., Henderson, M., Integration Of A Wind Power Assessment Project Throughout The Undergraduate Curriculum, 2007 American Society for Engineering Education Annual Conference and Exposition, Honolulu, HI, June 2007.

Henderson, M.R., Rogers, B., Danielson, S., Using A Wind Power Assessment Project On The Hopi Reservation As A Problem-Based Learning Experience For Undergrad And Graduate Students, 2006 ASEE Annual Conference & Exposition, June 18-21, 2006, Chicago, IL.

Henderson, M.R., Producing Globally Competent Engineers: Results Of Two Workshops, 2006 ASEE Annual Conference, June 18-21, 2006, Chicago, IL.

Gannod, B., Gannod, G., Henderson, M., "Curriculum Validation Through Stakeholder Assessment and Curriculum Gap Elimination,", 2005 American Society for Engineering Education Annual Conference and Exposition, Portland, OR,, June 2005.

Danielson, S., M. Henderson, C.-Y. Kuo, C. Roberts, D. Morrell, R. Grondin, R. Hinks, and T. Sugar, "A Clean Slate: Designing a Mechanical Systems Concentration Within a New Engineering Program," 2005 International Mechanical Engineering Conference and Exposition, November 2005.

Morrell, D., C. Roberts, R. Grondin, C.-Y. Kuo, R. Hinks, S. Danielson, and M. Henderson, "A Flexible Curriculum for a Multi-disciplinary Undergraduate Engineering Degree," FIE 2005, October 2005.

Roberts, C., D. Morrell, R. Grondin, C.-Y. Kuo, R. Hinks, S. Danielson, and M. Henderson, "Developing a Multidisciplinary Engineering Program at Arizona State University's East Campus," 2005 American Society for Engineering Education Annual Conference and Exposition, June 2005.

Patel, M., Rothstein, P., Hershauer, J., Henderson, M., InnovationSpace: Redefining Innovation and New Product Development, DETM 2005 (Design Education: Tradition and Modernity), Ahmedabad, INDIA, March 2-4, 2005.

Puthucode, S., Verdini, W., Henderson, M., An Application Of Systems Thinking To Supply Base Rationalization,, PICMET 2005, Portland, OR, July 31-Aug 4, 2005.

Roberts, C., Morrell, D., Grondin, R., Kuo, C., Hinks, R., Danielson, S., Henderson, M., Developing a Multidisciplinary Engineering Program at Arizona State University's East Campus, ASEE Conference, Indianapolis, IN, Oct. 19-22, 2005.

Gannod, Barbara D., Gerald C. Gannod, and Mark R. Henderson, Development and Utilization of a Process for Incorporating Constituent Feedback Into Curriculum Improvement , in Proceedings of the 2005 ASEE Annual Conference, Portland, OR, June 12-15, 2005.

Mohandas, S., Sinha, R., Henderson, M., Customer-Centric Order Management System – A Basic Framework, PICMET 2005, Portland, OR, July 31-Aug 4, 2005.

Mohandas, S., Henderson, M., Shape Discrimination, Pattern Matching, IEEE Transactions on Pattern Analysis and Machine Intelligence, in review.

Ramamurthy, V., Henderson, M., The Effect of Nozzle Profile on the Strength and Quality of Fused Deposition Prototypes, Journal of Rapid Prototyping, in review.

Shunmugam, U., M. Henderson, S. Krishnamurthy, (2002) Graphical Feedback For Improved Product Design and Production, Proceedings ASME 2002 Design Engineering Technical Conferences, Montreal, Canada, Sept. 29-Oct. 2, paper no. DETC2002/DFM-34184, CD Archive.

Montelaro, A, M. Henderson, C. Roberts, N. Hubele, C. Hayes, S.K. Gupta, (2002) A Comparison Method for Automated Manufacturability Analysis Systems (AMAS), Proceedings of IMECE2002, ASME, New Orleans, Nov. 17-22, paper number IMECE2002-DE-34424, CD archive.

Henderson, Mark, Alan de Pennington, Jim Baxter, Valana Wells Arizona State University/University of Leeds/University of Leeds/Arizona State University, *The Global Engineering Design Team: An Undergraduate Experience*, American Society for Engineering Education, St. Louis, MO, June 18-21, 2000, CD proceedings.

Henderson, M., C. Barnes, *The Global Engineering Design Team (GEDT)- Transatlantic Team-based Design for Undergraduates*, Global Engineering Education Conference, Aachen, Germany, Oct. 18-20, 2000, Online Proceedings.

Vasudevarao, B., M. Henderson *Sensitivity of RP Surface Finish to Process Parameter Variation*, Solid Freeform Fabrication Symposium, Austin, TX, Aug. 7-9, 2000, CD ROM Proceedings.

Ramani, S.; Henderson, M.; Shunk, D.; Carlyle, M.; Carter, P., *ES3-Electronic Supplier Selection System*, Management of Engineering and Technology, 2001. PICMET '01. Volume: 1, DOI: 10.1109/PICMET.2001.951897

Ramani, S, M.R. Henderson and D.L. Shunk, *FOTC: Using the Web for Brokered Manufacturing Supply Chain Selection*, AMSMA '2000 (International Conference on Advanced Manufacturing Systems and Manufacturing Automation), Guangzhou, China, Fall 2000.

Henderson, M., M. Stratton, *Recommendations for Curricular Change for Product Realization*, ASME Department Heads Conference, Ft. Lauderdale, FL, March 2000.

A. Razdan, D. Liu, M. Bae, M. Zhu,G. Farin, A. Simon, M. Henderson. Using Geometric Modeling for Archiving and Searching 3D Archaeological Vessels, CISST 2001, Las Vegas, NV, June 25-28, 2001

Baxter, J., M. Henderson, C. Barnes, T. Bourdo, A. de Penington, Valana Wells, Global Engineering Design Team (GEDT) - A Business View on Structuring Undergraduate Projects, 2001 ASME Design Engineering Technical Conferences, International Issues in Engineering Design, September 9-12, 2001, Pittsburgh, Pennsylvania

Murugan, A., Roberts, C. and Henderson, M. , An Evaluation of Tool Accessibility Techniques for Manufacturability Analysis CAD Conference, Neuchatel, Switzerland, Feb. 22-24, 1999. USA

Henderson, M.R., G. Kattethota, C. Roberts, An Infrastructure for Manufacturing Evaluation**, CAD Conference**, Neuchatel, Switzerland, Feb. 22-24, 1999.

Razdan, A., Henderson .M. and Collins, D. From Art to Engineering: Pervasive RP Activities at Arizona State University, **Proceedings of the Solid Freeform Fabrication Symposium**, Austin, Texas, Aug. 10-12, 1998, pp. .221-228.

Kattethota, Gautham and Henderson, M., A Visual Tool to Improve Layered Manufacturing Part Quality"; **Proceedings of the Solid Freeform Fabrication Symposium**, Austin, Texas, Aug. 10-12, 1998, pp. 327-334.

Henderson, M.R. and D. Phillipson, The RP Advisor, **Proceedings of European Conference on Rapid Prototyping**, University of Nottingham, July 1997, pp346-358.

Stage, R., C. Roberts, M. Henderson, A Framework For Representing And Computing Tool Accessibility**, 1997 ASME Design Engineering Technical Conference**, September 14-17, 1997, Sacramento, Calilfornia. Paper no. DETC97/DFM-4323.

Hubele, N., Henderson, M. and Roberts, C., "A Frame work for Feature-based Manufacturing Evaluation Using Statistical Process Control Information," **Sixth National Symposium Statistics & Design in Automated Manufacturing**, ASU, Tempe, AZ, February 17-19, 1997.

Henderson, M.R. and G. Srinath, *Optimizing Feature Recognition with Neural Nets*, **Proceedings of ISATA96**, Florence, Italy, June 2, 1996, pp. 482-491.

Roberts, C., Stage, R., Hubele, N., Henderson, M. and Perez, E.,(1996) "A New Approach to Manufacturing Features for Evaluation and Operational Planning **IFIP WG5.2 Workshop on Geometric Modeling in Computer-Aided Design**, Airlie, VA, May 18-23.

Roberts, C., Stage, R., Hubele, N., and Henderson, M. (1996), Manufacturability Analysis for Cost, Time and Quality Using Resource-based Free-form Features**, IFIP WG5.2 Workshop on Geometric Modeling in Computer-Aided Design**, Airlie, VA, May 18-23.

Roberts, C., Hubele, N., Henderson, M., Stage, R. and Lawrence, F. (1996), Generating High-Quality, Low Cost Designs Using Intelligent Clustering, **5th Industrial Engineering Research Conference**, Milwaukee, WI, May 19.

Roberts, C., Henderson, M. and Hubele, N., "An Architecture for Feature-based Manufacturing Evaluation Using Statistical Process Control Information**," 2nd Industrial Engineering Research Conference**, Los Angeles, May 26-27 1995

Taylor L.E. and M.R. Henderson, *Validating A Feature-Based Meta-Model for Mechanical Products: A Case Study*, **IFIP Conference on Feature Modeling and Recognition in Advanced CAD/CAM Systems**, Valenciennes, France, May 24-26, 1994, pp. 21-40.

Taylor, L.E. and Henderson, M.R., *The Role of Features and Abstraction in Mechanical Design*, **1994 ASME Design Theory and Methodology Conference Proceedings**, Minneapolis, MN, September 11-14, 1994, pp 131-140.

Henderson, M.R., "Trends and Opportunities in CAD and Product Development," SMAU '94:, The International Exhibition of Information Technology, Telecommunications and Office Products, Milan, Italy, October 13-18, 1994.

Incropera, F.P, Henderson, M.R., Anderson, D.C., Huebner, K.H., Kinzel, G.L. and Lorenc, V.P., *Modern Design Tools*, **Proceedings of ASME Innovations in Engineering Design Education Conference**, Orlando, FL March 1993, pp169-172.

Toh, S.P. and M.R. Henderson, *An optimal Object Representation for Aspect Classification*, **Proceedings of 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems**, Raleigh, NC, July 7-10, 1992.

Prabhakar, *Feature Recognition in Engineering Parts Using a Neural Network Approach*, **Fourth International Conference on Industrial & Engineering Applications of Artificial Intelligence and Expert Systems,** Kauai, Hawaii, June 1991.

Prabhakar, S. and M.R. Henderson, *Use of Neural Nets for Feature Recognition in Engineering Parts***, Proceedings of the 1991 NSF Design and Manufacturing Systems Conference**, Univ. of Texas at Austin, Austin, TX, January 9-11, 1991, pp. 557-562.

Hwang, J-L. and M.R. Henderson, *Applying the Perceptron to 3-D Feature Recognition*, **Proceedings of the Conference for Applications of Neural Nets in Engineering**, St. Louis, Mo. November 14, 1991.

Henderson and S. Prabhakar, "Using Distributed Parallel Computing for Form Feature Recognition," IFIP Working Group Meeting on Geometric Modeling, Rensselaerville, NY, September 1990.

Henderson, M.R. and S. Prabhakar, *Using Distributed Parallel Computing for Form Feature Recognition*, **IFIP Working Group 5.2 Proceedings on Geometric Modeling**, Rensselaerville, NY, September 1990.

Henderson M.R., P. Gavankar, S. Chuang, P. Ganu, *Graph-Based Feature Recognition Methods From Boundary Models*, **Proceedings of the First International Workshop on Formal Methods in Engineering, Design, Mfg. and Assembly**, Colorado State University, Fort Collins, CO, January 15-17, 1990.

Henderson, *Features in Analysis*, First Symposium for NSF Presidential Young Investigators, IBM Watson Labs, Yorktown, NY, April 24-26, 1989.

Henderson and A. Razdan, *Feature-based Neighborhood Isolation Techniques for Automated Finite Element Meshing,* Refereed Book Chapter, **Geometric Modeling for Product Engineering**, December 1989, North-Holland Publishers.

Henderson, M.R. and G.J. Chang, *FRAPP: Automated Feature Recognition and Process Planning from Solid Model Dat*a, **Proceedings of ASME Computers in Engineering Conference**, San Francisco, CA, Volume 1, August 1988.

Henderson, M. R., *CODER: Automated Part Coding from CAD Data,* invited paper at **ORSA/TIMS Conference**, Washington, D.C., April 1988.

Chavez, P.F., M.R. Henderson and A. Razdan, *Automatic 3-D Finite Element Modeling Using Solid Model Data and AI Techniques*, **Proceedings of ASME Computers in Engineering Conference**, San Francisco, CA, Volume 3, August 1988.

Henderson and G.J. Chang, *FRAPP: Automated Feature Recognition and Process Planning from Solid Model Dat*a, **Proceedings of ASME Computers in Engineering Conference**, San Francisco, CA, Volume 1, August 1988.

Henderson, M.R., *Automated Group Technology Part Coding from a 3-Dimensional CAD Database*, **Proceedings of the ASME Winter Annual Meeting,** Anaheim, CA, November 1986.

Henderson M.R. , *Extraction and Organization of Form Features*, **Software for Discrete Manufacturing: Proceedings of Sixth PROLAMAT Conference**, June13-15, 1985, Paris, France.

Henderson, M.R., *Expert Systems Applied to CAD/CAM Integration: A Case Study,* **CIM Conference**, May 15-16, 1985, NC State University, Raleigh, NC.

Neathery, R.F., M.R. Henderson, H.J. Mertz and R.P. Hubbard, *The Safety Research Institute Dummy Compared with General Motors Biofidelity Recommendations and the Hybrid II Dummy*, paper no. 740558, **Society of Automotive Engineers**, Troy, Michigan, 1974.

- ### *Reviewed Publications*

Henderson, M.R. and L.E. Taylor, *The Modeling of Function in Mechanical Design*, (R92-PMP-05), Computer-Aided Manufacturing, International, Arlington, Texas, 1992.

Henderson, M.R., , *Feature-based Analysis and Feature Recognition,* at CAM-I Process Planning Meeting, Dallas, February 1989.

Henderson, M.R, *Feature Applications in CAD/CAM*, CAM-I Conference, January 22, 1986, San Diego, CA.

Henderson, *Feature Applications in CAD/CAM*, Invited Speaker, CAM-I Conference, January 22, 1986, San Diego, CA

Henderson, *Feature Recognition in Geometric Modeling*, Proceedings of CAM-I's 13th Annual Meeting and Technical Conference, Clearwater Beach, Florida, November 12-15, 1984.

- ### *Unreviewed Publications*

Montelaro , A. Henderson, M., Hubele, N. and Roberts, C. (2000) Integrated Cost, Time and Quality Manufacturing Evaluation for Design Feedback, NSF Grantees Conference, Vancouver, BC, January, NSF Publications.

Henderson, M.R., C.A. Roberts, N.F. Hubele, Computing Tool Accessibility, NSF Grantees Conference, Monterey Mexico, Jan. 5-9, 1998.

Henderson, M.R., C.A. Roberts and N.F. Hubele, Feature-based Manufacturing Evaluation Using Statistical Process Control, Proceedings of 1996 NSF Grantees Conference, Univ. of New Mexico, Jan. 2-5, 1996, pp.133-134.

Henderson, M.R., N.F. Hubele, C.A. Roberts, R.W. Stage, C.C. Chang and M.E. Cromley, "Feature-based Manufacturing Evaluation, NSF Conference for Grantees, 1995.

Henderson, M.R. and S. Prabhakar, "Using Neural Nets for 3-D Feature Recognition," NSF Grantee's conference, Austin, TX, January 1991.

Henderson M. R. , S. Chuang, P. Ganu, P. Gavankar, *Graph-Based Feature Extraction,* NSF Grantees Conference, January 1990, Tempe, AZ, p. 183-189.

Henderson, *Research in Feature-Based Manufacturing,* NSF Grantees Conference, January 1990, Tempe, AZ.

- ### *Presentations*

Henderson, M., Global Project Experiences, PLuS Alliance Conference, Sydney, Australia, July 20, 2017

Henderson, M., Alliance for Global Impact, Ashoka U, New Orleans, LA, Feb 26, 2016.

Henderson, M., Humanitarian Engineering at ASU, Deans Institute, American Society of Engineering Education, April 2015, Kiawah Resort, South Carolina.

Rogers, Brad, M Henderson, The Humanitarian Engineering Degree Program at ASU, American Society of Nepalese Engineers, www.asnengr.org, June 12, 2014, Tempe, AZ.   Arizona State University, Tempe, AZ, USA

Henderson, M., The Value of Diverse Teams in Social Entrepreneurship, Invited Presentation, IEEE Global Humanitarian Technology Conference, Seattle, Oct. 31, 2011.

Henderson, M., Using Human Centered Design in GlobalResolve Social Entrepreneurship, Invited Presentation, ASME International Mechanical Engineering Congress, Denver, CO, November 13, 2011.

Henderson, M., The Strategic Use of Failure in Social Entrepreneurship, Invited Presentation, Engineering Social Innovation Forum, Columbia University, October 8, 2011.

Henderson, M., GlobalResolve, Invited Presentation, Rotary International Chapter Meeting, Tempe, AZ, October 17, 2011.

GlobalResolve – The Challenges, Invited Talk at Skysong Innovation Challenge, February 2011.

Global Product Development, Invited Talk, NSF Workshop on Multi-Disciplinary Engineering Design, Arlington, Va, May 2008.

Creating A New Curriculum for Problem-Based Learning, Leverhulme Lecture, Leeds University, February 22, 2007.

An Introduction To InnovationSpace, Leverhulme Lecture, Leeds University, February 27, 2007.

Assessing Cognitive Processes In Design Activities, Leverhulme Lecture, Leeds University, March 1, 2007.

Global Engineering, Leverhulme Lecture, Leeds University, March 6, 2007.

Social Entrepreneurship And Engineering Education, Irish Engineering Society, Dublin, Ireland, March 8, 2007.

Global Engineering Design, Dulbin City University, Dublin, Ireland, March 8, 2007.

Invited Keynote Speaker, Sixth International Symposium on Tools and Methods of Competitive Engineering, TMCE 2006, Ljubljana, Slovenia, April 2006.

Global Engineering Education, Invited Presentation, University of Minnesota, Department of Mechanical Engineering, September 18, 2005.

Invited Talk, "Feature Recognition in Organic Shapes, Heriot-Watt University, Edinburgh, Scotland, January 2004.

Global Engineering Workshop Outcomes, SAE conference on Aerospace, St. Louis, MO, Sept. 11-15, 2004.

Global Engineering Education, 7th Annual International Colloquium on International Engineering Education, September 30 - October 3, 2004, Providence, Rhode Island.

Panel Member, Industry/University Educational Collaboration, NSF Grantees Conference, Monterrey Mexico, Jan. 8, 1998.

Invited Speaker, Features and Product Modeling, University of Neuchatel, Neuchatel, Switzerland, July 1997.

Product Modeling, Presented at SDRC, Cincinnati, Ohio, July 25, 1996.

Invited Speaker, Trends and Opportunities in CAD and Product Development, SMAU '94: The International Exhibition of Information Technology, Telecommunications and Office Products, Milan, Italy, October 13-18, 1994,

Henderson, M.R., Keynote Speaker, Pro/Engineer User Group Meeting, Back to the Feature, Orlando, FL June 6, 1993.

Henderson, M.R., Concurrent Engineering and World Class Manufacturing, Digital Symposium, Phoenix Hilton, October 1993.

Instructor, Concurrent Engineering Short Course, ASU CIM Research Center, Feb. 1993.

Instructor, Feature-Based CAD with Jami Shah, Professional Development Short Course, ASU, January 1993

Keynote Speaker, Pro/Engineer User Group Meeting, Back to the Feature, Orlando, FL June 6, 1993.

Henderson, M.R., Process Design and the Symposium Results, Invited Presentation, Process Design Symposium, Digital Equipment Corp., St. Louis, MO, March 1992.

Instructor, Concurrent Engineering Short Course, Digital Equipment Corp, Chelmsford, MA, Feb, 1992

Instructor, X-Window Programming, 4 day short course, 1990-94.

Henderson, Feature-based Analysis and Feature Recognition, invited presentation at CAM-I Process Planning Meeting, Dallas, February 1989.

Invited presentation, Feature-based Analysis and Feature Recognition, at CAM-I Process Planning Meeting, Dallas, February 1989.

Invited presentation, Features in Analysis, First Symposium for NSF Presidential Young Investigators, IBM Watson Labs, Yorktown, NY, April 24-26, 1989.

Henderson, M.R., Solid Modeling Tutorial, NCGA meeting at ASU, March 1989.

Henderson, M.R., National Computer Graphics Association Local Chapter Conference, October 25, 1988, Westcourt in the Buttes, Tempe, AZ.

Instructor, CAM-I Product Modeling Short Course, Pleasanton, CA, June 6-10, 1988.

Invited speaker, NCGA meeting at ASU, March 1989.Invited speaker, National Computer Graphics Association Local Chapter Conference, October 25, 1988, Westcourt in the Buttes, Tempe, AZ.

Henderson, M.R., National Computer Graphics Association Local Chapter Conference, Tempe Mission Palms, October Invited speaker, National Computer Graphics Association Local Chapter Conference, Tempe Mission Palms, October 27, 1987

Invited Talk on Concurrent Engineering, APICS meeting, 1/16/92, Phoenix

Speaker, NCGA meeting at ASU, March 1989.

Speaker, National Computer Graphics Association Local Chapter Conference, October 25, 1988, Westcourt in the Buttes, Tempe, AZ.

Instructor, Solid Geometric Modeling Short Course, UCLA Extension, 4 day short course, February 1987 and February 1988.

Speaker, National Computer Graphics Association Local Chapter Conference, Tempe Mission Palms, October 27, 1987

Henderson, M.R., Applications of Artificial Intelligence in Manufacturing, Invited speaker, Borg-Warner Research and Development Labs, DesPlaines, IL, December, 1986.

Instructor, IEEE seminar on Computer Graphics, Radisson Resort, Scottsdale, Jan 1986.

Invited Speaker, Feature Applications in CAD/CAM, CAM-I Conference, January 22, 1986, San Diego, CA.

Henderson, M.R., Feature Applications in CAD/CAM, Invited Speaker, CAM-I Conference, January 22, 1986, San Diego, CA.

Instructor, Motorola CIM Center Workshop, ASU, Fall 1985.

Henderson, M.R., Applications of Feature Recognition in CAD/CAM Integration, Invited Colloquium Speaker, Boeing Computer Services, Artificial Intelligence Center, Seattle, September 13, 1985

Instructor, Computer Graphics: Software and Hardware, 4 day Short Course offered by Integrated Computer Systems, Culver City, CA, 1985-89.

Instructor, GEOMOD solid modeler seminar, CIMSYRC/ASU, November 1984.

• *Invited Workshops and Conferences*

*RIMMEA (Research in Materials and Manufacturing for Extreme Affordability), NSF Workshop, Ball State University, March 18-19, 2011.

*Sustainable Vision Teaching Lab, NCIIA Workshop, Colorado State University, Ft. Collins, CO, June 13-17, 2011.

*Engineering Faculty Engagement in Learning Through Service (EFELTS), NSF Workshop, Boulder, CO, September 23-24, 2011.

RESEARCH GRANTS

SPONSORED FUNDING - GRANTS (TOTAL APPROX. $6M)

Project Title	Duration	Sponsor	Amount	Principal Investigator
Broadening the Reach of Engineering through Community Engagement (BRECE) Scholars Program	2013-2017	NSF	$650,000	Shawn Jordan
WATSAN Joint Course Development with IIT Delhi	2013-2015	NCIIA	$37,400	M. Henderson
Redesign of the Jaipur Foot	2011-2013	ASME	$40,000	M. Henderson

Bioelectricity Generation from Domestic Waste: The Microbial Fuel Cell Pit Latrine	2011-2013	Gates Foundation	$100,000	Caitlyn Butler
Development of the Twig Light	2009-2010	NCIIA	$17,000	B. Rogers
Development of a GlobalResolve Capstone Course	2009	ASU Kauffman Foundation	$25,000	M. Henderson
Study of Gel Fuel Business in Ghana	2008	NCIIA	$45,000	M. Henderson, B. Rogers
GlobalResolve Ghana Trip for Honors Students	2007	Barrett Honors College	$12,000	M. Henderson
GlobalResolve Ghana Trip	2008	ASU Entrepreneurship Office	$7,500	M. Henderson
GlobalResolve: Infrastructure and Education Support	2008	Kauffman Fund at ASU	$35,000	D. Jacobson, M. Henderson
Development of a Gel Fuel Stove	2008	Women & Philanthropy	$50,000	B. Rogers, M. Henderson
GlobalResolve: Gel Fuel Development	2007	NCIIA	$50,000	M. Henderson
GlobalResolve: Entrepreneurship for Developing Villages	2006	NCIIA	$5,000	M. Henderson
Global Engineering Design Team	2005-06	Honeywell	$6,000	M. Henderson
USAID (Tec de Monterrey)	2004-2007	USAID	$300,000	M. Henderson, R. Villalobos J. Fowler
Global Engineering Design Team	2003-2005	Honeywell	$12,000	M. Henderson
PRESTIGE - Student Mobility between US and EU with 4 EU partner universities, Penn State and U/Washington	2002-2005	FIPSE	$180,000	M. Henderson R. Devon (Penn State) R. Storch (U/Washington)
Global Engineering Design Team	1999-2005	Boeing	$140,000	M. Henderson
Communications for Global Design	2000	CRESMET (ASU)	$10,000	M. Henderson
3D Knowledge: A Shape Browser	1999-2002	NSF (KDI)	$1,500,000	A. Razdan, et al.
Rapid Fabrication Consortium (PARfC)	1998-2000	Various Companies	$100,000/year	M. Henderson, A. Razdan
Feature-Based Manufacturing Evaluation	1997-2000	NSF	$600,000	N.Hubele, M. Henderson, C. Roberts
Holistic Mfg. Education	April 94-Oct 1997	NSF (TRP) &Industry	$3,000,000 (incl.match)	M.R. Henderson, P.I. (+ 7 Co-PI.s)
Feature-based Mfg. Evaluation	Jul 93-Jul 96	NSF	$190,000	M.R. Henderson, N. Hubele, C. Roberts
Global Positioning System	Aug 93-May 94	Motorola	$27,860	M.R. Henderson, D. Shunk
CAD Tools	Oct 93-Feb 94	Hughes	$48,000	M.R. Henderson, R. Thomas
Simulation-based Fac. Design	Sept 93-May 94	Hughes	$67,960	M.R. Henderson, R. Rucker
Functional Modeling	Aug 93- Oct 93	Livermore	$16,000	M.R. Henderson

Leadership Lab Development	1992-94	DEC	$216,000	D. Shunk, M. Henderson, N. Hubele
Presidential Young Investigator	July87-Dec93	NSF	$295,106	M.R. Henderson
Dimensions and Tolerances in Geometric Modelers	Jan89 - Sep89	Sandia Labs	$37,000	M.R. Henderson
Implementation of an Interactive Feature Adder	Sept88 - Dec88	Texas Instr.	$24,781	M.R. Henderson
Automated Finite Element Mesh Generation	Jan88 - Sep88	Sandia Labs	$26,500	M.R. Henderson
Geometric Modeling and Graphical Display of MR Data	Jun88 - Aug88	Barrows Clinic	$4,000	G. Nielson, M. Henderson
Automated Finite Element Mesh Generation	Feb87 - Sep87	Sandia Labs	$39,000	M.R. Henderson
Applications of Feature Recognition	Jul87 - May88	Texas Instr.	$37,500	M.R. Henderson
Automatic Part Coding From CAD Data	Jan86 - Jan87	Sandia Labs	$52,000	M.R. Henderson
Engrng Research Equipment Grant: A.I. Workstation	1986	NSF	$36,450	Henderson/Shah
Automated Process Planning from a Feature Graph (RIA)	Sep85 - Dec87	NSF	$60,000	M.R. Henderson

SPONSORED RESEARCH - INTERNAL GRANTS

*InnovationSpace	2004-2007	ASU –Fulton, Carey, Architecture	$450,000	P. Rothstein, M. Henderson, M. Patel, J. Hershauer
Design Reuse Architecture	2002	ASU-IMES	$40,000	D. Shunk, M. Henderson
*CRESMET Grant in Aid	2000	CRESMET	$9,000	M. Henderson
ASU Microcomputer Equipment Grant	Spring 86	ASU	$35,000	M.R. Henderson
Design of a Frame-Based CAE Database	Jan85 - Dec85	ASU	$3,000	M.R. Henderson

EQUIPMENT GRANTS

Title	Duration	Sponsor	Amount	Principal Investigator
Video Conferencing Equipment	2003	Delta Search Labs	$12,571	M. Henderson, G. Farin
Pro-Engineer Site License	Negotiable	Parametric Technologies		M. Henderson
Several SAE donations	various	GM, etc.	$2,000	SAE
AutoCAD Donation	1994	AutoDesk	$16,790	M.R. Henderson
Romulus Solid Modeler	1985	Space Data, Ltd.	$50,000	M.R. Henderson
Silicon Graphics Workstations	1990	Silicon Graphics	$40,000	M.R. Henderson

PROFESSIONAL AND SCIENTIFIC SERVICE

NATIONAL COMMITTEES AND SERVICE

Member, Steering Committee for Engineering for Global Development, ASME, Washington, D.C., 2010-2013.
Member, Strategic Planning Committee, National Inventors and Innovators Alliance (NCIIA) 2011.

LOCAL PROFESSIONAL COMMITTEES

- Advisor, Tau Beta Pi, 2002-2005
- Adviser, Society of Automotive Engineers, 1993-1998.
- Judge, "Masters of Innovation" National Computer Competition, Zenith Microcomputers, 1989.
- Review author, AZAI Newsletter, Spring 1986, Research update at ASU.

SCIENTIFIC AND PROFESSIONAL SOCIETY MEMBERSHIPS

- Pi Tau Sigma
- Tau Beta Pi
- Sigma Xi
- Society of Manufacturing Engineers
- American Society of Mechanical Engineers
- IEEE, Computer Society
- SIGGRAPH

CONFERENCE ACTIVITIES

- Facilitator, Panel Session, AshokaU, San Diego, February 2013.
- Co-Chair, Technical Program, IEEE Global Humanitarian Technology Conference, Seattle, Oct. 21-24, 2012.
- Organizer, Panel Session, IEEE Global Humanitarian Technology Conference, Seattle, Oct. 21-24, 2012.
- Session Chair, NCIIA Conference, San Francisco, March 25-27, 2010.
- Invited Participant, ASME Engineering Summit on Design for the Base of the Pyramid, National Academy of Science, Washington, D.C., March 16-17, 2010.
- Session Chair, NCIIA Conference, Washington, D.C., March 2009.
- Invited Participant NSF Design Workshop, 2009, Stanford, Palo Alto, Ca.
- Invited Participant, NSF Design Workshop, 2008, Arlington, Va.
- Invited Participant, EXCITED, Cyberinfrastructure workshop, NSF, February 2005.
- Conference originator and organizer, Global Engineering Education Symposium, Tempe, AZ, Feb. 26-26, 2004, 26 participants from 17 universities/industries and 3 countries.
- Session Organizer, Ineer, Manchester, England, August 2002.
- Program Committee, ACM Conference on Solid Modeling, Sheraton Inn, Ann Arbor, Michigan, June 9-11, 1999.
- Program Committee and Editorial Board, CAD Conference, University of Neuchatel, Switzerland, February 1999.
- Organizing Committee, Frontiers in Education, ASEE Annual Conference, Tempe, AZ, November 1998.
- Organizing Board, Design for Manufacturing Conference, ASME, August 1998.
- Panel Member, Industry/University Collaboration, NSF Grantees Conference, January 1998.
- Conference Committee Advisory Board, ACM Conference on Solid Modeling, Atlanta, Ga, May 1997.
- Organizer, International Mfg. Education Workshop, ASU, Tempe, AZ, November 1996.
- Panel Member and Presenter, "Obtaining Federal Grants - Case Studies of "How to", CIM in Higher Education Alliance Conference, Salt Lake City, March 27-30, 1994.
- Member, Organizing Committee, 1995 ACM Solid Modeling Conference, Salt Lake City.
- Chair, Session on Concurrent Engineering, ASME Computers in Engineering Conference, Minneapolis, September 1994.

- Chair, Session on Feature Recognition, ASME Computers in Engineering Conference, July 1988, San Francisco.
- Coordinator and Co-Presenter, Special Session "Teaching Design Team Activities", ASME Design Theory and Methodology Conference, Minneapolis, Sept. 1994.
- Moderator, IFIP 93 Conference, Litchfield Park, AZ, September 1993
- Panel Member, Design Tools, ASME Design Education Conference, Orlando, FL, March 1993.
- Co-organizer, Process Design Symposium, Professional Development and Digital Equipment Corp., Chandler, AZ Feb. 1992
- Organizer, CIMSYRC Poster Session for 1992 ASME Design Technical Conference, Tempe, September 1992
- Member, Organizing Committee for 1993 ACM Conference on Solid Modeling, Montreal.
- Organizer, Mini-Symposium on Solid Modeling, SIAM Annual Conference, November 1989, Tempe, AZ.
- Area Coordinator, SIGGRAPH Courses Committee, ACM: 1985, San Francisco; 1986, Dallas; 1987, Anaheim; 1989, Boston; 1990, Dallas
- Consultant /Co-organizer, NSF Workshop on Form Features, UCLA, February 1988.
- Chair, Session on Feature Recognition, IFIP/NSF Workshop on Geometric Modeling, Rensselaerville, NY, September 1988.
- Vice Chair, Symposium on Knowledge Based Expert Systems in Manufacturing, ASME Winter Annual Meeting, Anaheim, December, 1986.
- Panel Member, Computer Graphics Education, National Computer Graphics Association Arizona Conference, Tempe, AZ October 1989.

JOURNAL REFEREE AND EDITING SERVICE

- Editorial Board, International Journal of Service Learning in Engineering, 2008-
- Editorial Board, Computer-Aided Design Journal, 2005-2008
- Editorial Board, IIE Transactions on Design and Manufacturing.
- Book Review: "Computer Aided Design," by Dean Taylor, Cornell University, for Addison-Wesley, April 1992.
- Guest Editor, Special Issue of Integrated Computer Aided Engineering Journal on Multimedia, 1994, (with F. Golshani).
- Reviewer, Cambridge University Press.
- Book Review: "Computer Graphics", by D.C. Anderson, Purdue University, May 1992 and many others
- Book Manuscript Reviewer, Elsevier Publishers 1987-88, Addison-Wesley 1988.
- J. of Design and Manufacturing,
- Computer Graphics and Applications,
- Journal of Engineering for Industry,
- International Journal of Production Research
- International Computers in Engineering Conferences,
- ASME Design Theory and Methodology Conferences,
- Journal of Mechanical Design,
- Research in Engineering Design,
- Computing,
- ACM Solid Modeling 91 and 93 Symposia,
- Computer-Aided Design Journal
- ACM Conference on Solid Modeling, Montreal, May 1993;
- ASME Transactions Journal of Mechanical Design
- Research in Engineering Design Journal
- International Conference on Robotics and Automation
- ASME Design Theory and Methodology Conference.

PROPOSAL REVIEWER SERVICE

- NSF SBR Review Panel, 2003, 2004
- NSF National Academy of Science Review Board, Feb. 1993
- Member, Evaluation Panel for Unsolicited Proposals, NSF, Washington, D.C., February 13, 1992
- Member, Evaluation Panel for Unsolicited Proposals, NSF, Washington, D.C., February 1994.
- Proposal Reviewer, National Science Foundation, 1985 - present.

OTHER SERVICE

- Reviewer, Promotion, Jim Oliver, Iowa State, Fall 2003.
- Reviewer, Promotion and Tenure, NC State, Spring 2003.
- Reviewer, Promotion and Tenure, James Gershenhorn, Michigan Tech, Fall 2002.
- Invited Participant, NSF Workshop on Restructuring Engineering Education, June 6-9, 1994, Washington, D.C.
- Invited Workshop participant, National Academy of Sciences, Manufacturing Studies Board, Washington, D.C., November 1986, 1992.
- Hosted several international visitors at various times including Prof. Alan dePennington, University of Leeds, Prof. Ken Swift, UK, Prof. Frank Mill, U. of Edinburgh and several international guests in November 1996.

ARIZONA STATE UNIVERSITY COMMITTEE SERVICE

UNIVERSITY

- Member, ASU Provost Search Committee, Fall 2013
- Member, Sun Devil Athletic Board, 2012-
- Member, University Honorary Degree Search Committee, 2010-
- Member, President's Academic Advisory Council, 2009-2015.
- Member, University Promotion & Tenure Committee, 2008-2011.
- Member, Fulton School International Activities Advisory Board, 2003-2005.
- Member, CEAS Research Advisory Committee, 2002-03.
- Member, University Standards Committee, 2000-02.
- Member, President's Medal Review Committee, 2001-02.
- Member, CAES Personnel Committee, 2001-02.
- Chair, CEAS Research Advisory Committee, 2000-2002.
- Member, Advisory Board, CRESMET, ASU, 1999-2002.
- Advisor, Tau Beta Pi, CEAS, 1999-00.
- Member, Master of Engineering Planning Committee, 1998-2000.
- Member, Curriculum Committee, College of Engineering and Applied Sciences, 1998-2000.
- Chair, Engineering Excellence 2000 Committee, Manufacturing Subcommittee, 1994
- Member, Formation Committee, Manufacturing Multidisciplinary Intiative, 1994
- Director, Manufacturing Across the Curriculum Project, NSF, (1993-96)
- Member, University Intellectual Properties Committee (1993-95)
- Interim Director, CIMSYRC (1994-96)
- Associate Director, CIMSYRC (1992-93)
- Presentation, CIMSYRC overview at Deans/Dept. Chairs/Directors Retreat, Prescott, Jan 15-17, 1992
- Guest Lecturer, IIE 591, Seminar on Design, Feb. 1992
- Co-Author, Industrial Partnership Program in CAGD Proposal, ASU .
- Member, Disabled Student Resources Advisory Board, ASU, Fall 1987 - 89
- Member, Personal Computer Support Services Task Force, 1989
- Member, Career Services Advisory Board, 1989-90
- Member, Academic Computing Advisory Committee (ACAC), 1989-90
- Volunteer, Speakers Bureau, ASU (Computer Graphics, CAD/CAM)
- Designer and Co-Author, Career Development Process Document, Career Services, ASU, 1988.
- Member, CEAS Computer Software Development Committee, ASU, Fall 1987-90
- Member, Proposal Committee for Center for Geometric Design, ASU, 1987
- Member of Examining Committee of several Ph.D. Industrial Engineering Students, ASU, 1986-present
- Member, MAE Publicity Committee, 1988-89
- CIMSYRC Overview for Japanese Visitors, May 15, 1992
- Faculty Ambassador, Guest Speaker at Florence High School in Computer Graphics and CAD, December 2, 1992.

DEPARTMENTAL SERVICE

- Dean's Faculty Advisory Committee, Fulton Schools of Engineering, 2014-17
- Member, Design Faculty Search Committee, 2013-14
- Chair, Department Personnel Committee, 2013-14
- Chair, Barrett Honors College Lecturer Search Committee, 2013.
- Chair, Instructor Search Committee, TEIM Department, 2010-2011.
- Chair, Personnel Committee, 2007-08.
- Member, Graduate Affairs Committee, 2003.
- Member, Chair Search Committee, 2003
- Member, Strategic Advisory Committee, 2003.
- Member, Statewide MS Program Committee, 2001-02
- Member, Publicity and Seminar Committee, IE, 2000-02.
- Chair, Manufacturing Process Control Group, IE Dept., 2000-2001.
- Member, Personnel Committee, IE Dept., 2000-2001.
- Chair, Dept. Personnel Committee, IE, 1998-99
- Sponsor, IE Seminar, Berokh Koushnevis, USC, Oct. 15, 1999.
- Sponsor, IE Seminar, Alan de Pennington, Leeds, Nov. 12, 1999.
- Sponsor, IE Seminar, Dr. Ade Mabogunje, Stanford University, Mechanical Engineering, Feb. 19, 1999.
- Chair, Dept. Personnel Committee, IE, 1999-00
- Member, Dept. Undergraduate Committee, IE, 1998-
- Member, Mfg. Senior Position Search Committee 1994-95.
- Member, Mfg. Position Search Committee, 1993-94.
- Member, Department Advisory Board, MAE, 1992.
- Chair, Ad Hoc Committee on Mfg. Searches, 1994.
- Member, Graduate Committee for many MAE, IMSE and Computer Science graduate students
- Member, Departmental Facilities and Space Committee, 1989-90
- Sponsor, MAE Seminar Series Speakers: Rajit Gadh, U. of Wisconsin, Fall 1994
- Sponsor, MAE Seminar Series Speakers: "Quick Turnaround Prototyping," D.C. Anderson, Purdue University, April 1992
- Sponsor, MAE Seminar Series Speakers: "Rapid Prototyping in Mfg: Techniques and Trends," Richard Crawford, U/Texas at Austin, September 1992.
- Member, Graduate Affairs Committee, 1993-94
- Adviser, Society of Automotive Engineers 1993-present, (present at El Paso Baja and Detroit Formula competitions)
- Supervised 12 students in MAE490 design and construction of Human-Powered Vehicle, Spring 1992
- Examiner, Ph.D. Qualifying Examination, Design, ASU, Spring 1992
- Member, Facilities and Space Committee, 1990-91
- Member, MAE Dept. Student Evaluation Committee
- Organized MAE 443 Bulletin Board of student pictures and projects
- Tau Beta Pi, Pie Throw Volunteer, 1992 E-days, Tempe

PATENT ACTIVITY

- Patent Awarded, PRISM Geometric Shape Recognition Algorithm, Submitted through ASU, Fall 2002.
- Patent Disclosure, Rapid Prototyping Process Improvement, submitted to Tech Transfer in Engineering, Fall 2003.