

DANA DABIRI

Curriculum Vitae Highlights (Please contact me for a complete CV)

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EDUCATIONAL HISTORY

University of California, San Diego, CA
Doctor of Philosophy, Aerospace Engineering
1992

Dissertation: Effect of Forced Boundary Conditions on the Flow Field of a Square Convection Cell

University of California, Berkeley, CA
Master of Science, Mechanical Engineering
1987

Thesis: Application of a 5-hole Pressure Probe to Measure Flow Behind Bluff Bodies

University of California, San Diego, CA
Bachelors of Science, Mechanical Engineering (Magna Cum Laude)
1985

EMPLOYMENT HISTORY

University of Washington
Seattle, Washington, USA

Assistant Professor, Department of Aeronautics & Astronautics 1/02 – Present

California Institute of Technology
Pasadena, CA, USA
Research Scientist

4/93-12/01

General Pixels, Inc.
Arcadia, CA, USA

6/96-12/01

Co-founder, Developer & Marketer of PixelFlow

University of California
San Diego, CA, USA
Post-doctoral Research Associate
Graduate Research Student

6/92-4/93

1/88-6/92

University of California
Berkeley, CA, USA
Graduate Research Student

8/85-12/87

IBM Corporation
San Jose, CA, USA
Co-op Mechanical Engineer

5/86-12/86

AWARDS AND HONORS

Nominated for Distinguished Teaching Award, 2006, University of Washington
UC Regents Fellowship, 1988 – 1989, University of California, San Diego
Gallery of Fluid Motion Best Poster Award, 1993, Albuquerque, New Mexico

AFFILIATIONS AND OTHER APPOINTMENTS

Adjunct Assistant Professor, Department of Mechanical Engineering, University of Washington, 2003-present.

PUBLICATIONS

Legend: 1: student, 2: institutional collaborator, 3: external collaborator, 4: post-doc, 5: scientist.

Refereed archival journal publications

1. Susanto A.,¹ Pun C.S.,¹ **Dabiri D.** (2009) “Bootstrapping and DIP Test for Outlier Detection and Correction of Cross-Correlation PIV Data”, *submitted to Experiments in Fluids*.
2. Duncan J.,¹ Bryce T.,¹ Thomsen H.,¹ **Dabiri D.**, Hove J.R.³ (2009) “An Extended Study of a Generalized DPIV Processing Technique”, *in revision for Measurement Science and Technology*
3. Amin M., Navaz H.K., Kehtarnavaz N., **Dabiri D.** (2009) “Systematic Approach for Solving Large-Scale Problems by Neural Network: Open Refrigerated Display Cases and Droplet Evaporation Problems”, *accepted for publication in Food and Bioprocess Technology*.
4. Amin M, **Dabiri D.**, Navaz H.K. “Tracer gas technique: A new approach for steady state infiltration rate measurement of open refrigerated display cases”, *Journal of Food Engineering*, **92** (2), 172-181, 2009.
5. **Dabiri D.** “Digital Liquid Crystal Particle Thermometry/Velocimetry (DLCPT/V) – A Review”, Invited Review Article, *Exp. Fluids*, **46** (2), 191-241, 2009.
6. Kimura F.,¹ Rodriguez M.,¹ McCann J.,⁴ Carlson B.,² Callis J.,² **Dabiri D.** Khalil G.,² “Development and Characterization of Fast Responding Pressure-Sensitive Microspheres”, *Review of Scientific Instruments*, **79** (7), 074102, 2008.
7. Grothe R.,¹ Rixon G.,¹ **Dabiri D.** “An Improved Three-Dimensional Characterization of Defocusing Digital Particle Image Velocimetry (DDPIV) Based on a New Imaging Volume Definition”, *Measurement Science and Technology*, **19** (6), 065402, 2008.
8. Tien W.H.,¹ Kartes P.,¹ Yamasaki T.,¹ **Dabiri D.** “A color-coded backlighted defocusing digital particle image velocimetry system”, *Exp. Fluids*, **44** (6), 1015-1026, 2008.
9. Pun C.S.,¹ Susanto A.,¹ **Dabiri D.** “Mode-Ratio Bootstrapping Method for PIV Outlier Correction,” *Measurement Science and Technology*, **18** (11), 3511-3522, 2007
10. Fujisawa N.,³ Verhoeckx M.,³ **Dabiri D.**, Gharib M.,³ Hertzburg J.³ “Recent Progress in Flow Visualization Techniques for Fluid Art,” *Journal of Visualization*, **10** (2), 163-170, 2007
11. Kurosaka M.,² Cain C.B.,¹ Srigrarom S.,¹ Wimer J.D.,¹ **Dabiri D.**, Johnson III W.F.,¹ Hatcher J.C.,¹ Thompson B.R.,¹ Kikuchi M.,³ Hirano K.,³ Yuge T.,³ Honda T.³ “Azimuthal vorticity-gradient in the formative stages of vortex breakdown,” *Journal of Fluid Mechanics*, **569**, 1-28, 2006.
12. Kimura F.,¹ Khalil G.,² Zetsu N.,² Xia Y.,² Callis J.,² Gouterman M.,² Dalton L.,² **Dabiri D.**, Rodriguez M.¹ “Dual luminophore polystyrene microspheres for pressure-sensitive luminescent imaging,” *Measurement Science & Technology*, **17** (6), 1254–1260, 2006.
13. Navaz H.K.,³ Amin M.,¹ **Dabiri D.**, Faramarzi R.³ “Past, Present, and Future Research Toward Air Curtain Performance Optimization,” *ASHRAE Transactions*, **111**, 1083-1088, 2005.
14. Kajitani L.¹ and **Dabiri D.** “A Full Three-Dimensional Characterization of Defocusing Digital Particle Image Velocimetry,” *Measurement Science & Technology*, **16** (3), 790-804, 2005.
15. **Dabiri D.**, “On the Interaction of A Vertical Shear Layer with A Free Surface,” *Journal of Fluid Mechanics*, **480**, 217-232, 2003.
16. Gharib M.,³ Pereira F.,³ **Dabiri D.**,⁵ Hove, J.R.,³ & Moddarress D.,³ “Quantitative Flow Visualization: Toward A Comprehensive Flow Diagnostic Tool,” *Integrative & Comparative Biology*, **42** (5), 964-970, 2002.

17. Gharib M.,³ Pereira F.,³ **Dabiri D.**,⁵ & Moddarress D.,³ “Quantitative Flow Visualization: Toward A Comprehensive Flow Diagnostic Tool,” *Visualization & Imaging In Transport Phenomena Annals of the New York Academy Of Sciences*, **972**, 1-9, 2002.
18. Navaz H. K.,³ Faramarzi R.,³ Gharib M.,³ **Dabiri D.**,⁵ & Modarress D.,³ “The Application of Advanced Methods in Analyzing the Performance of the Air Curtain in a Refrigerated Display Case,” *J. Fluid Engineering*, **124** (3), 756-764, 2002.
19. **Dabiri D.**,⁵ & Gharib M.,² “Simultaneous Free Surface Deformation and Near Surface Velocity Measurements,” *Experiments in Fluids* **30** (4), 381-390, 2001.
20. Park H.G.,¹ **Dabiri D.**,⁵ & Gharib M.,² “Digital Particle Image Velocimetry/Thermometry and Application to the Wake of a Heated Circular Cylinder,” *Experiments in Fluids* **30** (3), 327-338, 2001.
21. Pereira F.,⁴ Gharib M.,² & **Dabiri D.**,⁵ & Modarress D.,² “Defocusing DPIV: A 3-Component 3-DDPIV Measurement Technique. Application to Bubbly Flows,” *Experiments in Fluids* **29**, S078-S084 Suppl., 2000.
22. Huang H. ,⁴ **Dabiri D.**,⁵ & Gharib M.,² “On Errors of Digital Particle Image Velocimetry,” *Measurement Science & Technology* **8** (12), 1427-1440, 1997.
23. Westerweel J.,³ **Dabiri D.**,⁵ & Gharib M.,² “The Effect of a Discrete Window Offset on the accuracy of Cross Correlation Analysis of Digital PIV Recording,” *Experiments in Fluids* **23** (1), 20-28, 1997.
24. **Dabiri D.**,⁵ & Gharib M.,² “Experimental Investigation of the Vorticity Generation within a Spilling Water Wave,” *Journal of Fluid Mechanics* **330**, 113-139, 1997.
25. **Dabiri D.**,⁵ & Gharib M.,² “The Effects of Forced Boundary Conditions on Flow within a Cubic Cavity Using Digital Particle Image Thermometry and Velocimetry (DPITV),” *Journal of Experimental Thermal and Fluid Science* **13** (4), 349-363, 1996.
26. Zhang X.,⁴ **Dabiri D.**,⁵ & Gharib M.,² “Optical Mapping of Fluid Density Interfaces: Concepts and Implementations,” *Review of Scientific Instruments* **67** (5), 1858-1868, 1996.
27. Zhang X.,⁴ **Dabiri D.**,⁵ & Gharib M.,² “A Novel Technique For Free-Surface Elevation Mapping,” *Physics of Fluids* **6** (9), s11-s11, 1994.
28. **Dabiri D.**,¹ & Gharib M.,² “Digital Particle Image Thermometry: The Method and Implementation,” *Experiments in Fluids* **11** (2-3), 77-86, 1991.

Parts of books (chapters in edited books)

1. **Dabiri D.**, “Cross-Correlation Digital Particle Image Velocimetry – A Review” in *Turbulência*, Ed. Freire, A.S., Iiha A., Breidenthal B., Associação Brasileira de Engenharia e Ciências Mecânicas (ABCM), 2006.
2. Gharib M.,² & **Dabiri D.**,⁵ “An Overview of Digital Particle Image Velocimetry” in *Flow Visualization: Techniques and Examples*, Ed. Smits, A. & Lim, T. T. London, Imperial College Press, March, 2000.
3. **Dabiri D.**,⁵ Zhang X.,³ & Gharib M.,² “Quantitative Visualization of Three-Dimensional Free Surface Slopes and Elevations” in *Atlas of Visualization III*, Ed.: The Visualization Society of Japan, New York, CRC Press, 1997.

Patents submitted and/or awarded

1. Provisional: Record of Invention title “**Method and Apparatus for Three-Dimensional Digital Particle Image Velocimetry Using A Single Lens System**,” UW Ref#7691D, **Dabiri D.**, 2007.
2. Provisional: Record of Invention title “**Method and Apparatus for Three-Dimensional Digital Particle Image Thermometry and Velocimetry** ,” UW Ref#7690D, **Dabiri D.**, 2007
3. “**Aperture-Coded Camera System for Three Dimensional Imaging**,” Patent No. US 7,006,132 B2, Francisco P., Modarress D., Gharib M., **Dabiri D.**, Jeon D., 2006.
4. “**Aperture-Coded Camera System for Three Dimensional Imaging**,” Patent No. US 6,278,847 B1, Gharib M., **Dabiri D.**, Modares D., 2001.

INVITED LECTURES AND SEMINARS

1. Hydralab III, Toulouse, France, “*New Developments in PIV: Defocusing PIV*,” May 2008
2. DOE/SCE Project Advisory Committee, New York, NY, “*Air Curtain Design Optimization in Refrigerated Open Vertical Display Cases*,” January 2008.
3. DOE/SCE Project Advisory Committee, Dallas, TX, “*Infiltration Rate Measurement of Vertical Open Refrigerated Display Cases*,” January 2007.
4. Escola de Primavera de Transição e Turbulência, Rio De Janeiro, Brazil, “*Cross-Correlation Digital Particle Image Velocimetry – A Review*,” September 2006.
5. DOE/SCE Project Advisory Committee, Quebec City, Canada, “*Fundamental Research towards Optimization of Air Curtains of Vertical Open Refrigerated Display Cases*,” June 2006.
6. DOE/SCE Project Advisory Committee, Chicago, IL, “*Fundamental Research towards Optimization of Air Curtains of Vertical Open Refrigerated Display Cases*,” January 2006.
7. Mechanical Engineering Seminar, Washington State University, Pullman, WA, “*The Development of Global Quantitative Optical Techniques in Fluid Mechanics*,” September 2004.
8. Aeronautics & Astronautics Seminar, UW, Seattle, WA, “*Interaction of a Vertical Shear Layer with a Free Surface*,” March 2001.
9. Aeronautics & Astronautics Seminar, UW, Seattle, WA, “*The Development of New Measurement Techniques to Meet New Challenges in Fluid Mechanics*,” March 2001.
10. Department of Mechanical Engineering Seminar, Oregon State University, Oregon, OR, “*The Development of New Measurement Techniques to Meet New Challenges in Fluid Mechanics*,” April 2001.
11. Department of Mechanical and Aerospace Engineering Seminar, Utah State University, Logan, UT “*Development and Implementation of a Defocusing Three Dimensional DPIV Technique*” April 2000.
12. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Annual Meeting, Minneapolis, MN, June 24-28, “*Application of DPIV to the Study of the Air Curtain Performance in a Refrigerated Display Case*,” June 2000.
13. Parks College of Engineering & Aviation, St. Louis University, “*Digital Particle Image Velocimetry*,” May 1998.
14. American Society of Mechanical Engineers (ASME) tutorial, Washington, DC, “*PIV and Applications*,” June 1998.
15. Interdisciplinary colloquium of the IWR (Interdisziplinäre Zentrum für Wissenschaftliches Rechnen: Interdisciplinary Center for Scientific Computing) over Digital image processing, Heidelberg, Germany, “*Sources of Vorticity within a Spilling Breaking Wave*,” June 1997.
16. 10th Liepmann-Ludwig Seminar, DLR Research Center, Gottingen, Germany, June 23-27, “*Sources of Vorticity within a Spilling Breaking Wave*,” June 1997.

Professional society memberships

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| • American Institute of Aeronautics and Astronautics | 2002-present |
| • American Society of Mechanical Engineers | 1992-present |
| • American Physical Society | 1991-present |
| • American Society of Engineering Education | 2003-present |