

## **DEBORAH SILVER, PH.D.**

### **Executive Director,**

Professional Science Master's Program – Master of Business & Science Degree  
Rutgers, The State University of New Jersey, New Brunswick,

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### **Professor,**

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### **EDUCATION**

**Ph.D. Princeton University**, Dept. of Computer Science, School of Engineering and Applied Science, Princeton, NJ. Supported by the Hewlett-Packard Faculty Development Fellowship. *PhD Dissertation: Geometry, Graphics, & Numerical Analysis*. Thesis Advisor: Prof. David Dobkin.

**B.S. Columbia University**, School of Engineering and Applied Science, New York, NY. Major: Computer Science.

### **PROFESSIONAL EXPERIENCE:**

#### **Rutgers, The State University of New Jersey:**

*March 2009 - present:* **Executive Director, Professional Science Master's Program – New Brunswick, Newark, Camden**

*September 1988 -present:* **Professor, Dept. of Electrical and Computer Engineering**

*September 2008-2010:* **Associate Dean of Continuing and Professional Education, School of Engineering**

*September 2007-2010:* **Associate Director, CAIP Research Center**

*Summer 1991, 1992:* **Faculty Fellow, NASA Ames Research Center, CA**

### **ADMINISTRATIVE EXPERIENCE OVERVIEW:**

- Secured government funding (grants) for new university-wide graduate program (~\$1.5M) and shepherded program proposal through university and state approval process (6 levels of faculty and state approval). Program reports to Senior Vice President of Academic Affairs.
- Collaborated with 10 different schools on 3 campuses to create over 25 interdisciplinary and professional science curricula in the Life Sciences, Engineering and Computing and Information Sciences.
- Developed online courses and full degrees.
- Managed graduate faculty (tenured and non-tenured faculty oversight committee)
- Worked with companies to develop associations including externship and internship programs (externship is now >70/students per semester working with many large companies); secured outside fellowship funding for current students.
- Grew program to 450+ students (most comprehensive in the US) and financially self sufficient.
- Managed all aspects of program development: industrial advisory board, industrial outreach, alumni outreach and development, faculty committees, admissions, recruitment, web development, marketing (web and print), program coordination, online development, faculty hiring, and international offerings and collaborations.

- Managed all financial aspects of the program including budgeting, personnel, and tuition.
- Developed graduate certificate programs for PhD students.
- Developed two self-funded continuing education units (science masters, engineering) and continuing education offerings.
- Experience with labor analysis and workforce development activities & research.
- Experience with: managing budgets; creating revenue positive programs; working collaboratively with faculty across different disciplines and units; research in labor & workforce opportunities; hiring faculty and staff; marketing and recruitment; creating continuing education and professional programs; creating international programs; implementing technology solutions, working with companies, and alumni development.

## **PROFESSIONAL ACTIVITIES:**

**Rutgers Academic Service (selective list):** University Senator (2019-present, 2000-2004), University Design Committee, Engineering Promotions and Advancement Committee, Graduate Decanal Review Chair, Graduate Curriculum Committees, Engineering Decanal Search Committee, ABET Review Committee, Scholastic Standing Committee.

### **Professional Service:**

#### **Current:**

- National Professional Science Master's Association (NPSMA) Board Member 2017-present (Vice President Member Services); *Vice President:* Board of Directors, NPSMA 2013-2017. PSM Affiliation Committee Board Member, 2013-2019;
- *Board Member:* IEEE Scientific Visualization Steering Committee 2016-present. IEEE Visualization Executive Committee Liaison (2019-present); IEEE Computer Society Professional Education Committee (2020-).
- *Papers Committees:* IEEE & EuroVis Papers and Workshop Committees (various) 1995-present.
- *Review Committee:* American Association of University Women, New York Academy of Sciences Blavatnik Awards, NSF, DOE

**Previous:** Restructuring IEEE Vis for the future workshop, Summer 2018. *Vice-Chair of Operation:* IEEE Technical Committee on Computer Graphics, 1993- 2000. *Editorial Board:* IEEE Transactions on Visualization and Computer Graphics, 1995-2000. *Selected Conference Organizer and Committees:* NPSMA Workshop 2017 co-chair, EuroVis Papers Committee 2016, IEEE Visualization Program Committee, 2016, *Papers Committee:* IEEE Visualization Conference 2015, EuroVis Short Paper Conference 2015. Chair, NPSMA Workshop on Cybersecurity (2014), *Program Committee:* Knowledge Assisted Visualization Workshop (2007, 2008), IEEE Visualization 2006. International Workshop on Volume Graphics (2006), IEEE Visualization 2005, IEEE Visualization 2004, IEEE Visualization 2003, IEEE Symposium on Parallel and Large-Data Visualization and Graphics 2003, Eurographics VisSym 2004, IS&T/SPIE Visualization and Data Analysis 2003. Symposium Chair, IEEE Symposium on Volume Visualization (2004). Program Co-Chair, IEEE Visualization '99, IEEE Visualization '96. Co-Chair of Papers Session, IEEE Visualization '95. Co-Editor, Visualization Blackboard, IEEE Computer Graphics and Applications, 1994-1998.

**Reviewer for:** National Science Foundation, IEEE Visualization Conference, IEEE Transactions on Visualization and Computer Graphics, IEEE Computer Graphics and Applications, ACM Siggraph, ACM publications (various), Department of Energy, Eurovis Conference.

**FUNDING:** Grants from National Science Foundation, Department of Labor, Department of Education, Department of Energy, NASA, Airforce Research Labs (~25M joint grants).

**Most Recent Funding:**

1. National Science Foundation – Workshop Proposal: STEM Master’s Individual Development Plans as an Essential Tool in Workforce Development, (D. Silver, PI, Collaborative proposal with NPSMA and Council of Graduate Schools), 2020-2021.
2. National Science Foundation – TIPODS\_X:RES: Collaborative Research: Improving Templated Microstructures via Topological Analysis. D. Birnie (PI), D. Silver (co-PI), 2018-2021. \$300,000.
3. National Science Foundation – Science Master’s Program: Fueling Innovation in NJ through Graduate Education, 2010-2013, D. Silver (PI), D. Finegold, H. Herrera, A. Gates, B. Zilinskas. \$700,000
4. Department of Education, FIPSE, Developing Leaders for NJ Science Based Industries, 2008-2013, D. Finegold (PI), D. Silver (PI 2010-2013) \$600,000.
5. Department of Labor, WIRED Bio-1, D. Finegold (PI), D. Silver (PI of the PSM Portion), 2007-2011. \$5,000,000.
6. Department of Energy- 2010-2013, Activity Recognition for Ultra-Scale Visualization, part of the SciDAC Institute for Ultra-Scale Visualization, D. Silver (PI). \$450,000.
7. New Jersey Technology Council, Technology & Entrepreneurship Talent Network, 2012-2013.
8. NSF – CI-TEAM Demonstration Project: Developing Scientific Visualization Literacy for Cyberinfrastructure Training, 2008-2010, D. Silver (PI), M. Tremaine, and K. Bemis. \$250,000.
9. NSF – Illustrative Deformation. 2007-2010, D. Silver (PI). \$300,000.
10. DOE, Center for Plasma Edge Simulation, 2006-2012, C.S. Chang (PI), M. Parashar (co-PI, Rutgers), D. Silver (co-PI, Rutgers portion). \$12,250,000.

**PUBLICATIONS:**

Over 120 Journal and Conference publications in the area of scientific visualization, information visualization and computer graphics.

**10 Selected Publications:**

- L. Ryan, D. Silver, D. Ebert and R. Laramée, Teaching Data Visualization as a Skill, Visualization Viewpoints, IEEE Computer Graphics and Applications, 2019.
- Li. Liu, D. Silver, and K. Bemis. Application Driven Design: Help Students Understand Employment and See the “Big Picture”. IEEE Computer Graphics and Applications Vol. 38, No.3, 2018
- L. Liu, D. Silver, K. Bemis, D. Kang, and E. Curchitser. Illustrative Visualization of Mesoscale Ocean Eddies. Computer Graphics Forum, Vol. 36, No. 3, 2017.
- K. Bemis, D. Silver., G. Xu, R. Light, D. Jackson, D. Jones, S. Ozer, L. Lui, The path to COVIS: a review of acoustic imaging of hydrothermal plumes. Deep Sea Research II, 2015.
- S. Ozer, D. Silver, K. Bemis, and P. Martin, Activity Detection in Scientific Visualization, IEEE Transaction on Visualization and Computer Graphics, Vol. 20, No. 3, 2014.
- S. Varma and D. Silver, Fueling Innovation in Graduate Education, Creating Tomorrow’s Mathematics Professionals, (Book Chapter), Proceedings of the PSM Workshop, COMAP 2013.
- K. Oh, K. Bemis, X. Ma, M. Tremaine, and D. Silver, Uncovering Visualization Properties that Confuse, Proceedings of the American Society for Info Science & Technology, 49(1), 1-4, 2012.
- C. Correa, D. Silver and M. Chen. Illustrative Deformation for Data Exploration, IEEE Transactions on Visualization and Computer Graphics, Vol.13, No.6, pp.1320-1327, Nov.-Dec. 2007.
- N. Cornea, D. Silver and P. Min, Curve Skeleton, Properties and Algorithms, IEEE Transactions on Visualization and Computer Graphics, Vol. 13, No. 6, May 2007.
- D. Silver and X. Wang, Tracking and Visualizing Turbulent 3D Features. IEEE Transactions on Visualization and Computer Graphics, Vol. 3, No. 2, June 1997.