

Curriculum Vitae
DANIELA USHIZIMA

Staff Scientist		Data Scientist Fellow
Data Analytics and Visualization Group		ImageXD Initiative
Computational Research Division		Berkeley Institute for Data Science
Lawrence Berkeley National Laboratory		University of California Berkeley
E-mail: dushizima@lbl.gov	http://vis.lbl.gov/~daniela	dani.lbl@berkeley.edu

Mission: Ushizima is a Computer Vision expert who investigates mathematical methods to automate decisions based on image across domains, experiments, algorithms and learning. By conducting research on pattern recognition since 1997, she works at the interface of domains such as material sciences, chemistry and medical imaging. Through collaborations with scientists at LBNL since 2007, she designs tools to uncover relevant, but hidden information from high-resolution images using machine learning, which led to her 2015 U.S. Department of Energy Early Career Project award to focus on analytics for material sciences. Her work on microscopy images was awarded the UC Berkeley BIDS Data Science fellowship and the Science without Borders. In collaboration with colleagues at DOE BES and ASCR, she leads the Image Analysis team within the Center for Applied Mathematics for Energy Research Applications (CAMERA) to advance image-based decision-making, scaling scientific procedures by reducing time between experiments, and opening more opportunities for more users of the DOE imaging facilities. She advocate for digital literacy, diversity and inclusion, acting as mentor to Software Carpentry, TechWomen and Black Girls Code.

Education and Training

University of Sao Paulo, Sao Carlos	Physics	MSc / PhD	1998 - 2004
University of California, Santa Barbara	Engineering	Visiting PhD	2004
Federal University of Sao Carlos	Computer Science	BS	1997

Professional Appointments

2015–present	LBNL, Berkeley, CA – CAMERA Image Processing Team Leader;
2014–present	LBNL, Berkeley, CA – Staff Scientist;
2014–present	UC Berkeley – Berkeley Institute for Data Science – Data Scientist Fellow;
2010–2014	LBNL, Berkeley, CA – Research Scientist;
2007–2009	LBNL, Berkeley, CA – Postdoc;
2005–2007	Catholic University of Santos, Sao Paulo, Brazil – Professor in Computer Science;
2005–2007	Natcomp Systems, Santos, Sao Paulo, Brazil – Computer Vision Consultant;
2004	Ablevision Systems, Sao Carlos, SP, Brazil – Computer Vision Scientist;
1997	Dixtal Biomedica S.A., Sao Paulo, SP, Brazil – Software Engineer;
1997	Microprocessor Lab., Federal University of Sao Carlos – Teacher Assistant;
1996	Technological Park, Sao Carlos, SP, Brazil – Research Assistant.

Selected Awards

May 2015	DOE Early Career Award (research support: 5 years);
Mar 2015	Azure Machine Learning Research Award (research support: 1.5 year);
Dec 2015	LBNL Spot Recognition Award - outreach to promote diversity in the sciences;
July 2014	Moore-Sloan Foundation BIDS Award (research support: 3 years);
Apr 2014	1 st Place in Cervical Cell Segmentation Challenge, IEEE ISBI - deliverable=code;
Aug 2014	Scientific Excellence by the American Chemistry Society - best paper;
Aug 2005	FAPESP Young Researcher Award, Brazil (research support: 4 years).

Selected Recent Publications

1. T. E. Williams, D. Ushizima, C. Zhu, A. Anders, D. J. Milliron, and B. A. Helms, “Nearest-neighbour nanocrystal bonding dictates framework stability or collapse in colloidal nanocrystal frameworks,” *Chemical Communications*, 2017.
2. M. Alegro, P. Theofilas, A. Nguy, P. A. Castruita, W. Seeley, H. Heinsen, D. Ushizima, and L. T. Grinberg, “Automating cell detection and classification in human brain fluorescent microscopy images using dictionary learning and sparse coding,” *Journal of Neuroscience Methods*, vol. 282, pp. 20–33, 2017.
3. D. Ushizima, H. A. Bale, W. Bethel, P. Ercius, B. Helms, H. Krishnam, L. Grinberg, M. Haranczyk, M. A. A. Macdowell, K. Odziomek, D. Y. Parkinson, T. Perciano, R. Ritchie, and C. Yang, “IDEAL: Images across Domains, Experiments, Algorithms and Learning,” *Journal of Minerals, Metals and Materials*, 2016.
4. A. Wills, D. Michalak, P. Ercius, E. Rosenberg, T. Perciano, D. M. Ushizima, R. Runser, and B. Helms, “Block copolymer packing limits and interfacial reconfigurability in the assembly of periodic mesoporous organosilicas,” *Advanced Functional Materials*, pp. 1616–3028, 2015.
5. J. Donatelli, M. Haranczyk, A. Hexemer, H. Krishnan, X. Li, L. Lin, F. Maia, S. Marchesini, D. Parkinson, T. Perciano, D. Shapiro, D. Ushizima, C. Yang, and J. Sethian, “Camera: The center for advanced mathematics for energy research applications,” *Synchrotron Radiation News*, vol. 28, no. 2, pp. 4–9, 2015.
6. D. Ushizima, T. Perciano, H. Krishnan, B. Loring, H. Bale, D. Parkinson, and J. Sethian, “Structure recognition from high resolution images of ceramic composites,” *IEEE International Conference on Big Data*, Oct. 2014.
7. I. P. Jr., F. M. , F. Bezerra, and D. Ushizima, “Multiscale corner detection in planar shape,” *Journal of Mathematical Imaging and Vision*, vol. 45, pp. 251–263, Mar 2013.

Selected Recent Grants

1. U. S. Department of Energy, Office of Science, Office of Advanced Scientific Computing Research. “Scaling Analytics for Image-based Experiments” FY15–00. D. Ushizima (PI).
2. U. S. Department of Energy, Office of Science, Office of Advanced Scientific Computing Research and Basic Energy Sciences. “Mathematics for the DOE Facilities” FY15–17. J. Sethian (PI).
3. U. S. Department of Energy, Office of Science, Office of Advanced Scientific Computing Research. LDRD. “Quantitative Image Analysis for Computational Modeling.” FY12–13. D. Ushizima (PI).

Scientific Leadership and Selected Synergy Activities

1. Co-Organizer of the Image Across Domains (ImageXD) Initiative, UCB-BIDS (2016-present);
2. Lead Researcher in Cervical Cancer Analysis using Pap smear Microscopy, collaboration with BIDS, UFOP and UFC, Brazil (2013-present);
3. Instructor for Software Carpentry in fundamentals of Data Science (2015-present) ;
4. Instructor for Black Girls Code, empowering girls into STEM (2014-2015) ;
5. Mentor for TechWomen, U.S. Department of State, Bureau of Educational and Cultural Affairs (2013-present);
6. Software architect at Bayes Impact Hackathon - Mining Donorschoose data (2014);
7. Software Architect for Graph-based Analysis and Visualization of Multimodal Multi-Resolution Neuroimaging Data (2013-current);