

Raquel A. Romano, Ph.D.
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Experience

Principal Software Engineer, [Threadloom](#), March 2018 - present

- Machine learning and data science lead.

Engineering Lead, [U.S. Digital Service](#), May - August 2016, February 2017 - February 2018

- Engineering lead for [vets.gov](#), an open-source, responsive, accessible web application delivering services provided by the VA to the Veteran community. Technical lead for an agile team of ~40 developers, designers, and product managers. Interfaced with business owners and technology teams across the VA as part of vets.gov's integration with backend VA systems ([blog post](#)).
- Front-end software developer for [vets.gov](#) (github: [vets-website](#)). Developed functionality for the Veteran community to submit and obtain benefit-related information to the VA (React/Redux).
- Software Engineer at Department of State. Defined and scoped improvements to a tool for prospective immigrants to check the status of their visa applications and receive timely, actionable information.

Software Developer / Independent Contractor, [Threadloom](#), December 2016 - February 2017

- Data analysis and ranking of threads, posts, and users in online forums. Built data pipeline for analyzing recent forum data and publishing a weekly newsletter of top posts (Python, Apache Spark, Google Cloud Dataproc).

Senior Software Engineer, [Google.com](#), March 2007 - October 2016

- Android developer for [Google Accessibility Scanner](#), a tool that examines the view hierarchy of any given Android application and provides developers, product managers, and QA testers opportunities for improving the accessibility of the application.
- Software developer for various projects in the Google.org Engineering organization: [Google Crisis Map](#), [Google Person Finder](#) and [Google Flu Trends](#) (Python, JavaScript, Django, CSS, C++).
- Software developer for [Google Street View](#). Applied machine learning and computer vision to detecting text in natural imagery for large-scale privacy protection (C++).
- Software developer for [Google Books](#). Arabic and Indic language optical character recognition for the [Tesseract OCR engine](#) using convolutional neural networks (C++).
- Technology lead for [Google.org](#). Sourced technologically innovative approaches to solving problems in various non-profit sectors. Led internal effort to incubate and accelerate Google product contributions to the focus area of accessible technology.

Postdoctoral Researcher, [Lawrence Berkeley National Laboratory](#), [Computational Research Division](#), January 2004 - March 2007

- Statistical learning and data mining applied to scientific data.

- Implemented supervised and unsupervised learning algorithms for identifying supernovae in astronomical imagery.
- Developed a tool for distinguishing radiation-induced features in multispectral microscopy imagery.
- Feature detection methods for locating tropical cyclones in high-resolution spatiotemporal climate simulations.

IT Consultant, [TECHsperience](#), August 2002 - October 2003

- Lead developer and product manager for various custom web applications for nonprofit organizations (health clinics, schools, county services).

Research Assistant, [MIT Artificial Intelligence Laboratory](#), [Computer Vision Group](#), September 1996 - May 2002

- Developed a novel projective model to constrain matching image points in multiple 2D views of a 3D scene. Designed and implemented nonlinear optimization algorithms to demonstrate accurate estimation of 3D camera poses from sparse correspondences.
- Collaborative research in statistical video analysis, camera self-calibration, and recovery of 3D structure and motion.
- Advisors: Eric Grimson and Olivier Faugeras

Research Assistant, [MIT Center for Biological & Computational Learning](#), January 1994 - August 1996

- Built a real-time face verification system to authenticate users by matching image-based features from captured face images to a library of known face images.
- Advisor: Tomaso Poggio

Research Assistant, [INRIA: French National Institute for Research in Computer Science](#), ROBOTVIS Group, June 1999

- Developed continuous, differential models of 3-view projective constraints on matching image points.
- Advisor: Olivier Faugeras

Summer Intern, [IBM T.J. Watson Research Center](#), June - August 1996

- Designed a method to merge fingerprint recognition models with image-based face models using subspace projections to reduce feature space dimensionality. Demonstrated improved person identification using multiple biometric measurements.

Research Assistant, [AT&T Bell Laboratories](#), June - August 1993

- Analyzed search space and convergence properties of random, greedy algorithms for solving NP-complete problems.

Education

Massachusetts Institute of Technology, Cambridge, MA

Doctor of Philosophy in Computer Science, June 2002

Ph.D. Thesis: Projective Minimal Analysis of Camera Geometry. AT&T Laboratories Fellow.

Massachusetts Institute of Technology, Cambridge, MA

Master of Science in Computer Science, August 1995

M.S. Thesis: Real-Time Face Verification

Harvard University, Cambridge, MA

Bachelor of Arts in Mathematics, June 1992

Cum Laude General Studies. Radcliffe College National Scholar. National Merit Scholar. Study Abroad: Budapest Semesters in Mathematics, Budapest, Hungary.

Public Engagement

[Redefining Inclusion: Technology as an Act of Service](#), Plenary Talk, Tapia Celebration of Diversity in Computing, 2016.

[Technology During Natural Disasters](#), Women Techmakers Summit, 2014.

[How Can Crisis Maps Meet Information Needs of Affected People?](#) Lightning Talk, International Conference on Crisis Mapping (ICCM), 2013.

[Pursuing Professional Changes](#) (with Alice Bonhomme-Biais), Special Issue on Gender Diversity in Computing, IEEE Computer Magazine, v. 46, no. 3, March 2013.

Other selected speaking engagements: [OpenAir 2015](#), Latin@s in Tech 2015 Summit, [CRA-W Graduate Cohort Workshop](#) (2010-2012), [Grace Hopper Celebration for Women in Computing](#).

[Meet Raquel, Software Engineer for Google Crisis Response](#)

Publications

"Supernova Recognition using Support Vector Machines," R. Romano, C. Aragon, and C. Ding, International Conference of Machine Learning Applications, December 14-16, 2006.

"Towards Direct Simulation of Future Tropical Cyclone Statistics in a High Resolution Global Atmospheric Model," Michael F. Wehner, G. Bala, Phillip Duffy, Arthur A. Mirin, and Raquel Romano, Advances in Meteorology, vol. 2010, Article ID 915303, 13 pages, 2010. doi:10.1155/2010/915303

"Imaging features that discriminate between high and low LET radiation-induced foci in human fibroblasts," Costes, S. V., A. Boissière, S. Ravani, R. Romano, B. Parvin and M. H. Barcellos-Hoff., Radiat Res, 165 (5): 505-515, May 2006.

"Monitoring Activities from Multiple Video Streams: Establishing a Common Coordinate Frame," L. Lee, R. Romano, and G. Stein, IEEE Transactions on Pattern Recognition and Machine Intelligence, Special Section on Video Surveillance and Monitoring, Vol. 22, No. 8, August 2000.

"Forest of sensors: Using adaptive tracking to classify and monitor activities in a site," W. E. L. Grimson, C. Stauffer, R. Romano, L. Lee, P. Viola, O. Faugeras, Second International Workshop on Cooperative Distributed Vision, Osaka, Japan, November 1998.

"Using Adaptive Tracking to Classify and Monitor Activities in a Site," W.E.L. Grimson, L. Lee, R. Romano, and C. Stauffer, Proceedings of Computer Vision and Pattern Recognition, 1998, pp. 22-31.

"Face Verification for Real-time Applications," R. Romano, D. Beymer, and T. Poggio, Proceedings of Image Understanding Workshop, Vol. 1, Palm Springs, CA, February 1996, pp. 747-756.

Awards & Activities

[Society of Hispanic Professional Engineers Star Diversity Award](#), 2015.

[#YesWeCode Advisory Board](#), 2015-present.

[CNET 20 Most Influential Latino/as](#), 2014.

[Watsonville Tecnología-Educación-Comunidad \(TEC\)](#) Community Leadership Council (CLC), 2012-2014.

[Anita Borg Institute](#), Industry Advisory Board, 2009.

[Latinas in Computing](#), Co-Founder, 2006.

[LBNL Laboratory Directed Research and Development \(LDRD\)](#), 2005.

\$80,000 research grant for Statistical Feature Modeling for Scientific Data Via Basis Decomposition

[Luis W. Alvarez Postdoctoral Fellowship](#), 2003.