

Rahul Garg

Staff Research Scientist
Google Inc.

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Computer Vision Researcher + Engineer with proven track record of converting research to products.

Experience

- **Staff Research Scientist at Google Research, Mountain View** **Oct'13 - Present**

Computer Vision, Machine Learning and Computational Photography. My work forms the basis of Portrait Mode for Google Pixel phones, worked on hand tracking and gesture detection for VR / AR.

- **Research Engineer at Flutter, (Acquired by Google)** **April'12 - Oct'13**

Gesture recognition startup (Mac app rated 4.5+, among Apple's Best Apps of 2012), one of the **first** employees. Sped up recognition by **10×**, automated training data collection, co-invented new state of the art image feature, developed across OS X, Win, Linux, iOS, Android, Chrome (NaCl and JS).

- **Software Engineering Intern at Google Seattle** **March'10 - Sept'10, June'11 - Sept'11**

- **Implemented and launched** the *Face Movie* feature included in Picasa 3.8 in just 4 months. Extensively covered in press. Demo video has 1.5 M+ views on YouTube.
- Prototyped an Android app to capture *dynamic mosaics*, an extension of panoramas.

- **Research Intern at Microsoft Research** **June'08 - Sept'08, May'06 - July'06**

Mentor: Richard Szeliski / Manik Varma

- Designed custom features for matching and 3D reconstruction of man made scenes from photos.
 - Developed locally invariant fractal features for classification of textures (Published at ICCV).
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Education

- **University of Washington, Seattle, WA** **2007 - 2012**

Ph.D. in Computer Science and Engineering

Advisor: Prof. Steven M. Seitz

- **Indian Institute of Technology (IIT) Delhi, India** **2003 - 2007**

Bachelor of Technology in Computer Science and Engineering

GPA: 9.91/10.0, President's Gold Medal

Highest GPA amongst all outgoing B.Tech. students across all majors

All India Rank 7 among 172000 candidates in IIT-Joint Entrance Exam. 2003

Honors and Awards

- Publications at top-tier vision and graphics conferences (SIGGRAPH, ICCV, CVPR). 10+ patents.
 - Fellowships: NVIDIA Fellowship (2009-10), Clairmont L. Egtvedt Fellowship (2007-08), Weil Family Endowed Fellowship (2007-08), NTSE Scholarship by Govt. of India (2001).
 - Programming Contests: **Top 12** in TopCoder Open 2008 Marathon competition (**international** event), **Top 50** in Google Code Jam India 2006
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Publications

- S. Niklaus, X. C. Zhang, J. T. Barron, N. Wadhwa, R. Garg, F. Liu, T. Xue, **Learned Dual-View Reflection Removal**, *WACV*, 2021.
 - Y. Zhang, N. Wadhwa, S. Orts-Escolano, C. Häne, S. Fanello, R. Garg, **Du²Net: Learning Depth Estimation from Dual-Cameras and Dual-Pixels**, *ECCV*, 2020. (Oral. Basis for Portrait Mode on Pixel 4.)
 - C. Herrmann, R. S. Bowen, N. Wadhwa, R. Garg, Q. He, J.T. Barron, R. Zabih, **Learning to Autofocus**, *CVPR*, 2020. (Basis for low light autofocus on Pixel 5)
 - R. Garg, N. Wadhwa, S. Ansari, J.T. Barron, **Learning Single Camera Depth Estimation using Dual-Pixels**, *ICCV*, 2019. (Oral. Basis for Portrait Mode on Pixel 3.)
 - S. Ansari, N. Wadhwa, R. Garg, J. Chen, **Wireless Software Synchronization of Multiple Distributed Cameras**, *ICCP*, 2019.
 - N. Wadhwa, R. Garg, D.E. Jacobs, B.E. Feldman, N. Kanazawa, R. Carroll, Y. Movshovitz-Attias, J.T. Barron, Y. Pritch, M. Levoy, **Synthetic Depth-of-Field with a Single-Camera Mobile Phone.**, *SIGGRAPH*, 2018. (Basis for Portrait Mode on Pixel 2.)
 - P.P. Srinivasan, R. Garg, N. Wadhwa, R. Ng, J.T. Barron, **Aperture Supervision for Monocular Depth Estimation**, *CVPR*, 2017.
 - I. Kemelmacher-Shlizerman, E. Shechtman, R. Garg and S.M. Seitz. **Moving Portraits**, *Communications of ACM, Research Highlights*, Sep 2014 (Cover Story).
 - R. Garg and S.M. Seitz. **Dynamic Mosaics**, In Proc. of *3D Imaging, Modeling, Processing, Visualization, Transmission Conference (3DIMPVT)*, 2012
 - I. Kemelmacher-Shlizerman, E. Shechtman, R. Garg and S.M. Seitz. **Exploring Photobios**, *SIGGRAPH*, 2011. Featured on SIGGRAPH cover. (Basis for Google Picasa Face Movies feature.)
 - R. Garg, D. Ramanan, S.M. Seitz and N. Snavely. **Where's Waldo: Matching People in Images of Crowds**, *CVPR*, 2011.
 - R. Garg, H. Du, S.M. Seitz and N. Snavely. **The Dimensionality of Scene Appearance**, *ICCV*, 2009.
 - N. Snavely, R. Garg, S.M. Seitz and R. Szeliski. **Finding Paths through the World's Photos**, *SIGGRAPH*, 2008. (Basis for new features in Microsoft's Photosynth.)
 - M. Varma and R. Garg. **Locally Invariant Fractal Features for Statistical Texture Classification**, *ICCV*, 2007.
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