

IGNACIO GARCÍA DORADO

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Summary

- Research Engineer at Google Research since Dec 2015.
 - Ph.D. in Computer Science (Purdue University, U.S.A.); M.Sc. in Computer Science (Purdue University, U.S.A.); M.Sc. in Computer Engineering (LTH, Sweden); M.Sc. in Electrical Engineering (UPM, Spain).
 - Extensive computer training, including knowledge of multiple languages (C, C++, C#, WPF, Java, Python, Android, Perl, OpenGL, Matlab, OpenCV) and operating systems.
 - Formerly, research assistant at Purdue and U.C. Berkeley, research intern at NVidia, research assistant at McGill University, and software engineer at European Space Agency.
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Education

Ph.D.	Computer Science <i>Purdue University, West Lafayette (USA)</i> Thesis: "Smart cities: Inverse design of 3D urban procedural models with traffic and weather simulation".	2010- 2015
M.Sc.	Computer Science (2-year degree) <i>Purdue University, West Lafayette (USA)</i> Thesis: "Customizing Imagery to Improve Visual Acuity".	2010-2014
	Computer Science & Engineer (4.5-year degree) <i>LTH Lund University, Lund (Sweden)</i> Thesis: "Focused Crawler: algorithm survey and new approaches with a manual analysis".	2006-2008
	Electrical Engineer (5-year degree) <i>Polytechnic University of Madrid, Madrid (Spain)</i>	2002-2006

Distinctions and Scholarships

- **Elevate Ventures Award:** Awarded by *Purdue Foundation*. March 2015.
 - **Schurz Innovation Challenge:** 1st Price. December 2014.
 - **Bilsland Dissertation Fellowship:** 1-year support, 2012. Awarded by *Purdue Univ.*
 - **Purdue Research Foundation Fellowship:** 1-year support, 2012. Awarded by *Purdue Univ. Computer Science*.
 - **Fulbright Scholarship:** 2-year full support, 2010 and 2011. Awarded by the *U.S. Department of State*.
 - **Grand NCE Foundation Grant:** half-year support, 2010. Awarded by the *Canadian Government*.
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Publications

- **Image Stylization: From Predefined to Personalized.** I Garcia-Dorado, P Getreuer, B Wronski, P Milanfar. *IET Computer Vision*; 14 pages, April 2020.
- **Better Compression with Deep Pre-Editing** H Talebi, D Kelly, X. Luo, I Garcia Dorado, F Yang, P Milanfar, M Elad. *IEEE Transactions on Image Processing*; 12 pages, Feb 2020.
- **Handheld multi-frame super-resolution.** B Wronski, I Garcia-Dorado, M Ernst, D Kelly, M Krainin, CK Liang. *Proceedings of SIGGRAPH*; also *ACM Transactions on Graphics (TOG)*, 38:4; 18 pages, 2019.
- **Systems and methods for generating a summary storyboard from a plurality of frames.** A Kauffmann, A Dahley, P Le, M Bowers, I Garcia-Dorado, R Debreuil, W Lindmeier, B Allen, A Ma, P Getreuer. *U.S. Patent US10452920*; publication date May 2019.
- **Architecture for Modular Microsimulation of Real Estate Markets and Transportation.** P Waddell, I Garcia-Dorado, S Maurer, G Boeing, M Gardner, E Porter, D Aliaga. *Symposium on Applied Urban Modelling*; 32 pages, 2018.
- **BLADE: Filter learning for general purpose computational photography.** P Geteuer, I Garcia-Dorado, J Isidoro, S Choi, F Ong, P Milanfar. *Proceedings of International Conference on Computational Photography (ICCP)*; 27 pages, 2018.

- **Fast Weather Simulation for Inverse Procedural Design of 3D Urban Models.** I Garcia-Dorado, D Aliaga, P Bhalachandran, P Schmid, D Niyogy. *Proceedings of SIGGRAPH*; also *ACM Transactions on Graphics (TOG)*, 36:2; 19 pages, 2017.
- **Interactive Sketching of Urban Procedural Models.** G Nishida, I Garcia-Dorado, D Aliaga, B Benes, Adrien Bousseau. *Proceedings of SIGGRAPH*; also *ACM Transactions on Graphics (TOG)*, 35:4; 11 pages, 2016.
- **Example-Driven Procedural Roads.** G Nishida, I Garcia-Dorado, D Aliaga. *Computer Graphics Forum (CGF)*; 12 pages, 2015.
- **Total Variation Approach for Customizing Imagery to Improve Visual Acuity.** I Garcia-Dorado*, C Montalto*, D Aliaga, M Oliveira, F Meng. *Proceedings of SIGGRAPH*; also *ACM Transaction on Graphics (TOG)* 34:3; 13 pages, 2015.
- **Displaying Personalized Imagery for Improving Visual Acuity.** D Aliaga, C Montalto, I Garcia-Dorado. *U.S. Patent US20150269434*; publication date May 2015.
- **Designing Large-Scale Interactive Traffic Animations for Urban Modeling.** I Garcia-Dorado, D Aliaga, S Ukkusuri. *Proceedings of Eurographics*; also *Computer Graphics Forum Journal (CGF)*, 33:2; 10 pages, 2014.
- **Automatic Urban Modeling using Volumetric Reconstruction with Surface Graph Cuts.** I Garcia-Dorado, I Demir, D Aliaga. *Computer & Graphics Journal*, 37:7, 15 pages, 2013.
- **Automatic Modeling of Planar-Hinged Buildings.** I Garcia-Dorado, D Aliaga. *Proceedings of Eurographics (EG)*, Girona, Spain; 4 pages, 2013.
- **Evaluation of Shape Grammar Rules for Urban Transport Network Design.** B Vitins, I Garcia-Dorado, C Vanegas, D Aliaga, K Axhausen. *Proceedings of Transportation Research Board, Washington DC*; 19 pages, 2013.
- **Inverse Design of Urban Procedural Models.** C Vanegas, I Garcia-Dorado, D Aliaga, P Waddell. *Proceedings of SIGGRAPH*; also *ACM Transactions on Graphics (TOG)*, 31:6, 10 pages, 2012.
- **Fully Automatic Multi-Projector Calibration with an Uncalibrated Camera.** I Garcia-Dorado, J Cooperstock. *Proceedings of CVPRW (PROCAMS)*, Colorado Springs, Denver; 8 pages, 2011.

Experience

Senior Research Engineer

Google Research, Berlin (Germany)

Sept 2020-Present

Research on 3D Machine Learning.

- Technical leader of a research project on 3D urban reconstruction.

Google Research, Mountain View (USA)

Dec 2015-Sept 2020

Research on Computational Photography.

- Technical leader of *Storyboard* Google Research app (media coverage [1](#), [2](#), [3](#)).
- Technical leader of *RAISR* on the Google *Pixel 2* to enhance zoomed pictures.
- Co-Technical leader of *Super-Res* on the Google *Pixel 3*, state-of-the-art computational photography algorithm on device phones (media coverage [1](#), [2](#), [3](#)).
- Technical leader of the Google software camera *zoom* of *Pixel 3/3a*, *Pixel 4/4a*, and *Pixel 5*.

Research Assistant

Aug 2010-Nov 2015

Purdue University, West Lafayette (USA)

- **Urban Modeling:** Procedural methods for fast design and edition of 3D urban models:
 - In collaboration with *Prof. Paul Waddell* (U.C. Berkeley), we developed a framework to interactively edit urban models with intuitive high-level controls.
 - In collaboration with *Prof. Ukkusuri* (Civil Engineering at Purdue), we developed a fast traffic micro-simulation that allows us to design the traffic of a city.
 - In collaboration with *Prof. Niyogi* (EAPS at Purdue), we are developing a GPU weather forecast system to be integrated with the city and traffic design framework.

Summer Research Appointment

June-Aug 2014

U.C. Berkeley, Berkeley (USA)

Research in traffic assignment simulator with GPUs.

Summer Research Intern

May-Aug 2013

NVidia, Santa Clara (USA)

Research in procedural modeling and new software architecture for future GPUs.

Research Assistant

Jan-June 2010

McGill University, Montreal (Canada)

Developed an auto-calibration and auto-brightness multi-projector system.

Mobile Software Engineer

Nov-Dec 2009

Mobile Snacks Inc., Madrid (Spain)

Developed a Mobile banking application for Android and WebOS.

Software Engineer

July 2008-Oct 2009

European Space Agency (ESA), ESTEC Noordwijk (Netherlands)

Developed the software to control pico-satellites from an Android device.

Teaching Instructor

University Academy, UML course for Senior Technicians, Madrid (Spain)

Summer 2007 & 2008

Courses were "UML – Rational Rose", C, C++, Java, Pascal Programming and Math.

Conferences

- **Paper Reviewer:** SIGGRAPH, SIGGRAPH Asia, Computer Graphics Forum, Eurographics, Graphical Models, Computer & Graphics Journal, SIMPAT, CGI, ZUSC, CVIU, and Optical Networks and Systems.
- **Presentations at Conferences:** SIGGRAPH 2019 (Poster, Los Angeles, USA), SIGGRAPH 2017 (Los Angeles, USA), SIGGRAPH 2015 (Los Angeles, USA), Eurographics 2014 (Strasbourg, France), Eurographics 2013 (Girona, Spain), SIGGRAPH ASIA 2012 (Singapore), and CVPR 2011 (Colorado Springs, USA).
- **Additional Conferences Attended:** SIGGRAPH 2019 (Poster presentation, Los Angeles, LA) ICIP 2016 (Phoenix, USA), SIGGRAPH 2012 (Los Angeles, USA), and SIGGRAPH 2011 (Vancouver, Canada).

Computer Skills

- **Software Designer:** C++, C, Java, Boost, Qt, C#, WPF, WCF, Halide, Python, PHP, XML, XSLT, Motorola ColdFire, Matlab, Perl, Ada95, OpenGL, GLSL, CUDA, OpenCV, PCL, and ARToolKit.
- **Software Engineer:** Enterprise Architect, Rational Rose, and UML.
- **Video and Image Editing:** Adobe Premiere, Adobe Photoshop, and Gimp.

Languages

- **English and Spanish:** Fluent.
- **Swedish:** Good at reading and writing (6 courses in Sweden).

Additional Info

- Board member of the Fulbright Association at Purdue (2011).
- Member: ACM and European Association for Computer Graphics (EG).
- **Scout:** "Scouter" (a volunteer who works with kids) for three years and member for eight years (1995-2006).

Graphically

