

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
	Name	Execution Date
	MATTHIAS GRUNDMANN	04/23/2013
	VIVEK KWATRA	05/03/2013
	IRFAN ESSA	04/23/2013
RECEIVING PARTY DATA		
Name:	GOOGLE INC.	
Street Address:	1600 AMPHITHEATRE PARKWAY, BLDG. 41	
City:	MOUNTAIN VIEW	
State/Country:	CALIFORNIA	
Postal Code:	94043	
PROPERTY NUMBERS Total: 1		
Property Type	Number	
Application Number:	15150069	
CORRESPONDENCE DATA		
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NAME OF SUBMITTER:	ANDREW P. WHITEHEAD	
SIGNATURE:	/Andrew P. Whitehead/	
DATE SIGNED:	10/03/2016	
Total Attachments: 2		
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ASSIGNMENT

For good and valuable consideration, the receipt of which is hereby acknowledged, the person(s) named below (referred to as "INVENTOR" whether singular or plural) has sold, assigned, and transferred and does hereby sell, assign, and transfer to **Google Inc.**, a Delaware corporation, having a place of business at 1600 Amphitheatre Parkway, Bldg. 41, Mountain View, California 94043 ("ASSIGNEE"), for itself and its successors, transferees, and assignees, the following:

1. The entire worldwide right, title, and interest in all inventions and improvements ("SUBJECT MATTER") that are disclosed in the following non-provisional application filed under 35 U.S.C. § 111(a), international application filed according to the Patent Cooperation Treaty (PCT), or U.S. national phase application filed under 35 U.S.C. § 371 ("APPLICATION"):

- Application No. **13/854,819**, entitled "**Cascaded Camera Motion Estimation, Rolling Shutter Detection, And Camera Shake Detection For Video Stabilization**," filed on **April 1, 2013**, which claims priority from a provisional application, filed on March 15, 2013, now bearing U.S. Application No. 61/799,985.

2. The entire worldwide right, title, and interest in and to:
(a) the APPLICATION; (b) all applications claiming priority from the APPLICATION; (c) all provisional, utility, divisional, continuation, substitute, renewal, reissue, and other applications related thereto that have been or may be filed in the United States or elsewhere in the world; (d) all patents (including reissues and re-examinations) that may be granted on the applications set forth in (a), (b), and (c) above; and (e) all right of priority in the APPLICATION and in any underlying provisional or foreign application, together with all rights to recover damages for infringement of provisional rights.

INVENTOR agrees that ASSIGNEE may apply for and receive patents for SUBJECT MATTER in ASSIGNEE's own name.

INVENTOR agrees to do the following, when requested, and without further consideration, in order to carry out the intent of this Assignment: (1) execute all oaths, assignments, powers of attorney, applications, and other papers necessary or desirable to fully secure to ASSIGNEE the rights, titles and interests herein conveyed; (2) communicate to ASSIGNEE all known facts relating to the SUBJECT MATTER; and (3) generally do all lawful acts that ASSIGNEE shall consider desirable for securing, maintaining, and enforcing worldwide patent protection relating to the SUBJECT MATTER and for vesting in ASSIGNEE the rights, titles, and interests herein conveyed. INVENTOR further agrees to provide any successor, assign, or legal representative of ASSIGNEE with the benefits and assistance provided to ASSIGNEE hereunder.

INVENTOR represents that INVENTOR has the rights, titles, and interests to convey as set forth herein, and covenants with ASSIGNEE that the INVENTOR has not made and will not

Title: Cascaded Camera Motion Estimation, Rolling Shutter Detection, And
Camera Shake Detection For Video Stabilization
Filed: April 1, 2013
Application No.: 13/854,819

hereafter make any assignment, grant, mortgage, license, or other agreement affecting the rights, titles, and interests herein conveyed.

INVENTOR grants the attorney of record the power to insert on this Assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office or other authority for recordation of this document.

This Assignment may be executed in one or more counterparts, each of which shall be deemed an original and all of which may be taken together as one and the same Assignment.

By signing below, INVENTOR further attests to the following:

- The APPLICATION was made or authorized to be made by INVENTOR.
- INVENTOR believes that INVENTOR is the original inventor or an original joint inventor of a claimed invention in the APPLICATION.

INVENTOR hereby acknowledges that any willful false statement made in this document is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

<u>Name and Signature</u>	<u>Date of Signature</u>
Signature: <u>M. Grundmann</u> Matthias Grundmann (Apr 23, 2013)	<u>Apr 23, 2013</u>
Email: grundman@google.com	
<u>Name and Signature</u>	<u>Date of Signature</u>
Signature: <u>Vivek Kwatra</u> Vivek Kwatra (May 3, 2013)	<u>May 3, 2013</u>
Email: kwatra@google.com	
<u>Name and Signature</u>	<u>Date of Signature</u>
Signature: <u>Irfan Essa</u> Irfan Essa (Apr 23, 2013)	<u>Apr 23, 2013</u>
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