

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT6651429

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
PASIN MANURANGSI	05/04/2020
BADIH GHAZI	05/04/2020
SHANMUGASUNDARAM RAVIKUMAR	05/04/2020
RASMUS PAGH	05/06/2020
AMER SINHA	04/09/2021
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	GOOGLE LLC
<b>Street Address:</b>	1600 AMPHITHEATRE PARKWAY
<b>City:</b>	MOUNTAIN VIEW
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	94043
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	17227532
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
<b>Email:</b>	usdocketing@dority-manning.com, jchapman@dority-manning.com
<b>Correspondent Name:</b>	DORITY & MANNING, P.A. AND GOOGLE LLC
<b>Address Line 1:</b>	P.O. BOX 1449
<b>Address Line 4:</b>	GREENVILLE, SOUTH CAROLINA 29602
<b>ATTORNEY DOCKET NUMBER:</b>	GGL-2132
<b>NAME OF SUBMITTER:</b>	NICHOLAS T. DESETTO
<b>SIGNATURE:</b>	/Nicholas T. DeSetto/
<b>DATE SIGNED:</b>	04/12/2021
<b>Total Attachments: 6</b>	
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**PATENT**

**REEL: 055892 FRAME: 0051**

**JOINT INVENTION ASSIGNMENT OF WORLDWIDE RIGHTS**

**WHEREAS**, we, Pasin Manurangsi, a citizen of Thailand, residing in Mountain View, California; Badih Ghazi, a citizen of Lebanon, residing in San Jose, California; Shanmugasundaram Ravikumar, a citizen of United States, residing in Piedmont, California; and Rasmus Pagh, a citizen of Denmark and Sweden, residing in Berkeley, California, as assignors, have made an invention entitled

**“PRIVATE COUNTING FROM ANONYMOUS MESSAGES: NEAR-OPTIMAL ACCURACY WITH  
VANISHING COMMUNICATION OVERHEAD”**

as described in a patent application, the specification of which:

- ☐ is attached hereto.
- ☒ was filed on April 10, 2020 as U.S. Application Serial No. 63/008,332.
- ☐ was filed on \_\_\_\_\_ as PCT Application Serial No. \_\_\_\_\_.

**WHEREAS**, Google LLC, 1600 Amphitheatre Parkway, Mountain View, California 94043, as assignee, is desirous of securing the entire right, title and interest in and to this invention in all countries throughout the world, and in and to the patent application on this invention and any Letters Patent to be issued upon this patent application;

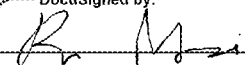
**NOW, THEREFORE**, be it known that for good and valuable consideration the receipt of which from assignee is hereby acknowledged, we, as assignors, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the assignee, its lawful successors and assigns, our entire right, title, and interest in and to this invention and this patent application, and all divisions, and continuations thereof, and all Letters Patent which may be granted thereon, and all reissues thereof, and all rights to claim priority on the basis of such applications, and all applications for Letters Patent which may hereafter be filed for this invention in any country and all Letters Patent which may be granted on this invention in any country, and all extensions, renewals, and reissues thereof, and all rights to sue and recover for past, present, and future infringement thereof, and we hereby authorize and request the Commissioner for Patents of the United States and any official of any other country whose duty it is to issue patents on applications as described above, to issue all Letters Patent for this invention to assignee, its successors and assigns, in accordance with the terms of this Assignment, and we hereby authorize the assignee, its successors and assigns, and the attorney(s)

of record in applications as described above to modify this Assignment, subsequent to its execution, to more specifically identify the applications as described above.

**AND, WE HEREBY** covenant that we have the full right to convey the interest assigned by this Assignment, and we have not executed, and will not execute any agreement in conflict with this Assignment;

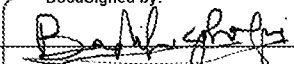
**AND, WE HEREBY** further covenant and agree that we will, without further consideration, communicate with assignee, its successors and assigns, any facts known to us respecting this invention, and testify in any legal proceeding, sign all lawful papers when called upon to do so, execute and deliver any and all papers that may be necessary or desirable to perfect the title of this invention in said assignee, its successors and assigns, execute all divisional, continuation, and reissue applications, make all rightful oaths and generally do everything possible to aid assignee, its successors and assigns, to obtain and enforce proper patent protection for this invention in the United States and any other country, it being understood that any expense incident to the execution of such papers shall be borne by the assignee, its successors and assigns.

**IN WITNESS WHEREOF**, the Assignors have executed this document on the date indicated below:

DocuSigned by:  
  
210BBD5FB29E4C8... Pasin Manurangsi

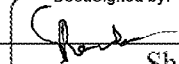
5/4/2020

Date

DocuSigned by:  
  
FD58E60204454A2... Badih Ghazi

5/4/2020

Date

DocuSigned by:  
  
93733454EBE3AA... Shanmugasundaram Ravikumar

5/4/2020

Date

Rasmus Pagh

Date

**JOINT INVENTION ASSIGNMENT OF WORLDWIDE RIGHTS**

**WHEREAS**, we, Pasin Manurangsi, a citizen of Thailand, residing in Mountain View, California; Badih Ghazi, a citizen of Lebanon, residing in San Jose, California; Shanmugasundaram Ravikumar, a citizen of United States, residing in Piedmont, California; and Rasmus Pagh, a citizen of Denmark and Sweden, residing in Hjarup, Sweden, as assignors, have made an invention entitled

**“PRIVATE COUNTING FROM ANONYMOUS MESSAGES: NEAR-OPTIMAL ACCURACY WITH  
VANISHING COMMUNICATION OVERHEAD”**

as described in a patent application, the specification of which:

- ☐ is attached hereto.
- ☒ was filed on April 10, 2020 as U.S. Application Serial No. 63/008,332.
- ☐ was filed on \_\_\_\_\_ as PCT Application Serial No. \_\_\_\_\_.

**WHEREAS**, Google LLC, 1600 Amphitheatre Parkway, Mountain View, California 94043, as assignee, is desirous of securing the entire right, title and interest in and to this invention in all countries throughout the world, and in and to the patent application on this invention and any Letters Patent to be issued upon this patent application;

**NOW, THEREFORE**, be it known that for good and valuable consideration the receipt of which from assignee is hereby acknowledged, we, as assignors, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the assignee, its lawful successors and assigns, our entire right, title, and interest in and to this invention and this patent application, and all divisions, and continuations thereof, and all Letters Patent which may be granted thereon, and all reissues thereof, and all rights to claim priority on the basis of such applications, and all applications for Letters Patent which may hereafter be filed for this invention in any country and all Letters Patent which may be granted on this invention in any country, and all extensions, renewals, and reissues thereof, and all rights to sue and recover for past, present, and future infringement thereof, and we hereby authorize and request the Commissioner for Patents of the United States and any official of any other country whose duty it is to issue patents on applications as described above, to issue all Letters Patent for this invention to assignee, its successors and assigns, in accordance with the terms of this Assignment, and we hereby authorize the assignee, its successors and assigns, and the attorney(s)

of record in applications as described above to modify this Assignment, subsequent to its execution, to more specifically identify the applications as described above.

**AND, WE HEREBY** covenant that we have the full right to convey the interest assigned by this Assignment, and we have not executed, and will not execute any agreement in conflict with this Assignment;

**AND, WE HEREBY** further covenant and agree that we will, without further consideration, communicate with assignee, its successors and assigns, any facts known to us respecting this invention, and testify in any legal proceeding, sign all lawful papers when called upon to do so, execute and deliver any and all papers that may be necessary or desirable to perfect the title of this invention in said assignee, its successors and assigns, execute all divisional, continuation, and reissue applications, make all rightful oaths and generally do everything possible to aid assignee, its successors and assigns, to obtain and enforce proper patent protection for this invention in the United States and any other country, it being understood that any expense incident to the execution of such papers shall be borne by the assignee, its successors and assigns.

**IN WITNESS WHEREOF**, the Assignors have executed this document on the date indicated below:

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Pasin Manurangsi

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Date

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Badih Ghazi

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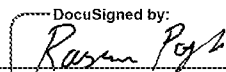
Date

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Shanmugasundaram Ravikumar

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Date

DocuSigned by:  
  
85D293677E584CC...

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Rasmus Pagh

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5/6/2020

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Date

**CONFIRMATORY ASSIGNMENT OF WORLDWIDE RIGHTS**

**WHEREAS**, I, Amer Sinha, a citizen of the United States, residing in San Francisco, California, as assignor, have solely or jointly made an invention entitled

**“PRIVATE COUNTING FROM ANONYMOUS MESSAGES: NEAR-OPTIMAL ACCURACY WITH  
VANISHING COMMUNICATION OVERHEAD”**

(the “Invention”) as described in a patent application (the “Patent Application”), the specification of which:

- ☐ is attached hereto.
- ☒ was filed on April 10, 2020 as U.S. Application Serial No. 63/008,332.
- ☐ was filed on \_\_\_\_\_ as PCT Application Serial No. \_\_\_\_\_.
- ☐ was filed on \_\_\_\_\_ as \_\_\_\_\_.

**WHEREAS**, Google LLC, 1600 Amphitheatre Parkway, Mountain View, California 94043, as assignee, has received and secured or hereby receives and secures the entire right, title and interest in and to the Invention and the Patent Application in all countries throughout the world, in and to any Letters Patent or similar rights for the Invention to be issued upon the Patent Application throughout the world, any application for Letters Patent or similar rights for the Invention claiming priority to the Patent Application in all countries throughout the world, and any Letters Patent or similar rights to be issued claiming priority to the Patent Application in all countries throughout the world;

**NOW, THEREFORE**, be it known that for good and valuable consideration the receipt of which from assignee is hereby acknowledged, I, as assignor, acknowledge and confirm that I have sold, assigned, transferred, conveyed, and set over, and/or do hereby sell, assign, transfer, convey, and set over unto the assignee, its lawful successors and assigns, my entire right, title, and interest in and to the Invention and the Patent Application now existing and in the future, and all divisions, continuations, continuations-in-part, and national-stage applications thereof, any and all applications claiming priority to the Patent Application, and all Letters Patent or similar rights which may be granted thereon, and all reissues and re-examinations of any of the foregoing, and all rights to claim priority on the basis of any of the foregoing applications, and all applications for Letters Patent or similar rights which may hereafter be filed for the Invention in any country and all Letters Patent or similar rights which may be granted on the Invention in any country, and all extensions, renewals, reissues, and re-examinations thereof, any and all causes of action, claims, and demands and other

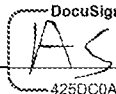
rights for, or arising from, any infringement, breaches, or misappropriation, including past infringements, breaches, and misappropriations of any of the foregoing throughout the world, the right to take actions to assert any and all causes of action related to any of the foregoing throughout the world, including those accrued in assignor's favor for infringement, breach, and misappropriation, and the right to sue and recover and have past, present, and future damages and profits for infringement, breach, and misappropriation, in all countries, territories and possessions throughout the world in accordance with the laws thereof, to the full extent of such rights, and I hereby authorize and request the Commissioner for Patents of the United States and any official of any other country whose duty it is to issue patents on applications as described above, to issue all Letters Patent or similar rights for the Invention or the Patent Application to assignee, its successors and assigns, in accordance with the terms of this Assignment, and I hereby authorize the assignee, its successors and assigns, and the attorney(s) of record in applications as described above to modify this Assignment, subsequent to its execution, to more specifically identify the applications as described above.

**AND, I HEREBY** covenant that I have the full right to convey the interest assigned by this Assignment, and I have not executed, and will not execute any agreement in conflict with this Assignment;

**AND, I HEREBY** further covenant and agree that I will, without further consideration, communicate with assignee, its successors and assigns, any facts known to me respecting the Invention, sign all lawful papers when called upon to do so, execute and deliver any and all papers that may be necessary or desirable to perfect the title of the Invention in said assignee, its successors and assigns, execute all divisional, continuation, reissue applications, re-examination applications, and any applications claiming priority to the Patent Application, and make all rightful oaths and generally aid assignee, its successors and assigns, to obtain and enforce proper patent and any other protection for the Invention in the United States and any other country, it being understood that any expense incident to the execution of such papers shall be borne by the assignee, its successors and assigns.

**IN WITNESS WHEREOF**, the Assignor has executed this document on the date indicated below:

DocuSigned by:



4250C0AC273A415...

Amer Sinha

4/9/2021

Date