505515629 06/09/2019

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5562434

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
AHMED ALKHATEEB	09/21/2017
SAM PADINJAREMANNIL ALEX	09/21/2017
ALI YAZDAN PANAH	09/21/2017
QI QU	09/16/2017

RECEIVING PARTY DATA

Name:	FACEBOOK, INC.
Street Address:	1601 WILLOW ROAD
City:	MENLO PARK
State/Country:	CALIFORNIA
Postal Code:	94025

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16435511

CORRESPONDENCE DATA

Fax Number:

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.

Phone: 408.888.9830

Email: short.br@gmail.com

Correspondent Name: LAW OFFICE OF BRIAN SHORT (FACEBOOK)

Address Line 1: P.O. BOX 641867

Address Line 4: SAN JOSE, CALIFORNIA 95164-1867

ATTORNEY DOCKET NUMBER:	BS-1019.03
NAME OF SUBMITTER:	BRIAN SHORT
SIGNATURE:	/Brian Short/
DATE SIGNED:	06/09/2019

Total Attachments: 4

source=BS-1019-1-Assign-Dec#page1.tif source=BS-1019-1-Assign-Dec#page2.tif source=BS-1019-1-Assign-Dec#page3.tif

PATENT 505515629 REEL: 049413 FRAME: 0659

source=BS-1019-1-Assign-Dec#page4.tif

PATENT REEL: 049413 FRAME: 0660

COMBINED ASSIGNMENT/DECLARATION (37 CFR 1.63)

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 Facebook, Inc., a Delaware corporation, having a place of business at 1601 Willow Road, Menlo Park, California 94025 ("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 provisional application filed under 35 U.S.C. § 111(b), 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. 15/784,089, entitled "Zone Precoding" filed on October 14, 2017.

- 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 which have been or may be filed in the United States or elsewhere in the world; (d) all patents (including reissues and re-examinations) which 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 hereafter make any assignment, grant, mortgage, license, or other agreement affecting the rights, titles, and interests herein conveyed.

1

Attorney Docket No.: BS-1019.01;

Title: Zone Precoding

Date Filed: October 14, 2017 Application No.: 15/784,089

> PATENT REEL: 049413 FRAME: 0661

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 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.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

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 acknowledges the duty to disclose to the United States Patent and Trademark Office all information known to INVENTOR to be material to patentability as defined in 37 CFR § 1.56, which for a continuation-in-part includes information known to INVENTOR to be material to patentability as defined in 37 CFR § 1.56 that became available between the filing date of the prior patent application and the National or PCT filing date of the continuation-in-part application.

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

Name and Signature	Date of Signature
And AlWateel	9/21/2017
Ahmed Alkhateeb	
Name and Signature	Date of Signature
S	9/21/2017
Sam Padinjaremannil Alex	7
Name and Signature	Date of Signature
Ali, YAZDAN PANAH	
Name and Signature	Date of Signature
Qi Qu	

Title: Zone Precoding

Attorney Docket No.: BS-1019.01

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 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.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

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 APPI ICATION.
- INVENTOR acknowledges the duty to disclose to the Utited States Patent and Trademark Office all information known to INVENTOR to be material to patentability as defined in 37 CFR § 1.56, which for a continuation-in-part includes information known to INVENTOR to be material to patentability as defined in 37 CFR § 1.56 that became available between the filing date of the prior patent application and the National or PCT filing date of the continuation-in-part application.

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

Name and Signature	Date of Signature
35 S	
Ahmed Alkhateeb	
Name and Signature	Date of Signature
Sam Padinjaremannil Alex	
Name and Signature	Date of Signature
Ali, YAZDANJANAJA	09-21-17
Name and Signature	Date of Signature
Qi Qu	

Title: Zone Precoding

Attorney Docket No.: BS-1019.01

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 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.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

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 acknowledges the duty to disclose to the United States Patent and Trademark Office all information known to INVENTOR to be material to patentability as defined in 37 CFR § 1.56, which for a continuation-in-part includes information known to INVENTOR to be material to patentability as defined in 37 CFR § 1.56 that became available between the filing date of the prior patent application and the National or PCT filing date of the continuation-in-part application.

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

Name and Signature	Date of Signature
Ahmed Alkhateeb	
Name and Signature	Date of Signature
Sam Padinjaremannil Alex	•
Name and Signature	Date of Signature
Ali, YAZDAN PANAH	
Name and Signature	Date of Signature
(9495)	9/16/2017
Qi Qu	············

Title: Zone Precoding

RECORDED: 06/09/2019

Attorney Docket No.: BS-1019.01

PATENT REEL: 049413 FRAME: 0664