

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT4463607

|                                                                                                                                                                                                 |                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SUBMISSION TYPE:</b>                                                                                                                                                                         | CORRECTIVE ASSIGNMENT                                                                                                                                                                                        |
| <b>NATURE OF CONVEYANCE:</b>                                                                                                                                                                    | Corrective Assignment to correct the MISSPELLING OF INVENTOR ZONGRUI DING. INCORRECTLY RECORDED AS ZONGRUI DONG previously recorded on Reel 042431 Frame 0392. Assignor(s) hereby confirms the ZONGRUI DING. |
| <b>CONVEYING PARTY DATA</b>                                                                                                                                                                     |                                                                                                                                                                                                              |
| <b>Name</b>                                                                                                                                                                                     | <b>Execution Date</b>                                                                                                                                                                                        |
| DALE N. SEED                                                                                                                                                                                    | 02/23/2015                                                                                                                                                                                                   |
| MICHAEL F. STARSINIC                                                                                                                                                                            | 02/25/2015                                                                                                                                                                                                   |
| GUANG LU                                                                                                                                                                                        | 02/25/2015                                                                                                                                                                                                   |
| DOROTHY GELLERT                                                                                                                                                                                 | 05/13/2015                                                                                                                                                                                                   |
| ZONGRUI DING                                                                                                                                                                                    | 05/16/2015                                                                                                                                                                                                   |
| LIJUN DONG                                                                                                                                                                                      | 03/10/2015                                                                                                                                                                                                   |
| CHONGGANG WANG                                                                                                                                                                                  | 02/23/2015                                                                                                                                                                                                   |
| <b>RECEIVING PARTY DATA</b>                                                                                                                                                                     |                                                                                                                                                                                                              |
| <b>Name:</b>                                                                                                                                                                                    | INTERDIGITAL PATENT HOLDINGS, INC.                                                                                                                                                                           |
| <b>Street Address:</b>                                                                                                                                                                          | 200 BELLEVUE PARKWAY                                                                                                                                                                                         |
| <b>Internal Address:</b>                                                                                                                                                                        | SUITE 300                                                                                                                                                                                                    |
| <b>City:</b>                                                                                                                                                                                    | WILMINGTON                                                                                                                                                                                                   |
| <b>State/Country:</b>                                                                                                                                                                           | DELAWARE                                                                                                                                                                                                     |
| <b>Postal Code:</b>                                                                                                                                                                             | 19809                                                                                                                                                                                                        |
| <b>PROPERTY NUMBERS Total: 1</b>                                                                                                                                                                |                                                                                                                                                                                                              |
| <b>Property Type</b>                                                                                                                                                                            | <b>Number</b>                                                                                                                                                                                                |
| Application Number:                                                                                                                                                                             | 14410666                                                                                                                                                                                                     |
| <b>CORRESPONDENCE DATA</b>                                                                                                                                                                      |                                                                                                                                                                                                              |
| <b>Fax Number:</b>                                                                                                                                                                              | (215)558-5767                                                                                                                                                                                                |
| <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>                                                                                                                                                                                   | DOCKETING@CONDOROCCIA.COM                                                                                                                                                                                    |
| <b>Correspondent Name:</b>                                                                                                                                                                      | CONDO ROCCIA KOPTIW LLP                                                                                                                                                                                      |
| <b>Address Line 1:</b>                                                                                                                                                                          | 1800 JFK BOULEVARD                                                                                                                                                                                           |
| <b>Address Line 2:</b>                                                                                                                                                                          | SUITE 1700                                                                                                                                                                                                   |
| <b>Address Line 4:</b>                                                                                                                                                                          | PHILADELPHIA, PENNSYLVANIA 19103                                                                                                                                                                             |
| <b>ATTORNEY DOCKET NUMBER:</b>                                                                                                                                                                  | IMTC_11405US02                                                                                                                                                                                               |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>NAME OF SUBMITTER:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | KRYSANNA SEE   |
| <b>SIGNATURE:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | /KRYSANNA SEE/ |
| <b>DATE SIGNED:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 06/16/2017     |
| <b>Total Attachments: 11</b><br>source=11405US02_coversheet0616#page1.tif<br>source=11405US02_ExecutedAssignment#page1.tif<br>source=11405US02_ExecutedAssignment#page2.tif<br>source=11405US02_ExecutedAssignment#page3.tif<br>source=11405US02_ExecutedAssignment#page4.tif<br>source=11405US02_ExecutedAssignment#page5.tif<br>source=11405US02_ExecutedAssignment#page6.tif<br>source=11405US02_ExecutedAssignment#page7.tif<br>source=11405US02_ExecutedAssignment#page8.tif<br>source=11405US02_ExecutedAssignment#page9.tif<br>source=11405US02_ExecutedAssignment#page10.tif |                |

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT4411869

|                              |                                                                                                                                                                                                                                                                                    |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SUBMISSION TYPE:</b>      | CORRECTIVE ASSIGNMENT                                                                                                                                                                                                                                                              |
| <b>NATURE OF CONVEYANCE:</b> | Corrective Assignment to correct the DATE OF EXECUTION BY INVENTOR MICHAEL STARSINIC SHOULD BE 02/25/2015 NOT 02/25/2016 PREVIOUSLY RECORDED ON REEL 038766 FRAME 635 previously recorded on Reel 038766 Frame 0635. Assignor(s) hereby confirms the DATE OF EXECUTION 02/25/2015. |
| <b>RESUBMIT DOCUMENT ID:</b> | 504261430                                                                                                                                                                                                                                                                          |

## CONVEYING PARTY DATA

| Name                 | Execution Date |
|----------------------|----------------|
| MICHAEL F. STARSINIC | 02/25/2015     |
| DALE N. SEED         | 02/23/2015     |
| GUANG LU             | 02/25/2015     |
| DOROTHY GELLERT      | 05/13/2015     |
| ZONGRUI DONG         | 05/16/2015     |
| LIJUN DONG           | 03/10/2015     |
| CHONGGANG WANG       | 02/23/2015     |

## RECEIVING PARTY DATA

|                          |                                    |
|--------------------------|------------------------------------|
| <b>Name:</b>             | INTERDIGITAL PATENT HOLDINGS, INC. |
| <b>Street Address:</b>   | 200 BELLEVUE PARKWAY               |
| <b>Internal Address:</b> | SUITE 300                          |
| <b>City:</b>             | WILMINGTON                         |
| <b>State/Country:</b>    | DELAWARE                           |
| <b>Postal Code:</b>      | 19809                              |

## PROPERTY NUMBERS Total: 1

| Property Type       | Number   |
|---------------------|----------|
| Application Number: | 14410666 |

## CORRESPONDENCE DATA

Fax Number: (215)558-5767

*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.*

Email: docketing@condoroccia.com

Correspondent Name: CONDO ROCCIA KOPTIW LLP

Address Line 1: 1800 JFK BLVD.

Address Line 2: SUITE 1700

Address Line 4: PHILADELPHIA, PENNSYLVANIA 19103

ASSIGNMENT

WHEREAS:

- |    |                                                                                        |    |                                                                             |
|----|----------------------------------------------------------------------------------------|----|-----------------------------------------------------------------------------|
| 1. | Dale N. Seed<br>229 N. 36 <sup>th</sup> Street<br>Allentown, PA 18104<br>United States | 6. | Zongrui Ding<br>5107 NW Crady Lane<br>Portland, OR 97229<br>United States   |
| 2. | Michael F. Starsinic<br>190 Andrew Drive<br>Newtown, PA 18940<br>United States         | 7. | Lijun Dong<br>10530 Greenford Drive<br>San Diego, CA 92126<br>United States |
| 3. | Guang Lu<br>130 Highland Park Blvd.<br>Thornhill, Ontario L3T 1B7<br>Canada            | 8. | Chonggang Wang<br>9 Carlyle Court<br>Princeton, NJ 08540<br>United States   |
| 4. | Kamel M. Shaheen<br>429 Ashton Drive<br>King of Prussia, PA 19406<br>United States     |    |                                                                             |
| 5. | Dorothy Gellert<br>100 N. Whisman Rd #2714<br>Mountain View, CA 94043<br>United States |    |                                                                             |

hereinafter referred to as the ASSIGNORS, are joint inventors of certain inventions or improvements for which we have made application for Letters Patent to the United States, identified as Application No. 14/410,666, filed **June 28, 2013**, entitled **Service-Based Discovery In Networks**; and

WHEREAS, InterDigital Patent Holdings, Inc., hereinafter referred to as the ASSIGNEE, of 200 Bellevue Parkway, Suite 300, Wilmington, DE 19809, a corporation of Delaware, is desirous of acquiring the entire right, title and interest in and to the said inventions or improvements and in and to the said application, and in, to and under any and all Letters Patent which may be granted on or as a result thereof in any and all countries.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, and intending to be legally bound hereby, we, the said ASSIGNORS, have sold, assigned, transferred and set over, and by these presents do hereby sell, assign, transfer and set over to said ASSIGNEE, our entire right, title and interest in and to said inventions or improvements and said application and any and all continuations, divisions and renewals of and substitutes for said application, and in, to and under any and all Letters Patent which may be granted on or as a result thereof in the United States and any and all other countries, and any reissue or reissues or extension or extensions of said Letters Patent, including our full right to sue for and

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APPLICATION NO.: 14/410,666

collect damages for past violations of provisional rights having arisen from any publication of said application or any continuations, divisions, or renewals of or substitutes for said application. We further assign to and authorize said ASSIGNEE, to file in our names applications for Letters Patent in all countries, the same to be held and enjoyed by said ASSIGNEE, its successors, assigns, nominees or legal representatives, to the full end of the term or terms for which said Letters Patent respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by us had this assignment, sale and transfer not been made.

AND we hereby covenant that we have full right to convey the entire interest herein assigned, and that we have not executed and will not execute any agreement in conflict herewith, and we further covenant and agree that we will each time request is made and without undue delay, execute and deliver all such papers as may be necessary or desirable to perfect the title to said inventions or improvements, said application and said Letters Patent to said ASSIGNEE, its successors, assigns, nominees, or legal representatives, and each of us agrees to communicate to said ASSIGNEE or to its nominee all known facts respecting said inventions or improvements, said application and said Letters Patent, to testify in any legal proceedings, to sign all lawful papers to execute all disclaimers and divisional, continuing, reissue and foreign applications, to make all rightful oaths, and generally to do everything possible to aid said ASSIGNEE, its successors, assigns, nominees and legal representatives to obtain and enforce for its or their own benefit proper patent protection for said inventions or improvements in any and all countries.

AND we hereby authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any country or countries foreign to the United States whose duty it is to issue patents on applications as aforesaid, to issue to said ASSIGNEE, as ASSIGNEE of the entire right, title and interest, any and all Letters Patent for said inventions or improvements, including any and all Letters Patent of the United States which may be issued and granted on or as a result of the application aforesaid, in accordance with the terms of this assignment.

AND this Assignment may be executed in multiple counterparts, each of which shall be deemed to be an original of this Assignment. Additionally, we hereby authorize our attorneys to collect the signature pages of each executed counterpart and to attach those signature pages to a single copy of this instrument, which single copy and attached signature pages together shall constitute an original of this Assignment.

IN WITNESS WHEREOF, we have hereunto set our hands and seals.

DOCKET NO.: IMTC\_11405US02  
APPLICATION NO.: 14/410,666

23 Feb 2015  
Date

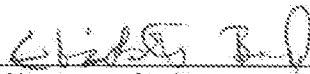
  
Dale N. Seed

Signed at 781 Third Ave, King of Prussia, PA 19406 USA  
(City and Country)

STATEMENT OF WITNESS: I, Elizabeth Band  
Name of Witness

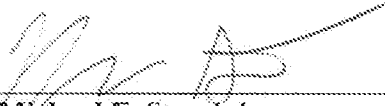
whose full address is: 781 Third Ave, King of Prussia, PA 19406 USA  
Address of Witness

was personally present and did see **Dale N. Seed** execute this Assignment on the 23 day of  
February, 2015 and such Assignor is personally known to me to be the person described  
herein.

  
Signature of Witness

DOCKET NO.: IMTC\_11405US02  
APPLICATION NO.: 14/410,666

25 Feb 2015  
Date

  
Michael F. Starsinic

Signed at 781 Third Ave, King of Prussia, PA 19406 USA  
(City and Country)

STATEMENT OF WITNESS: I, Elizabeth Bond  
Name of Witness

whose full address is: 781 Third Ave, King of Prussia, PA 19406 USA  
Address of Witness

was personally present and did see Michael F. Starsinic execute this Assignment on the 25 day  
of February, 2015 and such Assignor is personally known to me to be the person described  
herein.

  
Signature of Witness

DOCKET NO.: IMTC\_11405US02  
APPLICATION NO.: 14/410,666

Feb. 25, 2015  
Date

Guang Lu  
Guang Lu

Signed at Thornhill, Ontario, Canada  
(City and Country)

STATEMENT OF WITNESS: I, Conor Conway  
Name of Witness

whose full address is: 130 HIGHLAND PARK BLVD. THORNHILL, ON L3T 1G7  
Address of Witness

was personally present and did see Guang Lu execute this Assignment on the 25<sup>th</sup> day of  
February, 2015 and such Assignor is personally known to me to be the person described  
herein.

[Signature]  
Signature of Witness

DOCKET NO.: IMTC 11405US02  
APPLICATION NO.: 14/410,666

Date

Kamel M. Shaheen

Signed at

(City and Country)

STATEMENT OF WITNESS: I, \_\_\_\_\_

Name of Witness

whose full address is: \_\_\_\_\_

Address of Witness

was personally present and did see Kamel M. Shaheen execute this Assignment on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ and such Assignor is personally known to me to be the person described herein.

Signature of Witness

DOCKET NO.: IMTC\_11405US02  
APPLICATION NO.: 14/410,666

Date 5/13/15

Dorothy Gelfert  
Dorothy Gelfert

Signed at Mountain View, CA USA  
(City and Country)

STATEMENT OF WITNESS: I, ANGELINA BATRES  
Name of Witness

whose full address is: 5194 LAFAYETTE AVE, NEWARK, CA 94560  
Address of Witness

was personally present and did see Dorothy Gelfert execute this Assignment on the 13 day of  
MAY, 2015 and such Assignor is personally known to me to be the person described  
herein.

Angelina Batres  
Signature of Witness

DOCKET NO.: IMTC\_11405US02  
APPLICATION NO.: 14/410,666

05/16/2015  
Date

Zongrui Ding  
Zongrui Ding

Signed at Portland, OR, USA  
(City and Country)

STATEMENT OF WITNESS: I, Yijian Ouyang  
Name of Witness

whose full address is: 5107 NW Crady Ln, Portland, OR, 97229  
Address of Witness

was personally present and did see **Zongrui Ding** execute this Assignment on the sixteenth day of May, 2015 and such Assignor is personally known to me to be the person described herein.

[Signature]  
Signature of Witness

DOCKET NO.: IMTC\_11405US02  
APPLICATION NO.: 14/410,666

03/10/2015  
Date

Lijun Dong  
9710 Scranton Road, #250  
San Diego, CA 92121, USA

Signed at \_\_\_\_\_  
(City and Country)

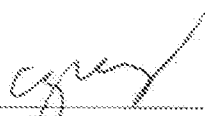
STATEMENT OF WITNESS: I, Julie McDonald  
9710 Scranton Road, #250  
San Diego, CA 92121, USA  
whose full address is: \_\_\_\_\_  
Address of Witness

was personally present and did see Lijun Dong execute this Assignment on the 10<sup>th</sup> day of March, 2015 and such Assignor is personally known to me to be the person described herein.

Julie McDonald  
Signature of Witness

DOCKET NO.: IMTC\_11405US02  
APPLICATION NO.: 14/410,666

23 Feb 2015  
Date

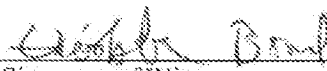
  
Chonggang Wang

Signed at 781 Third Ave, King of Prussia, PA 19406 USA  
(City and Country)

STATEMENT OF WITNESS: I, Elizabeth Bond  
Name of Witness

whose full address is: 781 Third Ave, King of Prussia, PA 19406 USA  
Address of Witness

was personally present and did see Chonggang Wang execute this Assignment on the 23 day of  
February, 2015 and such Assignor is personally known to me to be the person described  
herein.

  
Signature of Witness