PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2

EPAS ID: PAT5467955

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
YARON KORAL	04/08/2019
TUAN DUONG	04/05/2019
STEVEN A. MONETTI	04/10/2019
TZUU-YI WANG	04/08/2019
SIMON TSE	04/08/2019

RECEIVING PARTY DATA

Name:	AT&T INTELLECTUAL PROPERTY I, L.P.
Street Address:	675 WEST PEACHTREE STREET, NW
City:	ATLANTA
State/Country:	GEORGIA
Postal Code:	30308

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16380484

CORRESPONDENCE DATA

Fax Number: (215)568-3439

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: 2155683100

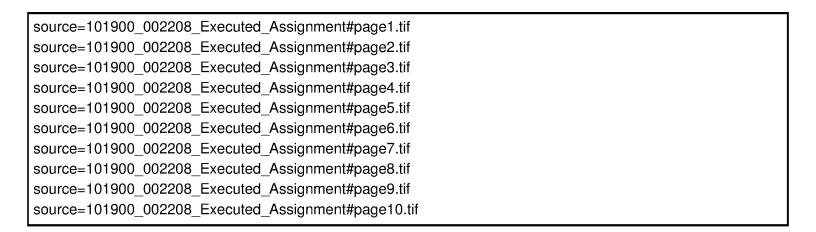
Email: assignments@bakerlaw.com BAKER HOSTETLER LLP **Correspondent Name:** Address Line 1: 2929 ARCH STREET

Address Line 2: CIRA CENTRE, 12TH FLOOR

Address Line 4: PHILADELPHIA, PENNSYLVANIA 19104

ATTORNEY DOCKET NUMBER: 2018-1028/101900.002208 NAME OF SUBMITTER: **OUIDA M. HOWARD SIGNATURE:** /Ouida M. Howard/ **DATE SIGNED:** 04/10/2019

Total Attachments: 10



WHEREAS I, Yaron Koral residing at 35 Fairhaven Drive, Cherry Hill, New Jersey 08003 hereafter referred to as Assignor, am listed as an inventor on a patent application entitled "SYSTEMS, METHODS AND COMPUTER-READABLE MEDIA FOR EXTERNAL NON-INTRUSIVE PACKET DELAY MEASUREMENT," having AT&T Docket No. 2018-1028/101900.002208, the patent application to be filed in the United States Patent & Trademark Office; and

WHEREAS, AT&T Intellectual Property I, L.P., a Partnership organized and existing under the laws of Nevada and having an address at 675 West Peachtree Street, NW, Atlanta, Georgia 30308 (hereinafter referred to as Assignee), desires to acquire the entire right, title and interest for the United States of America and elsewhere throughout the world in and to said invention and the patent application identified above, including any and all divisions and continuations thereof and any and all Letters Patent which may be granted thereon, including any and all renewals, reissues and prolongations thereto;

NOW THEREFORE, be it known that for and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration the receipt of which from Assignee is hereby acknowledged, I, as Assignor, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, its lawful successors and assigns, my entire right, title, and interest in and to this invention and this non-provisional application, and all divisions, substitutions, and continuations thereof; and all Letters Patent of the United States which may be granted thereon, and all reexaminations and reissues thereof; and all rights to claim priority on the basis of this application; and all applications for Letters Patent which may hereafter be filed for this invention in any foreign country and all Letters Patent which may be granted on this invention in any foreign country, including certificates of inventions, utility models, industrial design protection, design patent protection, and other governmental grants or issuances; and all extensions, renewals, prolongations, and reissues thereof; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term and terms for all such patents;

AND, I HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any foreign 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, 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 assignment, sale, license, agreement, or encumbrance in conflict with this Assignment;

AND, I HEREBY further covenant and agree, for the Assignor and the Assignor's legal representatives, that I will, without further consideration, communicate with Assignee, its successors and assigns, any facts known to us respecting this invention; assist the Assignee in the prosecution of the patent application identified above; assist in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; testify in any interference, litigation, or other 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 to this invention in said Assignee, its successors or assigns; execute all divisional, continuation, and reissue applications; make all rightful oaths and generally do everything possible to aid Assignee, to obtain and enforce proper patent protection for this invention in the United States and any foreign country, it being understood that any expense incident to the execution of such papers shall be borne by the Assignee; and hereby instruct, and further covenant and agree to bind our heirs, legal representatives, and assigns, to do same, without compensation, but at the expense of Assignee or its representatives.

AND, I HEREBY consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any document which may be required in any country in proof of the right of AT&T Intellectual Property I, L.P. to apply for patent or other form of protection for said inventions and to claim the aforesaid benefit of the right of priority.

deemed an original, and such counterparts together shall constitute one and the same instrument. A facsimile copy of this Assignment, or any form of an electronic copy of this Assignment, including the signature pages hereto, shall be deemed to be an original.
IN TESTIMONY WHEREOF, I have hereunto set my hand this 8 day of April , 2019.
Yaron Koral
State of WI
County of Monmorth
On this 2 day of April 2019, before me a Notary Public in and for the above County and State, personally appeared Varon koral , and acknowledged the execution of the foregoing assignment as his/her free act and deed for the purpose herein set forth.
Camer Rrd
Notary Public My Commission Expires:

This Assignment may be executed in any number of counterparts, each of which when so executed and delivered shall be

CARMELA PATUTO
NOTARY PUBLIC OF NEW JERSEY
Comm. # 50071763
My Commission Expires 11/13/2022

WHEREAS I, Tuan Duong residing at 325 Mill Pond Way, Eatontown, New Jersey 07724 hereafter referred to as Assignor, am listed as an inventor on a patent application entitled "SYSTEMS, METHODS AND COMPUTER-READABLE MEDIA FOR EXTERNAL NON-INTRUSIVE PACKET DELAY MEASUREMENT," having AT&T Docket No. 2018-1028/101900.002208, the patent application to be filed in the United States Patent & Trademark Office; and

WHEREAS, AT&T Intellectual Property I, L.P., a Partnership organized and existing under the laws of Nevada and having an address at 675 West Peachtree Street, NW, Atlanta, Georgia 30308 (hereinafter referred to as Assignee), desires to acquire the entire right, title and interest for the United States of America and elsewhere throughout the world in and to said invention and the patent application identified above, including any and all divisions and continuations thereof and any and all Letters Patent which may be granted thereon, including any and all renewals, reissues and prolongations thereto;

NOW THEREFORE, be it known that for and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration the receipt of which from Assignee is hereby acknowledged, I, as Assignor, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, its lawful successors and assigns, my entire right, title, and interest in and to this invention and this non-provisional application, and all divisions, substitutions, and continuations thereof; and all Letters Patent of the United States which may be granted thereon, and all reexaminations and reissues thereof; and all rights to claim priority on the basis of the above provisional application (if any), as well as all rights to claim priority on the basis of this application; and all applications for Letters Patent which may hereafter be filed for this invention in any foreign country and all Letters Patent which may be granted on this invention in any foreign country, including certificates of inventions, utility models, industrial design protection, design patent protection, and other governmental grants or issuances; and all extensions, renewals, prolongations, and reissues thereof; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term and terms for all such patents;

AND, I HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any foreign 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, 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 assignment, sale, license, agreement, or encumbrance in conflict with this Assignment;

AND, I HEREBY further covenant and agree, for the Assignor and the Assignor's legal representatives, that I will, without further consideration, communicate with Assignee, its successors and assigns, any facts known to us respecting this invention; assist the Assignee in the prosecution of the patent application identified above; assist in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; testify in any interference, litigation, or other 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 to this invention in said Assignee, its successors or assigns; execute all divisional, continuation, and reissue applications; make all rightful oaths and generally do everything possible to aid Assignee, to obtain and enforce proper patent protection for this invention in the United States and any foreign country, it being understood that any expense incident to the execution of such papers shall be borne by the Assignee; and hereby instruct, and further covenant and agree to bind our heirs, legal representatives, and assigns, to do same, without compensation, but at the expense of Assignee or its representatives.

AND, I HEREBY consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any document which may be required in any country in proof of the right of AT&T Intellectual Property I, L.P. to apply for patent or other form of protection for said inventions and to claim the aforesaid benefit of the right of priority.

649 4/5/19 PATENT

REEL: 048849 FRAME: 0409

This Assignment may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, and such counterparts together shall constitute one and the same instrument. A facsimile copy of this Assignment, or any form of an electronic copy of this Assignment, including the signature pages hereto, shall be deemed to be an original.

IN TESTIMONY WHEREOF, I have hereunto set my hand this 5th day of April

State of

County of Widdle sex

, 2019, before me a Notary Public in and for the above County and State, personally , and acknowledged the execution of the foregoing assignment as his/her free act and deed for the purpose herein set forth.

PAULA PFAFF

NOTARY PUBLIC OF NEW JERSEY ID # 50005080 My Commission Expires 10/22/2019

My Commission Expires:

WHEREAS I, Steven A. Monetti residing at 14 Crestwood Drive, Mountain Lakes, New Jersey 07046 hereafter referred to as Assignor, am listed as an inventor on a patent application entitled "SYSTEMS, METHODS AND COMPUTER-READABLE MEDIA FOR EXTERNAL NON-INTRUSIVE PACKET DELAY MEASUREMENT," having AT&T Docket No. 2018-1028/101900.002208, the patent application to be filed in the United States Patent & Trademark Office; and

WHEREAS, AT&T Intellectual Property I, L.P., a Partnership organized and existing under the laws of Nevada and having an address at 675 West Peachtree Street, NW, Atlanta, Georgia 30308 (hereinafter referred to as Assignee), desires to acquire the entire right, title and interest for the United States of America and elsewhere throughout the world in and to said invention and the patent application identified above, including any and all divisions and continuations thereof and any and all Letters Patent which may be granted thereon, including any and all renewals, reissues and prolongations thereto;

NOW THEREFORE, be it known that for and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration the receipt of which from Assignee is hereby acknowledged, I, as Assignor, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, its lawful successors and assigns, my entire right, title, and interest in and to this invention and this non-provisional application, and all divisions, substitutions, and continuations thereof; and all Letters Patent of the United States which may be granted thereon, and all reexaminations and reissues thereof; and all rights to claim priority on the basis of this application; and all applications for Letters Patent which may hereafter be filed for this invention in any foreign country and all Letters Patent which may be granted on this invention in any foreign country, including certificates of inventions, utility models, industrial design protection, design patent protection, and other governmental grants or issuances; and all extensions, renewals, prolongations, and reissues thereof; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term and terms for all such patents;

AND, I HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any foreign 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, 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 assignment, sale, license, agreement, or encumbrance in conflict with this Assignment;

AND, I HEREBY further covenant and agree, for the Assignor and the Assignor's legal representatives, that I will, without further consideration, communicate with Assignee, its successors and assigns, any facts known to us respecting this invention; assist the Assignee in the prosecution of the patent application identified above; assist in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; testify in any interference, litigation, or other 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 to this invention in said Assignee, its successors or assigns; execute all divisional, continuation, and reissue applications; make all rightful oaths and generally do everything possible to aid Assignee, to obtain and enforce proper patent protection for this invention in the United States and any foreign country, it being understood that any expense incident to the execution of such papers shall be borne by the Assignee; and hereby instruct, and further covenant and agree to bind our heirs, legal representatives, and assigns, to do same, without compensation, but at the expense of Assignee or its representatives.

AND, I HEREBY consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any document which may be required in any country in proof of the right of AT&T Intellectual Property I, L.P. to apply for patent or other form of protection for said inventions and to claim the aforesaid benefit of the right of priority.

Assignment, or any form of an electronic copy of this Assignment, including the signature pages hereto, shall be deemed to be an original.
IN TESTIMONY WHEREOF, I have hereunto set my hand this 10 day of April, 2019. Steven a. Monetti
State of N3
County of Moninouty)
On this / D day of April , 2019, before me a Notary Public in and for the above County and State, personally appeared Steven A. Monetti , and acknowledged the execution of the foregoing assignment as his/her free act and deed for the purpose herein set forth.
Can O Put
Notary Public My Commission Expires:

This Assignment may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, and such counterparts together shall constitute one and the same instrument. A facsimile copy of this

CARMELA PATUTO NOTARY PUBLIC OF NEW JERSEY Comm. # 50071763 My Commission Expires 11/13/2022

WHEREAS I, Tzuu-Yi Wang residing at 14 Julianne Court, Newtown, Pennsylvania 18940 hereafter referred to as Assignor, am listed as an inventor on a patent application entitled "SYSTEMS, METHODS AND COMPUTER-READABLE MEDIA FOR EXTERNAL NON-INTRUSIVE PACKET DELAY MEASUREMENT," having AT&T Docket No. 2018-1028/101900.002208, the patent application to be filed in the United States Patent & Trademark Office; and

WHEREAS, AT&T Intellectual Property I, L.P., a Partnership organized and existing under the laws of Nevada and having an address at 675 West Peachtree Street, NW, Atlanta, Georgia 30308 (hereinafter referred to as Assignee), desires to acquire the entire right, title and interest for the United States of America and elsewhere throughout the world in and to said invention and the patent application identified above, including any and all divisions and continuations thereof and any and all Letters Patent which may be granted thereon, including any and all renewals, reissues and prolongations thereto;

NOW THEREFORE, be it known that for and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration the receipt of which from Assignee is hereby acknowledged, I, as Assignor, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, its lawful successors and assigns, my entire right, title, and interest in and to this invention and this non-provisional application, and all divisions, substitutions, and continuations thereof; and all Letters Patent of the United States which may be granted thereon, and all reexaminations and reissues thereof; and all rights to claim priority on the basis of this application; and all applications for Letters Patent which may hereafter be filed for this invention in any foreign country and all Letters Patent which may be granted on this invention in any foreign country, including certificates of inventions, utility models, industrial design protection, design patent protection, and other governmental grants or issuances; and all extensions, renewals, prolongations, and reissues thereof; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term and terms for all such patents;

AND, I HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any foreign 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, 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 assignment, sale, license, agreement, or encumbrance in conflict with this Assignment;

AND, I HEREBY further covenant and agree, for the Assignor and the Assignor's legal representatives, that I will, without further consideration, communicate with Assignee, its successors and assigns, any facts known to us respecting this invention; assist the Assignee in the prosecution of the patent application identified above; assist in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; testify in any interference, litigation, or other 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 to this invention in said Assignee, its successors or assigns; execute all divisional, continuation, and reissue applications; make all rightful oaths and generally do everything possible to aid Assignee, to obtain and enforce proper patent protection for this invention in the United States and any foreign country, it being understood that any expense incident to the execution of such papers shall be borne by the Assignee; and hereby instruct, and further covenant and agree to bind our heirs, legal representatives, and assigns, to do same, without compensation, but at the expense of Assignee or its representatives.

AND, I HEREBY consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any document which may be required in any country in proof of the right of AT&T Intellectual Property I, L.P. to apply for patent or other form of protection for said inventions and to claim the aforesaid benefit of the right of priority.

deemed an original, and such counterparts together shall constitute one and the same instrument. A facsimile copy of this Assignment, or any form of an electronic copy of this Assignment, including the signature pages hereto, shall be deemed to be an original.
IN TESTIMONY WHEREOF, I have hereunto set my hand this got day of April, 2019.
Tzuu-Yi Wang
State of NJ
County of Monmouth)
On this 8 day of April , 2019, before me a Notary Public in and for the above County and State, personally appeared Tzuu-yi Wang, and acknowledged the execution of the foregoing assignment as his/her free act and deed for the purpose herein set forth.
CanaPut
Notary Public My Commission Expires:

This Assignment may be executed in any number of counterparts, each of which when so executed and delivered shall be

CARMELA PATUTO
NOTARY PUBLIC OF NEW JERSEY
Comm. # 50071768
My Commission Expires 11/13/2022

WHEREAS I, Simon Tse residing at 25 Ashley Drive, Holmdel, New Jersey 07733 hereafter referred to as Assignor, am listed as an inventor on a patent application entitled "SYSTEMS, METHODS AND COMPUTER-READABLE MEDIA FOR EXTERNAL NON-INTRUSIVE PACKET DELAY MEASUREMENT," having AT&T Docket No. 2018-1028/101900.002208, the patent application to be filed in the United States Patent & Trademark Office; and

WHEREAS, AT&T Intellectual Property I, L.P., a Partnership organized and existing under the laws of Nevada and having an address at 675 West Peachtree Street, NW, Atlanta, Georgia 30308 (hereinafter referred to as Assignee), desires to acquire the entire right, title and interest for the United States of America and elsewhere throughout the world in and to said invention and the patent application identified above, including any and all divisions and continuations thereof and any and all Letters Patent which may be granted thereon, including any and all renewals, reissues and prolongations thereto;

NOW THEREFORE, be it known that for and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration the receipt of which from Assignee is hereby acknowledged, I, as Assignor, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, its lawful successors and assigns, my entire right, title, and interest in and to this invention and this non-provisional application, and all divisions, substitutions, and continuations thereof; and all Letters Patent of the United States which may be granted thereon, and all reexaminations and reissues thereof; and all rights to claim priority on the basis of this application; and all applications for Letters Patent which may hereafter be filed for this invention in any foreign country and all Letters Patent which may be granted on this invention in any foreign country, including certificates of inventions, utility models, industrial design protection, design patent protection, and other governmental grants or issuances; and all extensions, renewals, prolongations, and reissues thereof; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term and terms for all such patents;

AND, I HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any foreign 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, 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 assignment, sale, license, agreement, or encumbrance in conflict with this Assignment;

AND, I HEREBY further covenant and agree, for the Assignor and the Assignor's legal representatives, that I will, without further consideration, communicate with Assignee, its successors and assigns, any facts known to us respecting this invention; assist the Assignee in the prosecution of the patent application identified above; assist in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; testify in any interference, litigation, or other 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 to this invention in said Assignee, its successors or assigns; execute all divisional, continuation, and reissue applications; make all rightful oaths and generally do everything possible to aid Assignee, to obtain and enforce proper patent protection for this invention in the United States and any foreign country, it being understood that any expense incident to the execution of such papers shall be borne by the Assignee; and hereby instruct, and further covenant and agree to bind our heirs, legal representatives, and assigns, to do same, without compensation, but at the expense of Assignee or its representatives.

AND, I HEREBY consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any document which may be required in any country in proof of the right of **AT&T Intellectual Property I**, **L.P.** to apply for patent or other form of protection for said inventions and to claim the aforesaid benefit of the right of priority.

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NOTARY PUBLIC OF NEW JERSEY Comm. # 50071763 My Commission Expires 11/13/2022

CARMELA PATUTO

PATENT REEL: 048849 FRAME: 0416

RECORDED: 04/10/2019