504662513 11/29/2017

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4709235

| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
|----------------|----------------|
| JUSTIN ORMONT | 11/22/2017 |
| SARTHAK SHAH | 08/29/2017 |
| YUNLING WANG | 09/27/2017 |
| AIDAN C. CROOK | 08/29/2017 |

RECEIVING PARTY DATA

| Name: | MICROSOFT TECHNOLOGY LICENSING, LLC | |
|-----------------------------------|-------------------------------------|--|
| Street Address: ONE MICROSOFT WAY | | |
| City: | REDMOND | |
| State/Country: WASHINGTON | | |
| Postal Code: | 98052 | |

PROPERTY NUMBERS Total: 1

| Property Type | Number | |
|---------------------|----------|--|
| Application Number: | 15688739 | |

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: 425-707-9382

Email: usdocket@microsoft.com

Correspondent Name: MICROSOFT CORPORATION

Address Line 1: ONE MICROSOFT WAY

Address Line 4: REDMOND, WASHINGTON 98052

| ATTORNEY DOCKET NUMBER: | 402600-US-NP |
|-------------------------|---------------|
| NAME OF SUBMITTER: | NOEMI TOVAR |
| SIGNATURE: | /NOEMI TOVAR/ |
| DATE SIGNED: | 11/29/2017 |

Total Attachments: 8

source=402600-US-NP-Executed-Assignments-as-filed-11-29-17#page1.tif source=402600-US-NP-Executed-Assignments-as-filed-11-29-17#page2.tif source=402600-US-NP-Executed-Assignments-as-filed-11-29-17#page3.tif

PATENT 504662513 REEL: 044251 FRAME: 0399

source=402600-US-NP-Executed-Assignments-as-filed-11-29-17#page4.tif source=402600-US-NP-Executed-Assignments-as-filed-11-29-17#page5.tif source=402600-US-NP-Executed-Assignments-as-filed-11-29-17#page6.tif source=402600-US-NP-Executed-Assignments-as-filed-11-29-17#page7.tif source=402600-US-NP-Executed-Assignments-as-filed-11-29-17#page8.tif

PATENT REEL: 044251 FRAME: 0400

| inventor of subject matter | "("INVENTION") disclose ("INVENTION") disclose ("IE LEARNING FOR AUTO | inal inventor or an original journal j | tent |
|--|---|--|---------------------------|
| ASSIGNEE'S leg LLC., One M (ASSIGNEE'S L parentheses (fi No Patent and Trac | al representative, Micro licrosoft Way, Redm EGAL REPRESENTATIV led on by the following | authorizes, and requests, osoft Technology Licensing, nond, Washington 98052 (ES), to insert here in and given Application Office "US – United States PLICATION's Application No., | |
| Application No | | and was given by the following rademark Office"; | |
| behalf of itself and its suc desirous of acquiring, the er right of priority, in the INVEN patents derived therefrom, s | cessors and assigns (" ntire and exclusive righ ITION and the APPLICAT uch as continuing appli | ngton limited liability company, 'ASSIGNEE"), is entitled to, and ts, title and interest, including TON (and all other applications cations, in whole or in part, in foreign countries ("APPLICAT | d is the and and |
| REPRESENTATIVES to insert | the Application No., | requests, ASSIGNEE'S LEG | |
| following table for any APPLIC | | | |
| Application No. | Filing Date | Office Office | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| *************************************** | | | |

Page 1 of 2

For good and valuable consideration, the receipt of which is hereby acknowledged by the ASSIGNOR, the ASSIGNOR hereby sells, assigns and transfers to the ASSIGNEE, ASSIGNOR's entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR agrees to execute all instruments and documents required for the making and prosecution of the APPLICATION (and APPLICATION DERIVATIVES), for litigation regarding letters patent derived therefrom, and for the purpose of protecting and perfecting title to the APPLICATION (and APPLICATION DERIVATIVES).

| Andrew Market Ma | |
|--|---------------------------------|
| § | 8/29/2017 |
| Inventor's Signature | Date |
| Sarthak SHAH | |
| Printed Name in English | Printed Name in Native Language |
| | (if other than English) |

| inventor of subject matte | er ("INVENTION") disc INE LEARNING FOR AL | original inventor or an original closed and/or claimed in a sufficient of the second or the second o | patent |
|---|---|--|--------------------------------------|
| ASSIGNEE'S le LLC., One (ASSIGNEE'S parentheses (No | gal representative, M Microsoft Way, Re LEGAL REPRESENTA filed on by the follo | by authorizes, and requests, dicrosoft Technology Licensing, edmond, Washington 98052 (TIVES), to insert here in and given Application bwing Office "US - United States APPLICATION's Application No.,; | |
| Application No | | and was given by the following d Trademark Office"; | |
| behalf of itself and its sudesirous of acquiring, the right of priority, in the INVE patents derived therefrom, | iccessors and assigns entire and exclusive r ENTION and the APPLIC such as continuing ap | ashington limited liability compa s ("ASSIGNEE"), is entitled to, a rights, title and interest, includin CATION (and all other application pplications, in whole or in part, all foreign countries ("APPLIC. | and is ng the ns and in and |
| • | rt the Application N | d requests, ASSIGNEE'S o., filing date, and Office int | |
| Application No. | | Office | |
| Application No. | Filing Date | Office | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Page 1 of 2

| | i i |
|---|-----|
| | } |
| • | 1 |
| L | l |
| 1 | |
| 1 | 1 |
| | |
| | |

For good and valuable consideration, the receipt of which is hereby acknowledged by the ASSIGNOR, the ASSIGNOR hereby sells, assigns and transfers to the ASSIGNEE, ASSIGNOR's entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR agrees to execute all instruments and documents required for the making and prosecution of the APPLICATION (and APPLICATION DERIVATIVES), for litigation regarding letters patent derived therefrom, and for the purpose of protecting and perfecting title to the APPLICATION (and APPLICATION DERIVATIVES).

| Yure - | 9/27/2017 |
|-------------------------|---|
| Inventor's Signature | Date |
| Yunling WANG | 汪韵凌 |
| Printed Name in English | Printed Name in Native Language (if other than English) |

| inventor of application e | subject matter (entitled " <u>MACHINE</u> | "INVENTION") disclosed LEARNING FOR AUTOMAT | inventor or an original joint and/or claimed in a patent ED MODEL GENERATION WITH |
|---|--|---|--|
| CONSTRAINT | S" ("APPLICATION" |), which: | |
| | | | |
| | will be filed. | ASSIGNOR hereby auth | orizes, and requests, |
| | | representative, Microsoft | |
| | LLC., One Mic | rosoft Way, Redmond, | Washington 98052 |
| | (ASSIGNEE'S LEC | TAL REPRESENTATIVES), | to insert here in |
| | | d on | |
| | | by the following Offi | |
| | | mark Office"; this APPLICA | |
| | | | |
| | o ay jima o jalam d | | |
| N) | was filad on Ai | must 22 2017 | and was given |
| Koood | | 15688739 | |
| | | d States Patent and Trader | |
| | 911126 <u>DA GIIICE</u> | www.castassana.casta | LISSUEN DELLISON . |
| behalf of its desirous of a right of prior patents deriv | ielf and its succe acquiring, the enti- ity, in the INVENTI ved therefrom, suc- ited States, its 1 | ssors and assigns ("ASSI re and exclusive rights, ti ON and the APPLICATION h as continuing applicatio | n limited liability company, on GNEE"), is entitled to, and is tle and interest, including the (and all other applications and ns, in whole or in part, in and ign countries ("APPLICATION |
| ASSIG | NOR hereby | authorizes, and requ | Jests, ASSIGNEE'S LEGAL |
| REPRESENTA: | TIVES to insert t | he Application No., filin | g date, and Office into the |
| following tab | ole for any APPLICA | TION DERIVATIVES after the | ney are known; |
| Application N | VO. | Filing Date | Office |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Page 1 of 2

| | e e j | |
|---|-------------|---|
| | | |
| | | |
| 1 | | |
| 1 | | 8 |

For good and valuable consideration, the receipt of which is hereby acknowledged by the ASSIGNOR, the ASSIGNOR hereby sells, assigns and transfers to the ASSIGNEE, ASSIGNOR's entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR agrees to execute all instruments and documents required for the making and prosecution of the APPLICATION (and APPLICATION DERIVATIVES), for litigation regarding letters patent derived therefrom, and for the purpose of protecting and perfecting title to the APPLICATION (and APPLICATION DERIVATIVES).

| | 8/21/2017 |
|-------------------------|---|
| Inventor's Signature | Date |
| Aidan C. CROOK | *************************************** |
| Printed Name in English | Printed Name in Native Language |
| | (if other than English) |

PATENT ASSIGNMENT Docket No.: 402600.01

| inventor of su | ıbject matter (| 'INVENTION") disclosed | inventor or an original join and/or claimed in a paten <u>FED MODEL GENERATION WIT</u> F |
|---|--|--|---|
| CONSTRAINTS" | ("APPLICATION") | , which: | |
| AS LL (A pa No <u>Pa</u> | SSIGNEE'S legal .C., One MicoSSIGNEE'S LEGarentheses (filedo)tent and Trader | ASSIGNOR hereby authorepresentative, Microsof rosoft Way, Redmond AL REPRESENTATIVES), I on by the following Off nark Office"; this APPLICA fice, when known; | t Technology Licensing, , Washington 98052 to insert here in and given Application ice <u>"US – United States</u> |
| Ap | oplication No | gust 28, 2017 15688739 I States Patent and Trade | by the following |
| behalf of itself desirous of acq right of priority patents derived | f and its succestuiring, the entire, in the INVENTION of the therefrom, such | ssors and assigns ("ASS re and exclusive rights, I ON and the APPLICATION n as continuing application | on limited liability company, or IGNEE"), is entitled to, and is itle and interest, including the (and all other applications and ons, in whole or in part, in and light countries ("APPLICATION) |
| ASSIGNO REPRESENTATIV | • | authorizes, and rec | uests, ASSIGNEE'S LEGAI |
| | | TION DERIVATIVES after t | |
| Application No. | | Filing Date | Office |
| | | | |
| | | | |
| | | *************************************** | |
| | | | |
| | | | |

Page 1 of 2

| | | į. |
|---|-----|----------|
| 1 | | i . |
| | | l . |
| | | |
| | l . | ! |
| | | 1 |
| | I . | ! |

For good and valuable consideration, the receipt of which is hereby acknowledged by the ASSIGNOR, the ASSIGNOR hereby sells, assigns and transfers to the ASSIGNEE, ASSIGNOR's entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR agrees to execute all instruments and documents required for the making and prosecution of the APPLICATION (and APPLICATION DERIVATIVES), for litigation regarding letters patent derived therefrom, and for the purpose of protecting and perfecting title to the APPLICATION (and APPLICATION DERIVATIVES).

| gus of the surface of | 1/12/2017 Date |
|--|---------------------------------|
| Justin ORMONT | |
| Printed Name in English | Printed Name in Native Language |
| | (if other than English) |

RECORDED: 11/29/2017