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PATENT ASSIGNMENT COVER SHEET

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| | | Name | Execution Date |
| YANFENG SUN | | | 06/14/2017 |
| ALEXANDRE BERNARD | RAYMO | ND MICHELIS | 06/15/2017 |
| ARUN KUMAR SACHET | I | | 06/15/2017 |
| EMILY LIN | | | 06/19/2017 |
| RYUICHI HIRANO | | | 06/15/2017 |
| VINCENT KIN-WAH LEU | NG | | 06/14/2017 |
| | ГА | | |
| Name: | | SOFT TECHNOLOGY LICENSING, LL | _C |
| Street Address: | ONE MI | CROSOFT WAY | |
| City: | REDMO | ND | |
| State/Country: WASHINGTON | | | |
| Postal Code: | 98052 | | |
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I <u>Yanfeng SUN</u> ("ASSIGNOR") am the original inventor or an original joint inventor of subject matter ("INVENTION") disclosed and/or claimed in a patent application entitled "PERSONALIZED USER-CATEGORIZED RECOMMENDATIONS" ("APPLICATION"), which:

> ☑ will be filed. ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S legal representative, Microsoft Technology Licensing, LLC, One Microsoft Way, Redmond, Washington 98052 (ASSIGNEE'S LEGAL REPRESENTATIVES), to insert here in parentheses (filed on ________ and given Application No. 15/627,963 by the following Office US - United States Patent and Trademark Office) this APPLICATION's Application No., filing date, and Office, when known;

 was filed on ______ and was given Application No.
 by the following Office "<u>United States Patent and Trademark</u> <u>Office</u>";

Microsoft Technology Licensing, LLC, a Washington limited liability company, on behalf of itself and its successors and assigns ("ASSIGNEE"), is entitled to, and is desirous of acquiring, the 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"));

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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).

Inventor's Signature

Yanfeng SUN Printed Name in English

Date (Required)

Printed Name in Native Language (if other than English)

I <u>Alexandre Bernard Raymond MICHELIS</u> ("ASSIGNOR") am the original inventor or an original joint inventor of subject matter ("INVENTION") disclosed and/or claimed in a patent application entitled "PERSONALIZED USER-CATEGORIZED RECOMMENDATIONS" ("APPLICATION"), which:

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6/15/2017 Date (Required) inventor's Signature Alexandre Bernard Raymond MICHELIS Printed Name in Native Language Printed Name in English (if other than English)

Page 2 of 2

I <u>Arun Kumar SACHETI</u> ("ASSIGNOR") am the original inventor or an original joint inventor of subject matter ("INVENTION") disclosed and/or claimed in a patent application entitled "PERSONALIZED USER-CATEGORIZED RECOMMENDATIONS" ("APPLICATION"), which:

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Inventor's Signature

Date (Required)

Arun Kumar SACHETI Printed Name in English

Printed Name in Native Language (if other than English)

I <u>Emily LIN</u> ("ASSIGNOR") am the original inventor or an original joint inventor of subject matter ("INVENTION") disclosed and/or claimed in a patent application entitled "PERSONALIZED USER-CATEGORIZED RECOMMENDATIONS" ("APPLICATION"), which:

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6/19/2017 Inventor's Signature Date (Required) Emily LIN Printed Name in English Printed Name in Native Language (if other than English) the first the second Page 2 of 2 PATENT REEL: 042758 FRAME: 0793

I <u>Ryuichi HIRANO</u> ("ASSIGNOR") am the original inventor or an original joint inventor of subject matter ("INVENTION") disclosed and/or claimed in a patent application entitled "PERSONALIZED USER-CATEGORIZED RECOMMENDATIONS" ("APPLICATION"), which:

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6-15-17 Inventor's Signature Date (Required) Ryuichi Hirano Ryuichi HIRANO Printed Name in English Printed Name in Native Language (if other than English)

I <u>Vincent Kin-Wah LEUNG</u> ("ASSIGNOR") am the original inventor or an original joint inventor of subject matter ("INVENTION") disclosed and/or claimed in a patent application entitled "PERSONALIZED USER-CATEGORIZED RECOMMENDATIONS" ("APPLICATION"), which:

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4/2017 Inventor's Signature "Date (Réquired) Vincent Kin-Wah LEUNG Printed Name in English Printed Name in Native Language (if other than English) Page 2 of 2 PATENT

RECORDED: 06/20/2017

REEL: 042758 FRAME: 0797