

<b>PATENT ASSIGNMENT COVER SHEET</b>
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 Stylesheet Version v1.2

EPAS ID: PAT5242097

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
YANG LIU	10/30/2018
HAIBO LIU	10/30/2018
IHAB M. A. AMER	10/30/2018
CRYSTAL YEONG-PIAN SAU	11/09/2018
JINBO QIU	10/30/2018
BORIS IVANOVIC	10/30/2018
GABOR SINES	10/30/2018
WEI GAO	10/30/2018
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	ATI TECHNOLOGIES ULC
<b>Street Address:</b>	1 COMMERCE VALLEY DRIVE E.
<b>City:</b>	MARKHAM, ONTARIO
<b>State/Country:</b>	CANADA
<b>Postal Code:</b>	L3T 7X6
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	16176699
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(215)568-6499
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<b>ATTORNEY DOCKET NUMBER:</b>	ATI-180190-US-NP
<b>NAME OF SUBMITTER:</b>	BRANDON R. THEISS
<b>SIGNATURE:</b>	/Brandon R. Theiss/

PATENT

<b>DATE SIGNED:</b>	11/16/2018
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**Total Attachments: 11**

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**ASSIGNMENT OF PATENT RIGHTS**

This is an assignment of patent rights between inventor(s) Yang Liu, Haibo Liu, Ihab M. A. Amer, Crystal Yeong-Pian Sau, Jinbo Qiu, Boris Ivanovic, Gabor Sines and Wei Gao (hereinafter referred to as the "Inventor") and ATI Technologies ULC, having a place of business at One Commerce Valley Drive East, Markham, Ontario, Canada (hereinafter referred to as the "Assignee").

WHEREAS, Inventor is named as an inventor(s) in the patent application filed in the United States of America on October 31, 2018, entitled HIERARCHICAL MEASUREMENT OF SPATIAL ACTIVITY FOR TEXT/EDGE DETECTION, having application no. 16/176,699, and having a docket number of ATI-180190-US-NP (hereinafter referred to as the "Application"); and

WHEREAS, Assignee has a desire to acquire all rights, title, and interest in the invention(s) disclosed in the Application (hereinafter referred to as the "Invention(s)"), including any rights, title, and interest in the Invention(s) not previously transferred to Assignee through prior agreement.

NOW, THEREFORE, the parties agree as follows:

1. To the extent that Inventor is subject to a prior agreement transferring rights, title, and/or interest in the Invention(s) to the Assignee, Inventor hereby confirms such transfer.
2. To the extent that Inventor retains any rights, title, or interest in the Invention(s) not vested in the Assignee on the date(s) of execution of this Assignment, Inventor hereby assigns and otherwise transfers to the Assignee Inventor's entire right, title, and interest, throughout the world, in and to: the Invention(s), including any patent applications, patents, invention registrations, and equivalents thereof (including any and all provisional, international, regional, and national patents and patent applications, and all divisional applications, continuation applications, continuation-in-part applications, renewals, reissue applications, reexamination applications, substitutes, and extensions thereof), for the Invention(s) and all rights to claim priority thereto. Inventor further assigns and otherwise transfers to Assignee all

causes of action and remedies arising under any patent or patent application for the Invention(s) prior to, on, or after the date(s) of execution of this Assignment. Inventor shall not be entitled to an accounting for any causes of action or remedies pursued by Assignee.

3. To the extent not covered by Paragraph 2, Inventor hereby assigns and transfers to the Assignee, all right, title, and interest, design and patent rights and all causes of action and remedies arising therefrom, that Inventor may have acquired during Inventor's employment/engagement with the Assignee, in and to all ideas, inventions, and works of authorship, including, without limitation, computer programs, software and documentation, improvements, or discoveries which Inventor conceived, made, developed, or worked on (whether solely or jointly with others, and whether or not copyrightable or patentable or reduced to drawings, written description, documentation, models, or other tangible form) during the term of Inventor's employment/engagement and that relate either to Assignee's products, manufacturing processes, manufacturing equipment, process controls, services, or research and development, or to Inventor's employment/engagement activities (collectively "Work Product"). Inventor hereby waives, in favor of the Assignee, all moral rights arising under the *Copyright Act* (Canada) as amended (or any successor legislation of similar effect) or similar legislation in any applicable jurisdiction, or at common law, to the full extent that such rights may be waived in each respective jurisdiction, that Inventor may have now or in the future with respect to the Work Product.
4. The transfers set forth in Paragraphs 1, 2, and 3 above are in consideration for the sum of at least one U.S. dollar (US\$1) (or its equivalent) and/or other consideration for which both parties acknowledge to be valuable. Such consideration includes but is not limited to at least one of the following: continued employment/engagement, monetary payment (including the one specifically referenced herein), or other benefit hereby acknowledged as received.
5. During and after Inventor's employment/engagement with the Assignee, Inventor will assist the Assignee in every reasonable way to obtain and maintain, for the use and


benefit of the Assignee or its nominees, patents, copyrights, or other protection for any ideas, inventions, works of authorship, improvements, or discoveries, including (without limitation) by signing any papers, authorizations, applications, or assignments, making and keeping proper records, and providing evidence or testimony. Assignee will pay for any actual and reasonable expenses Inventor incurs in providing such assistance. If Assignee is unable for any reason to secure Inventor's signature to apply for or to pursue any application for any Canadian or foreign patents or copyright, trademark, or other registrations covering the Work Products as assigned to the Assignee above, then Inventor hereby irrevocably appoint the Assignee as Inventor's lawful attorney and agent, to act for and on Inventor's behalf and stead to execute and file any such applications and to do all other lawfully permitted acts to further the prosecution and issuance of letters patent, copyright, trademark, or other registrations thereon with the same legal force and effect as if executed by Inventor, and Inventor declares that this power of attorney shall be deemed to be coupled with an interest and irrevocable, and may be exercised during any subsequent legal incapacity.

6. Inventor hereby authorizes and requests the Commissioner of Patents and Trademarks, or equivalent thereof, to issue the patent for the Invention, and all resulting patents therefrom, insofar as the Inventor's interest is concerned, to the Assignee.
7. Inventor further agrees to execute any and all powers of attorney, applications, assignments, declarations, affidavits, and any other papers in connection therewith necessary to perfect Assignee's rights, title, and interest in the Invention(s).
8. Inventor hereby authorizes Assignee, its successors and assigns, its legal representatives, or anyone the Assignee may properly designate, to insert in this Assignment of Patent Rights the filing date and/or application number of the Application when ascertained.
9. Inventor hereby further agrees to, with respect to any patent application or patent for the Invention(s), at the expense of the Assignee:
  - i) testify in any legal proceedings,

- ii) sign all lawful papers,
- iii) execute all divisional, continuation, continuation-in-part, reissue, reexamination, and substitute applications,
- iv) make all lawful oaths, and assist in vesting title in the Assignee and to aid the Assignee to obtain and enforce proper protection for the subject matter of the Invention(s) in all countries and regions, and
- v) notify Assignee promptly (by facsimile or first class mail) of any subpoena or contact by any person other than Assignee or its agents regarding the Invention or resultant patent(s) issuing therefrom, and in any event at least one week prior to any deposition, legal inquiry or legal proceeding relating to the above identified invention.

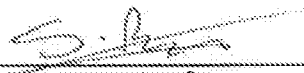
This assignment is executed on the date of which the Inventor has signed.

Inventor: Yang Liu

 (Signature)      30. Oct. 2018 (Date)  
Yang Liu (Print Name)

Province of: Ontario (Seal):  
 Regional Municipality of: Markham

Before me personally appeared said Yang Liu and acknowledged the foregoing instrument to be his/her free act and deed this 30th day of October 2018.

 (Notary)  
Surd Bosan

Inventor: Haibo Liu

[Signature] (Signature)  
Haibo Liu (Print Name)

Oct. 30, 2016 (Date)

Province of: Ontario (Seal):  
Regional Municipality of: Markham

Before me personally appeared said Haibo Liu and acknowledged the foregoing instrument to be his/her free act and deed this 30<sup>th</sup> day of October 2016.

[Signature] (Notary)  
(Sorel Basan)

Inventor: Ihab M. A. Amer

Ihab Amer (Signature) Oct 30, 2018 (Date)  
IHAB AMER (Print Name)

Province of: Ontario (Seal):

Regional Municipality of: Markham

Before me personally appeared said Ihab Amer and acknowledged the foregoing instrument to be his/her free act and deed this 30<sup>th</sup> day of October 2018.

Sorel Bosm (Notary)  
(Sorel Bosm)



Inventor: Crystal Yeong-Pian Sau

*Crystal* (Signature) Nov. 9<sup>th</sup>, 2018 (Date)  
Crystal Yeong-Pian Sau (Print Name)

Province of: Ontario (Seal):  
Regional Municipality of: Markham

Before me personally appeared said Crystal Yeong-Pian Sau and acknowledged the foregoing instrument to be his/her free act and deed this 9<sup>th</sup> day of November 2018.

*[Signature]* (Notary)  
(Sorel Bosen)

Inventor: Jinbo Qiu

Jinbo Qiu (Signature)  
Jinbo Qiu (Print Name)

Oct 30, 2018 (Date)

Province of: Ontario (Seal):

Regional Municipality of: Markham

Before me personally appeared said Jinbo Qiu and acknowledged the foregoing instrument to be his/her free act and deed this 30th day of October 2018.

[Signature] (Notary)  
(Suzel Boun)

Inventor: Boris Ivanovic

Boris Ivanovic (Signature)  
Boris Ivanovic (Print Name)

October 30, 2018 (Date)

Province of: Ontario (Seal):

Regional Municipality of: Markham

Before me personally appeared said Boris Ivanovic and acknowledged the foregoing instrument to be his/her free act and deed this 30th day of October 2018.

S. B. (Notary)  
(Soyel Bosen)

Inventor: Gabor Sines

Gabor Sines (Signature) Oct 30, 2018 (Date)  
GABOR SINES (Print Name)

Province of: Ontario (Seal):  
Regional Municipality of: Markham

Before me personally appeared said Gabor Sines and acknowledged the foregoing instrument to be his/her free act and deed this 30th day of October 2018.

[Signature] (Notary)  
(Sorel Besun)

Inventor: Wei Gao

[Signature] (Signature) Oct. 30, 2018 (Date)  
Wei Gao (Print Name)

Province of: Ontario (Seal):  
Regional Municipality of: Markham

Before me personally appeared said Wei Gao and acknowledged  
the foregoing instrument to be his/her free act and deed this 30th day of  
October 2018

[Signature] (Notary)  
(Sorel Bosen)