PATENT ASSIGNMENT

Electronic Version v1.1 Stylesheet Version v1.1

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

CONVEYING PARTY DATA

| Name | Execution Date |
|--------------|----------------|
| Munehiro Doi | 02/13/2008 |
| Moon J. Kim | 02/08/2008 |
| Yumi Mori | 02/12/2008 |
| Hangu Yeo | 02/08/2008 |

RECEIVING PARTY DATA

| Name: | International Business Machines Corporation | |
|-----------------|---|--|
| Street Address: | New Orchard Road | |
| City: | Armonk | |
| State/Country: | NEW YORK | |
| Postal Code: | 10504 | |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 12028073 |

CORRESPONDENCE DATA

Fax Number: (518)449-0047

Correspondence will be sent via US Mail when the fax attempt is unsuccessful.

Phone: 518-449-0044

Email: drubbone@hwdpatents.com

Correspondent Name: Hoffman, Warnick & D'Alessandro LLC

Address Line 1: 75 State Street
Address Line 2: 14th Floor

Address Line 4: Albany, NEW YORK 12207

| ATTORNEY DOCKET NUMBER: | END920080021US1 |
|-------------------------|------------------------|
| NAME OF SUBMITTER: | Ronald A. D'Alessandro |

Total Attachments: 5

PATENT REEL: 020622 FRAME: 0247

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DOCKET NO.: END920080021US1

PATENT ASSIGNMENT FORM

For and in consideration of good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, each undersigned inventor acknowledges his/her prior and ongoing obligation to sell, assign, and transfer, and agrees to sell, assign, and transfer the entire world wide right, title and interest for the United States and all foreign countries, in and to any and all inventions and improvements conceived during and within the scope of his/her employment, and further acknowledges that he/she has sold, assigned, and transferred, and hereby sells, assigns, and transfers, unto:

INTERNATIONAL BUSINESS MACHINES CORPORATION ("IBM"), Armonk, New York 10504

a corporation of New York, and IBM desires to acquire all right, title, and interest, in and to the certain inventions (identified below), applications, and any United States and foreign patents to be obtained therefor relating to:

PRE-PROCESSING OPTIMIZATION OF AN IMAGE PROCESSING SYSTEM

| as set forth in United States Patent Application executed by each undersigned inventor on the date indicated inventor signature below, and further identified by Attorney Docket Number END920080021US1 ; | by each |
|--|------------------------------|
| (select one): ⊠ executed concurrently herewith or □ Serial No Filed on | |
| including any and all divisionals or continuations thereof and in and to any and all Letters Patent of the United and foreign patents and all rights of priority to be obtained therefor which may issue on any such application as aid invention therein disclosed, including any and all reissues or extensions thereof, to be held and enjoyed successors, legal representatives and assigns to the full end of the term or terms for which any and all such the Patent may be granted as fully and entirely as would have been held and enjoyed by the undersigned had the Assignment not been made; | or for by, its Letters |

Each undersigned inventor hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all such Letters Patent to IBM, its successors and assigns, in accordance herewith;

Each undersigned inventor warrants and covenants that he/she has the full and unencumbered right to sell and assign the interests hereby sold and assigned and that he/she has not executed and will not execute any document or instrument in conflict herewith;

Each undersigned inventor further covenants and agrees that he/she, upon the request and at the expense of IBM, will execute and deliver any papers, make all rightful oaths, testify in any legal proceeding relating to said inventions and improvements, communicate to IBM all facts known to the undersigned relating to such inventions and improvements and the history thereof; and perform all other lawful acts deemed necessary or desirable by IBM, and its legal representatives, to secure, maintain, and enforce patent protection for such inventions and improvements and for vesting title to such inventions and improvements in IBM, and in particular to perfect title to said above-identified certain inventions, and applications including divisionals and continuations thereof, and any and all Letters Patent which may be granted therefor or thereon, including reissues, extensions, or counterparts;

Each undersigned inventor hereby grants IBM and the firm of Hoffman, Warnick & D'Alessandro LLC the power to insert in this Assignment any further identification which may be necessary or desirable for recordation of this Assignment.

This assignment is governed by the substantive laws of the state of New York.

PATENT DOCKET NO.: END920080021US1

| Executed by Inventor 1 of 4 | | | | | |
|-----------------------------|--------------|------------------|--------------|---------------------------------------|-------------|
| Signature: _ | Munehiro Doi | Doi . | Date: | Feb/13/20 | 08 |
| | | Executed by Inve | entor 2 of 4 | | |
| Signature: _ | Moon J. Kim | · | Date: | | |
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| | | Executed by Inve | antor 3 of 4 | · | |
| Signature: _ | Yumi Mori | [| Date: | | |
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| | | Executed by Inve | entor 4 of 4 | | |
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| Signature: _ | Hangu Vaa | i | Date: | | |

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| Executed by Inventor 1 of 4 | | | | |
|-----------------------------|---|--|--|--|
| Signature: | Date: Munehiro Doi | | | |
| Signature: | Executed by Inventor 2 of 4 Sulface Teb o 8, 2008 Moon J. Kim | | | |
| | Executed by Inventor 3 of 4 | | | |
| Signature: | Yumi Mori | | | |
| | Executed by Inventor 4 of 4 | | | |
| Signature: | Hangu Yeo | | | |

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| Signature: | Munehiro Doi | Date: | | _ |
| | Exec | cuted by Inventor 2 of 4 | | |
| Signature: | Мооп J. Kim | Date: | | - . |
| | Exec | cuted by Inventor 3 of 4 | | |
| Signature: | Yumi Mori Yumi Mori | Date: | 2/12/2008 | _ |
| | Exec | cuted by Inventor 4 of 4 | | |
| Signature: | Hangu Voo | Date: | | _ |

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PATENT DOCKET NO.: END920080021US1

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| Signature: | Date: | |
| | Executed by Inventor 2 of 4 | |
| Signature: | Moon J. Kim | |
| | Executed by Inventor 3 of 4 | |
| Signature: | Yumi Mori | |
| | Executed by Inventor 4 of 4 | |
| Signature: | Hangu Yeo Date: Feb 8, 200 | <i>&</i> |

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