

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT7029074

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
SEO WOOK JANG	06/15/2016
JEON HO CHO	06/15/2016
BO MIAO	06/23/2016
CHAM HONG PO	06/23/2016
YAOTIAN ZHANG	06/15/2016
PANAGIOTIS XYTHALIS	06/16/2016
MATTHEW MORANO	06/15/2016
RECEIVING PARTY DATA	
Name:	CHICAGO MERCANTILE EXCHANGE INC.
Street Address:	20 SOUTH WACKER DRIVE
City:	CHICAGO
State/Country:	ILLINOIS
Postal Code:	60606
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	17527372
CORRESPONDENCE DATA	
Fax Number:	
<i>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.</i>	
Phone:	3122910860
Email:	docket-us@lsk-iplaw.com
Correspondent Name:	LEMPIA SUMMERFIELD KATZ LLC
Address Line 1:	20 SOUTH CLARK STREET
Address Line 2:	SUITE 600
Address Line 4:	CHICAGO, ILLINOIS 60603
ATTORNEY DOCKET NUMBER:	004672-16005C-US
NAME OF SUBMITTER:	JAMES L. KATZ
SIGNATURE:	/James L. Katz/
DATE SIGNED:	11/17/2021

PATENT

Total Attachments: 36

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ASSIGNMENT

WHEREAS, Seo Wook Jang, Jeon Ho Cho, Bo Miao, Cham Hong Po, Yaotian Zhang, Panagiotis Xythalis, and Matthew Morano, and, hereinafter called the "Assignors", have made the invention described in the United States patent application entitled DYNAMIC VALUATION SYSTEM USING OBJECT RELATIONSHIPS AND COMPOSITE OBJECT DATA, executed by Assignors on the same date as, or on a date prior to, this Assignment;

WHEREAS, CHICAGO MERCANTILE EXCHANGE INC., a corporation organized and existing under the laws of the State of Illinois, having a place of business at 20 South Wacker Drive, Chicago, IL 60606, hereinafter called the "Assignee", desires to acquire the entire right, title and interest in and to the invention and the patent application identified above, and all patents which may be obtained for said invention, as set forth below;

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00), and other valuable and legally sufficient consideration, the receipt of which by the Assignors from the Assignee is hereby acknowledged, the Assignors have sold, assigned and transferred, and by these presents do sell, assign and transfer to the Assignee, the entire right, title and interest for the United States in and to the invention and the patent application identified above, and any patents that may issue for said invention in the United States; together with the entire right, title and interest in and to said invention and all patent applications and patents issuing therefrom in all countries foreign to the United States, including the full right to claim for any such application all benefits and priority rights under any applicable convention; together with the entire right, title and interest in and to all continuations, divisions, renewals and extensions of any of the patent applications and patents defined above; together with the right to recover all damages, including, but not limited to, a reasonable royalty, by reason of past, present, or future infringement or any other violation of patent or patent application rights; 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 or terms for all such patents.

The Assignors hereby covenant and agree, for both the Assignors and the Assignors' legal representatives, that the Assignors will assist the Assignee in the prosecution of the patent application identified above; in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; in vesting in the Assignee like exclusive title in and to all such other patent applications and patents; and in the prosecution of any interference which may arise involving said invention, or any such patent application or patent; and that the Assignor will execute and deliver to the Assignee any and all additional papers which may be requested by the Assignee to carry out the terms of this Assignment.

The Commissioner of Patents and Trademarks is hereby authorized and requested to issue patents to the Assignee in accordance with the terms of this Assignment.

IN TESTIMONY WHEREOF, the Assignors have executed this agreement.

DATED: 6.15.2016 Seo Wook Jang

DATED: 6.15.2016 Jeon Ho Cho

DATED: _____ Bo Miao

DATED: _____ Cham Hong Po

DATED: _____ Yaotian Zhang

DATED: _____ Panagiotis Xythalis

DATED: _____ Matthew Morano

STATE OF New York)
COUNTY OF New York) ss.

I, Bridget Sullivan, a Notary Public in and for the County and State aforesaid, do hereby certify that Seo Wook Jang, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

15 IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this day of June, 2016.

Bridget Sullivan
Notary Public

My Commission Expires: November 4 2017

BRIDGET SULLIVAN
NOTARY PUBLIC-STATE OF NEW YORK
No. 015U6030405
Qualified in New York County
My Commission Expires November 04, 2017

STATE OF New York)
COUNTY OF New York) ss.

I, Bridget Sullivan, a Notary Public in and for the County and State aforesaid, do hereby certify that Jeon Ho Cho, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

15 IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this day of June, 2016.

Bridget Sullivan
Notary Public

My Commission Expires: November 4 2017

BRIDGET SULLIVAN
NOTARY PUBLIC STATE OF NEW YORK
No. 015U6030405
Qualified in New York County
My Commission Expires November 04, 2017

NO. 015U6030405

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Bo Miao, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Cham Hong Po, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Yaotian Zhang, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Panagiotis Xythalis, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Matthew Morano, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

ASSIGNMENT

WHEREAS, Seo Wook Jang, Jeon Ho Cho, Bo Miao, Cham Hong Po, Yaotian Zhang, Panagiotis Xythalis, and Matthew Morano, and, hereinafter called the "Assignors", have made the invention described in the United States patent application entitled DYNAMIC VALUATION SYSTEM USING OBJECT RELATIONSHIPS AND COMPOSITE OBJECT DATA, executed by Assignors on the same date as, or on a date prior to, this Assignment;

WHEREAS, CHICAGO MERCANTILE EXCHANGE INC., a corporation organized and existing under the laws of the State of Illinois, having a place of business at 20 South Wacker Drive, Chicago, IL 60606, hereinafter called the "Assignee", desires to acquire the entire right, title and interest in and to the invention and the patent application identified above, and all patents which may be obtained for said invention, as set forth below;

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00), and other valuable and legally sufficient consideration, the receipt of which by the Assignors from the Assignee is hereby acknowledged, the Assignors have sold, assigned and transferred, and by these presents do sell, assign and transfer to the Assignee, the entire right, title and interest for the United States in and to the invention and the patent application identified above, and any patents that may issue for said invention in the United States; together with the entire right, title and interest in and to said invention and all patent applications and patents issuing therefrom in all countries foreign to the United States, including the full right to claim for any such application all benefits and priority rights under any applicable convention; together with the entire right, title and interest in and to all continuations, divisions, renewals and extensions of any of the patent applications and patents defined above; together with the right to recover all damages, including, but not limited to, a reasonable royalty, by reason of past, present, or future infringement or any other violation of patent or patent application rights; 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 or terms for all such patents.

The Assignors hereby covenant and agree, for both the Assignors and the Assignors' legal representatives, that the Assignors will assist the Assignee in the prosecution of the patent application identified above; in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; in vesting in the Assignee like exclusive title in and to all such other patent applications and patents; and in the prosecution of any interference which may arise involving said invention, or any such patent application or patent; and that the Assignor will execute and deliver to the Assignee any and all additional papers which may be requested by the Assignee to carry out the terms of this Assignment.

The Commissioner of Patents and Trademarks is hereby authorized and requested to issue patents to the Assignee in accordance with the terms of this Assignment.

IN TESTIMONY WHEREOF, the Assignors have executed this agreement.

DATED: _____

Seo Wook Jang

DATED: _____

Jeon Ho Cho

DATED: 6/23/2016

Bo Miao
Bo Miao

DATED: _____

Cham Hong Po

DATED: _____

Yaotian Zhang

DATED: _____

Panagiotis Xythalis

DATED: _____

Matthew Morano

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Seo Wook Jang, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Jeon Ho Cho, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

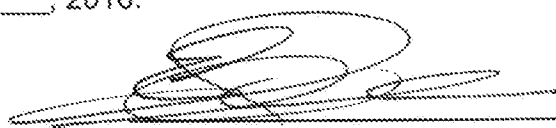
Notary Public

My Commission Expires: _____

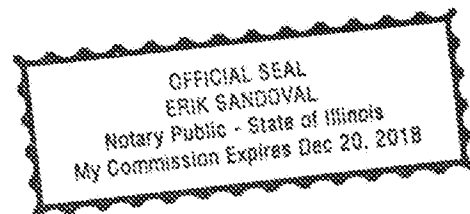
STATE OF Illinois)
COUNTY OF Cook) ss.

I, Erik Sandoval, a Notary Public in and for the County and State aforesaid, do hereby certify that Bo Miao, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this 23rd day of June, 2016.


Notary Public

My Commission Expires: 12/20/2018



STATE OF)
COUNTY OF) ss.

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Cham Hong Po, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Yaotian Zhang, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Panagiotis Xythalis, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Matthew Morano, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

ASSIGNMENT

WHEREAS, Seo Wook Jang, Jeon Ho Cho, Bo Miao, Cham Hong Po, Yaotian Zhang, Panagiotis Xythalis, and Matthew Morano, and, hereinafter called the "Assignors", have made the invention described in the United States patent application entitled DYNAMIC VALUATION SYSTEM USING OBJECT RELATIONSHIPS AND COMPOSITE OBJECT DATA, executed by Assignors on the same date as, or on a date prior to, this Assignment;

WHEREAS, CHICAGO MERCANTILE EXCHANGE INC., a corporation organized and existing under the laws of the State of Illinois, having a place of business at 20 South Wacker Drive, Chicago, IL 60606, hereinafter called the "Assignee", desires to acquire the entire right, title and interest in and to the invention and the patent application identified above, and all patents which may be obtained for said invention, as set forth below;

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00), and other valuable and legally sufficient consideration, the receipt of which by the Assignors from the Assignee is hereby acknowledged, the Assignors have sold, assigned and transferred, and by these presents do sell, assign and transfer to the Assignee, the entire right, title and interest for the United States in and to the invention and the patent application identified above, and any patents that may issue for said invention in the United States; together with the entire right, title and interest in and to said invention and all patent applications and patents issuing therefrom in all countries foreign to the United States, including the full right to claim for any such application all benefits and priority rights under any applicable convention; together with the entire right, title and interest in and to all continuations, divisions, renewals and extensions of any of the patent applications and patents defined above; together with the right to recover all damages, including, but not limited to, a reasonable royalty, by reason of past, present, or future infringement or any other violation of patent or patent application rights; 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 or terms for all such patents.

The Assignors hereby covenant and agree, for both the Assignors and the Assignors' legal representatives, that the Assignors will assist the Assignee in the prosecution of the patent application identified above; in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; in vesting in the Assignee like exclusive title in and to all such other patent applications and patents; and in the prosecution of any interference which may arise involving said invention, or any such patent application or patent; and that the Assignor will execute and deliver to the Assignee any and all additional papers which may be requested by the Assignee to carry out the terms of this Assignment.

The Commissioner of Patents and Trademarks is hereby authorized and requested to issue patents to the Assignee in accordance with the terms of this Assignment.

IN TESTIMONY WHEREOF, the Assignors have executed this agreement.

DATED: _____

Seo Wook Jang

DATED: _____

Jeon Ho Cho

DATED: _____

Bo Miao

DATED: 06/23/2016


Cham Hong Po

DATED: _____

Yaotian Zhang

DATED: _____

Panagiotis Xythalis

DATED: _____

Matthew Morano

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Seo Wook Jang, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Jeon Ho Cho, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF

)
) ss.
)

COUNTY OF

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Bo Miao, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF New York,
COUNTY OF New York ss.

I, Bridget Sullivan, a Notary Public in and for the County and State aforesaid, do hereby certify that Cham Hong Po, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this 23 day of June, 2016.

Bridget Sullivan
Notary Public

My Commission Expires: November 4 2017

BRIDGET SULLIVAN
NOTARY PUBLIC-STATE OF NEW YORK
No. 01SU6030405
Qualified in New York County
My Commission Expires November 04, 2017

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Yaotian Zhang, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Panagiotis Xythalis, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Matthew Morano, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

ASSIGNMENT

WHEREAS, Seo Wook Jang, Jeon Ho Cho, Bo Miao, Cham Hong Po, Yaotian Zhang, Panagiotis Xythalis, and Matthew Morano, and, hereinafter called the "Assignors", have made the invention described in the United States patent application entitled DYNAMIC VALUATION SYSTEM USING OBJECT RELATIONSHIPS AND COMPOSITE OBJECT DATA, executed by Assignors on the same date as, or on a date prior to, this Assignment;

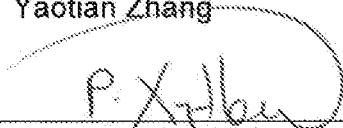
WHEREAS, CHICAGO MERCANTILE EXCHANGE INC., a corporation organized and existing under the laws of the State of Illinois, having a place of business at 20 South Wacker Drive, Chicago, IL 60606, hereinafter called the "Assignee", desires to acquire the entire right, title and interest in and to the invention and the patent application identified above, and all patents which may be obtained for said invention, as set forth below;

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00), and other valuable and legally sufficient consideration, the receipt of which by the Assignors from the Assignee is hereby acknowledged, the Assignors have sold, assigned and transferred, and by these presents do sell, assign and transfer to the Assignee, the entire right, title and interest for the United States in and to the invention and the patent application identified above, and any patents that may issue for said invention in the United States; together with the entire right, title and interest in and to said invention and all patent applications and patents issuing therefrom in all countries foreign to the United States, including the full right to claim for any such application all benefits and priority rights under any applicable convention; together with the entire right, title and interest in and to all continuations, divisions, renewals and extensions of any of the patent applications and patents defined above; together with the right to recover all damages, including, but not limited to, a reasonable royalty, by reason of past, present, or future infringement or any other violation of patent or patent application rights; 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 or terms for all such patents.

The Assignors hereby covenant and agree, for both the Assignors and the Assignors' legal representatives, that the Assignors will assist the Assignee in the prosecution of the patent application identified above; in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; in vesting in the Assignee like exclusive title in and to all such other patent applications and patents; and in the prosecution of any interference which may arise involving said invention, or any such patent application or patent; and that the Assignor will execute and deliver to the Assignee any and all additional papers which may be requested by the Assignee to carry out the terms of this Assignment.

The Commissioner of Patents and Trademarks is hereby authorized and requested to issue patents to the Assignee in accordance with the terms of this Assignment.

IN TESTIMONY WHEREOF, the Assignors have executed this agreement.

DATED:	_____	Seo Wook Jang
DATED:	_____	Jeon Ho Cho
DATED:	_____	Bo Miao
DATED:	_____	Cham Hong Po
DATED:	_____	Yaotian Zhang
DATED:	06/16/2016	 Panagiotis Xythalis
DATED:	_____	Matthew Morano

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Seo Wook Jang, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Jeon Ho Cho, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Bo Miao, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Cham Hong Po, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Yaotian Zhang, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF NEW YORK)
) ss.
COUNTY OF NEW YORK)

I, JASON SETH SILVERSTEIN, a Notary Public in and for the County and State aforesaid, do hereby certify that Panagiotis Xythalis, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this 16th day of JUNE, 2016.



Notary Public

My Commission Expires: 4/22/17

JASON SETH SILVERSTEIN
NOTARY PUBLIC-STATE OF NEW YORK
No. 02816280218
Qualified in New York County
My Commission Expires April 22, 2017

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Matthew Morano, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

ASSIGNMENT

WHEREAS, Seo Wook Jang, Jeon Ho Cho, Bo Miao, Cham Hong Po, Yaotian Zhang, Panagiotis Xythalis, and Matthew Morano, and, hereinafter called the "Assignors", have made the invention described in the United States patent application entitled DYNAMIC VALUATION SYSTEM USING OBJECT RELATIONSHIPS AND COMPOSITE OBJECT DATA, executed by Assignors on the same date as, or on a date prior to, this Assignment;

WHEREAS, CHICAGO MERCANTILE EXCHANGE INC., a corporation organized and existing under the laws of the State of Illinois, having a place of business at 20 South Wacker Drive, Chicago, IL 60606, hereinafter called the "Assignee", desires to acquire the entire right, title and interest in and to the invention and the patent application identified above, and all patents which may be obtained for said invention, as set forth below;

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00), and other valuable and legally sufficient consideration, the receipt of which by the Assignors from the Assignee is hereby acknowledged, the Assignors have sold, assigned and transferred, and by these presents do sell, assign and transfer to the Assignee, the entire right, title and interest for the United States in and to the invention and the patent application identified above, and any patents that may issue for said invention in the United States; together with the entire right, title and interest in and to said invention and all patent applications and patents issuing therefrom in all countries foreign to the United States, including the full right to claim for any such application all benefits and priority rights under any applicable convention; together with the entire right, title and interest in and to all continuations, divisions, renewals and extensions of any of the patent applications and patents defined above; together with the right to recover all damages, including, but not limited to, a reasonable royalty, by reason of past, present, or future infringement or any other violation of patent or patent application rights; 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 or terms for all such patents.

The Assignors hereby covenant and agree, for both the Assignors and the Assignors' legal representatives, that the Assignors will assist the Assignee in the prosecution of the patent application identified above; in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; in vesting in the Assignee like exclusive title in and to all such other patent applications and patents; and in the prosecution of any interference which may arise involving said invention, or any such patent application or patent; and that the Assignor will execute and deliver to the Assignee any and all additional papers which may be requested by the Assignee to carry out the terms of this Assignment.

The Commissioner of Patents and Trademarks is hereby authorized and requested to issue patents to the Assignee in accordance with the terms of this Assignment.

IN TESTIMONY WHEREOF, the Assignors have executed this agreement.

DATED: _____
Seo Wook Jang

DATED: _____
Jeon Ho Cho

DATED: _____
Bo Miao

DATED: _____
Cham Hong Po

DATED: _____
Yaotian Zhang

DATED: _____
Panagiotis Xythalis

DATED: 6/15/2016 Matthew Morano
Matthew Morano

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Seo Wook Jang, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Jeon Ho Cho, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Bo Miao, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Cham Hong Po, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Yaotian Zhang, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Panagiotis Xythalis, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

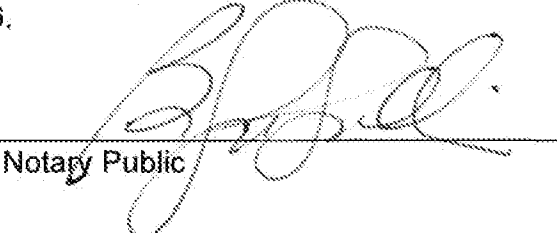
Notary Public

My Commission Expires: _____

STATE OF New York)
COUNTY OF New York) ss.

I, Bridget Sullivan, a Notary Public in and for the County and State aforesaid, do hereby certify that Matthew Morano, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this 15 day of June, 2016.


Notary Public

My Commission Expires: 11-4-2017

BRIDGET SULLIVAN
NOTARY PUBLIC-STATE OF NEW YORK
No. 01SU6030405
Qualified in New York County
My Commission Expires November 04, 2017

ASSIGNMENT

WHEREAS, Seo Wook Jang, Jeon Ho Cho, Bo Miao, Cham Hong Po, Yaotian Zhang, Panagiotis Xythalis, and Matthew Morano, and, hereinafter called the "Assignors", have made the invention described in the United States patent application entitled DYNAMIC VALUATION SYSTEM USING OBJECT RELATIONSHIPS AND COMPOSITE OBJECT DATA, executed by Assignors on the same date as, or on a date prior to, this Assignment;

WHEREAS, CHICAGO MERCANTILE EXCHANGE INC., a corporation organized and existing under the laws of the State of Illinois, having a place of business at 20 South Wacker Drive, Chicago, IL 60606, hereinafter called the "Assignee", desires to acquire the entire right, title and interest in and to the invention and the patent application identified above, and all patents which may be obtained for said invention, as set forth below;

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00), and other valuable and legally sufficient consideration, the receipt of which by the Assignors from the Assignee is hereby acknowledged, the Assignors have sold, assigned and transferred, and by these presents do sell, assign and transfer to the Assignee, the entire right, title and interest for the United States in and to the invention and the patent application identified above, and any patents that may issue for said invention in the United States; together with the entire right, title and interest in and to said invention and all patent applications and patents issuing therefrom in all countries foreign to the United States, including the full right to claim for any such application all benefits and priority rights under any applicable convention; together with the entire right, title and interest in and to all continuations, divisions, renewals and extensions of any of the patent applications and patents defined above; together with the right to recover all damages, including, but not limited to, a reasonable royalty, by reason of past, present, or future infringement or any other violation of patent or patent application rights; 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 or terms for all such patents.

The Assignors hereby covenant and agree, for both the Assignors and the Assignors' legal representatives, that the Assignors will assist the Assignee in the prosecution of the patent application identified above; in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; in vesting in the Assignee like exclusive title in and to all such other patent applications and patents; and in the prosecution of any interference which may arise involving said invention, or any such patent application or patent; and that the Assignor will execute and deliver to the Assignee any and all additional papers which may be requested by the Assignee to carry out the terms of this Assignment.

The Commissioner of Patents and Trademarks is hereby authorized and requested to issue patents to the Assignee in accordance with the terms of this Assignment.

IN TESTIMONY WHEREOF, the Assignors have executed this agreement.

DATED: _____
Seo Wook Jang

DATED: _____
Jeon Ho Cho

DATED: _____
Bo Miao

DATED: _____
Cham Hong Po

DATED: 6/15/2016 _____

Yaotian Zhang

DATED: _____
Panagiotis Xythalis

DATED: _____
Matthew Morano

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Seo Wook Jang, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Jeon Ho Cho, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Bo Miao, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Cham Hong Po, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I,  YAOTIAN ZHANG, a Notary Public in and for the County and State aforesaid, do hereby certify that Yaotian Zhang, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Panagiotis Xythalis, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____

STATE OF)
) ss.
COUNTY OF)

I, _____, a Notary Public in and for the County and State aforesaid, do hereby certify that Matthew Morano, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this _____ day of _____, 2016.

Notary Public

My Commission Expires: _____