

## PATENT ASSIGNMENT

Electronic Version v1.1

Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT												
NATURE OF CONVEYANCE:	ASSIGNMENT												
CONVEYING PARTY DATA													
<table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>Ting-Fang Yen</td> <td>01/09/2013</td> </tr> <tr> <td>Ari Juels</td> <td>01/31/2013</td> </tr> <tr> <td>Aditya Kuppa</td> <td>02/22/2013</td> </tr> <tr> <td>Kaan Onarlioglu</td> <td>01/03/2013</td> </tr> <tr> <td>Alina Oprea</td> <td>01/29/2013</td> </tr> </tbody> </table>		Name	Execution Date	Ting-Fang Yen	01/09/2013	Ari Juels	01/31/2013	Aditya Kuppa	02/22/2013	Kaan Onarlioglu	01/03/2013	Alina Oprea	01/29/2013
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Ting-Fang Yen	01/09/2013												
Ari Juels	01/31/2013												
Aditya Kuppa	02/22/2013												
Kaan Onarlioglu	01/03/2013												
Alina Oprea	01/29/2013												
RECEIVING PARTY DATA													
Name:	EMC Corporation												
Street Address:	176 South Street												
City:	Hopkinton												
State/Country:	MASSACHUSETTS												
Postal Code:	01748												
PROPERTY NUMBERS Total: 1													
<table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Application Number:</td> <td>13731635</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	13731635								
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Application Number:	13731635												
CORRESPONDENCE DATA													
Fax Number:	5083664688												
<i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i>													
Phone:	508-616-2900												
Email:	docket@bainwoodhuang.com												
Correspondent Name:	James F. Thompson												
Address Line 1:	Bainwood, Huang & Associates, Inc.												
Address Line 2:	2 Connector Road												
Address Line 4:	Westborough, MASSACHUSETTS 01581												
ATTORNEY DOCKET NUMBER:	1048-173												
NAME OF SUBMITTER:	James F. Thompson, Esq.												

CH \$40.00 13731635

**Total Attachments: 15**

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**ASSIGNMENT**

**WHEREAS**, I, Ting-Fang Yen, as the original inventor or an original joint inventor have invented an invention comprising and/or embodying certain improvements or discoveries or both as described in an application for Letters Patent of the United States entitled:

**ANOMALY SENSOR FRAMEWORK FOR DETECTING  
ADVANCED PERSISTENT THREAT ATTACKS**

which is further identified by Attorney Docket Number 1048-173;

**WHEREAS**, EMC Corporation (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the Commonwealth of Massachusetts and having a usual place of business at 176 South Street, Hopkinton, Massachusetts 01748, USA desires to acquire an interest therein in accordance with agreements duly entered into with me;

**NOW, THEREFORE**, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, I have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue thereon; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by me had this assignment and sale not been made; I hereby convey to ASSIGNEE all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. I hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein;

**AND**, I hereby further agree for myself and my executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign

countries, and the execution of substitution, reissue, divisional or continuation applications and preliminary or other statements and the giving of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved;

**AND**, I do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives;

**AND** I hereby authorize my attorneys at Bainwood Huang & Associates LLC to insert here in parentheses (13/731,635 filed December 31, 2012) the application number and filing date of said application (or foreign counterpart application) to facilitate the recording or other official processing of this Assignment.

**IN TESTIMONY WHEREOF**, I have hereunto set my hand and affixed my seal as set forth below:

Date: 1/9/2013

[Signature]  
Inventor's Signature

Legal name of inventor: Ting-Fang Yen  
Residence: 117 Spring St.  
Apt. 2  
Cambridge, MA 02141  
United States of America  
Citizenship: TW  
Mailing Address: Same as above

STATE/Commonwealth of Massachusetts  
COUNTY OF Middlesex

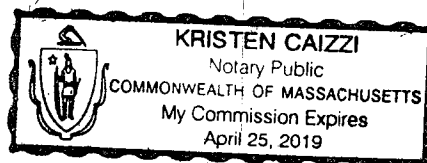
On this 9<sup>th</sup> day of January, 2013, then personally appeared before me the above-named **Ting-Fang Yen** known to me through satisfactory evidence of identification  employee identification card;  driver's license;  (other) Ting-Fang Yen to be the person whose name is subscribed to the foregoing Assignment and acknowledged that he/she executed the same as his/her free act and deed for the purposes therein contained.

[Signature]  
Notary Public

Print Name:

Kristen Caizzi

My Commission expires 4/25/2019



**ASSIGNMENT**

**WHEREAS**, I, Ari Juels, as the original inventor or an original joint inventor have invented an invention comprising and/or embodying certain improvements or discoveries or both as described in an application for Letters Patent of the United States entitled:

**ANOMALY SENSOR FRAMEWORK FOR DETECTING  
ADVANCED PERSISTENT THREAT ATTACKS**

which is further identified by Attorney Docket Number 1048-173;

**WHEREAS**, EMC Corporation (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the Commonwealth of Massachusetts and having a usual place of business at 176 South Street, Hopkinton, Massachusetts 01748, USA desires to acquire an interest therein in accordance with agreements duly entered into with me;

**NOW, THEREFORE**, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, I have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue thereon; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by me had this assignment and sale not been made; I hereby convey to ASSIGNEE all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. I hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein;

**AND**, I hereby further agree for myself and my executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign

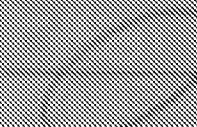
countries, and the execution of substitution, reissue, divisional or continuation applications and preliminary or other statements and the giving of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved;

**AND**, I do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives;

**AND I** hereby authorize my attorneys at Bainwood Huang & Associates LLC to insert here in parentheses (13/731,635 filed December 31, 2012) the application number and filing date of said application (or foreign counterpart application) to facilitate the recording or other official processing of this Assignment.

**IN TESTIMONY WHEREOF**, I have hereunto set my hand and affixed my seal as set forth below:

Date: 30 Jan 2013

  
Inventor's Signature

Legal name of inventor:

Ari Juels

Residence:

55 Station St  
Apt 3B  
Brookline, MA 02445  
United States of America

Citizenship:

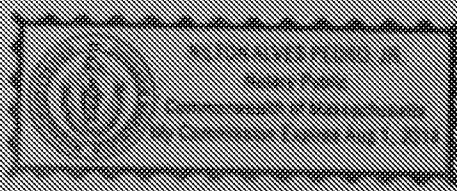
US

Mailing Address:

Same as above

STATE/Commonwealth of MASSACHUSETTS  
COUNTY OF Suffolk

On this 31 day of January, 2013, then personally appeared before me the above-named **Ari Juels** known to me through satisfactory evidence of identification  employee identification card,  driver's license,  (other) MR DL 3309671194 to be the person whose name is subscribed to the foregoing Assignment and acknowledged that he/she executed the same as his/her free act and deed for the purposes therein contained.



  
Notary Public

Print Name: William A. Pedro, Jr.  
My Commission expires 7/1/14



**ASSIGNMENT**

**WHEREAS**, I, Aditya Kuppa, as the original inventor or an original joint inventor have invented an invention comprising and/or embodying certain improvements or discoveries or both as described in an application for Letters Patent of the United States entitled:

**ANOMALY SENSOR FRAMEWORK FOR DETECTING  
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which is further identified by Attorney Docket Number 1048-173;

**WHEREAS**, EMC Corporation (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the Commonwealth of Massachusetts and having a usual place of business at 176 South Street, Hopkinton, Massachusetts 01748, USA desires to acquire an interest therein in accordance with agreements duly entered into with me;

**NOW, THEREFORE**, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, I have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue thereon; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by me had this assignment and sale not been made; I hereby convey to ASSIGNEE all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. I hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein;

**AND**, I hereby further agree for myself and my executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign

countries, and the execution of substitution, reissue, divisional or continuation applications and preliminary or other statements and the giving of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved;

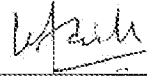
**AND**, I do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives;

**AND** I hereby authorize my attorneys at Bainwood Huang & Associates LLC to insert here in parentheses (13/731,635 filed December 31, 2012) the application number and filing date of said application (or foreign counterpart application) to facilitate the recording or other official processing of this Assignment.

**IN TESTIMONY WHEREOF**, I have hereunto set my hand and affixed my seal as set forth below:

PATENT ASSIGNMENT  
Attorney Docket No.: 1048-173  
EMC Docket No.: EMC-12-775

Date: 22/02/2013



Inventor's Signature

Print full name of first inventor:

Aditya Kuppa

Residence:

259/A2 7th cross 27th main hsr layout

Bangalore, Karnataka 560029

India

Citizenship:

IN

Mailing Address:

Same as above

I Haribansh Mohankumar (name) whose residential address is  
PA 1009 Alpha Eco Apr. Marathalli Bangalore - 37  
\_\_\_\_\_ was personally present and did see Aditya Kuppa (name  
of person signing the assignment) who is personally known to me, execute the above  
assignment.

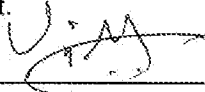


\_\_\_\_\_ (signature of first witness)

Signed at Bangalore, India. (location of witness signature)

on this day 22<sup>nd</sup> Feb of 20 13. (date of signature)

I Vinay Dindabakar (name) whose residential address is  
Cambridge Layout Indira Nagar Bangalore  
\_\_\_\_\_ was personally present and did see Aditya Kuppa (name  
of person signing the assignment) who is personally known to me, execute the above  
assignment.



\_\_\_\_\_ (signature of second witness)

Signed at Bangalore, India. (location of witness signature)

on this day 22 Feb of 20 13. (date of signature)

**ASSIGNMENT**

**WHEREAS**, I, Kaan Onarlioglu, as the original inventor or an original joint inventor have invented an invention comprising and/or embodying certain improvements or discoveries or both as described in an application for Letters Patent of the United States entitled:

**ANOMALY SENSOR FRAMEWORK FOR DETECTING  
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which is further identified by Attorney Docket Number 1048-173;

**WHEREAS**, EMC Corporation (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the Commonwealth of Massachusetts and having a usual place of business at 176 South Street, Hopkinton, Massachusetts 01748, USA desires to acquire an interest therein in accordance with agreements duly entered into with me;

**NOW, THEREFORE**, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, I have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue thereon; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by me had this assignment and sale not been made; I hereby convey to ASSIGNEE all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. I hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein;

**AND**, I hereby further agree for myself and my executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign

countries, and the execution of substitution, reissue, divisional or continuation applications and preliminary or other statements and the giving of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved;

**AND**, I do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives;

**AND** I hereby authorize my attorneys at Bainwood Huang & Associates LLC to insert here in parentheses (13/731,635 filed December 31, 2012) the application number and filing date of said application (or foreign counterpart application) to facilitate the recording or other official processing of this Assignment.

**IN TESTIMONY WHEREOF**, I have hereunto set my hand and affixed my seal as set forth below:


Date: 01/03/13

  
\_\_\_\_\_  
Inventor's Signature

Legal name of inventor: Kaan Onarlioglu  
Residence: 35-37A Harvard St.  
Apt 5  
Brookline, MA 02445  
United States of America  
Citizenship: TR  
Mailing Address: Same as above

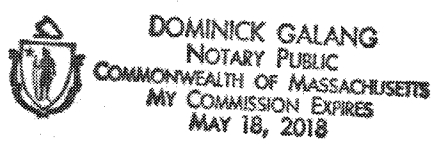
STATE/Commonwealth of MA  
COUNTY OF NORFOLK

On this 3<sup>RD</sup> day of JANUARY, 2013, then personally appeared before me the above-named **Kaan Onarlioglu** known to me through satisfactory evidence of identification [] employee identification card; [] driver's license; [] (other) LIQUOR ID - MA to be the person whose name is subscribed to the foregoing Assignment and acknowledged that he/she executed the same as his/her free act and deed for the purposes therein contained.

  
\_\_\_\_\_  
Notary Public

Print Name: Dominick Galang

My Commission expires 05/19/2018



**ASSIGNMENT**

**WHEREAS**, I, Alina Oprea, as the original inventor or an original joint inventor have invented an invention comprising and/or embodying certain improvements or discoveries or both as described in an application for Letters Patent of the United States entitled:

**ANOMALY SENSOR FRAMEWORK FOR DETECTING  
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**NOW, THEREFORE**, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, I have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue thereon; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by me had this assignment and sale not been made; I hereby convey to ASSIGNEE all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. I hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein;

**AND**, I hereby further agree for myself and my executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign

countries, and the execution of substitution, reissue, divisional or continuation applications and preliminary or other statements and the giving of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved;

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**AND** I hereby authorize my attorneys at Bainwood Huang & Associates LLC to insert here in parentheses (13/731,635 filed December 31, 2012) the application number and filing date of said application (or foreign counterpart application) to facilitate the recording or other official processing of this Assignment.

**IN TESTIMONY WHEREOF**, I have hereunto set my hand and affixed my seal as set forth below:



Date: 01/29/2013

AO/170  
Inventor's Signature


Legal name of inventor: Alina Oprea  
Residence: 104 Cutter Hill Rd.  
Arlington, MA 02474  
United States of America  
Citizenship: RO  
Mailing Address: Same as above

STATE/Commonwealth OF Massachusetts  
COUNTY OF Middlesex

On this 29<sup>th</sup> day of January, 2013, then personally appeared before me the above-named **Alina Oprea** known to me through satisfactory evidence of identification  employee identification card;  driver's license;  (other) \_\_\_\_\_ to be the person whose name is subscribed to the foregoing Assignment and acknowledged that he/she executed the same as his/her free act and deed for the purposes therein contained.

[Signature]  
Notary Public

Print Name: Tamara Shalich  
My Commission expires 8/14/17

 **TAUFIQ SHAIKH**  
Notary Public  
Commonwealth of Massachusetts  
My Commission Exp. 8/14/17

