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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 13/322,298	Applicant(s) EVRARD, PHILLIPE	
	Examiner RODERICK TOLENTINO	Art Unit 2439	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 November 2013*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-31* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-31* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *23 November 2011* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☒ All b)☐ Some * c)☐ None of the:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/1/2013*.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

1. The present application is being examined under the pre-AIA first to invent provisions.

2. Office action is in response to arguments filed on 11/12/2013. No claims were added as new. No claims were newly canceled. Claims 9-11, 14-21, 23, 25-27 and 29-32 have been amended. Claims 1-31 are pending. This Action is FINAL.

Information Disclosure Statement

3. The information disclosure statement (IDS), submitted on 11/01/2013, is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Response to Arguments

4. Applicant's arguments filed 11/12/2013 have been fully considered but they are not persuasive.

A) Applicant's argue: Claim 1 should not be rejected under 35 USC 101.

The Examiner disagrees with the Applicants. The Examiner respectfully submits that claim 1 is still properly rejected under 35 USC 101.

Applicants allege that the claim encompasses hardware. However, the Applicants have failed to neither point out in the specification nor positively recite any

hardware in the claim language. Therefore, Claim 1 still stands rejected under 35 USC 101.

Examiner notes that the Applicant could have the claim be interpreted under 112 sixth rejection; however, that could possibly lead to an issue of a single means claim.

B) Applicant's argue Claim 27 should not be rejected under 35 USC 101.

The Examiner disagrees with the Applicants. The Examiner respectfully submits that claim 27 is still properly rejected under 35 USC 101.

Despite Applicants' attempts to amend the claim with "computer-implemented" limitations, the claim is still properly rejected under 35 USC 101. Applicants' claim language still recites steps in which a person can read information from a computer, i.e. reading printout of activity and attempt to predict threat activity using a stochastic method. Therefore, the claim can still be construed as to being an abstract idea.

C) Applicants' argue: Gong fails to disclose "determine predicted threat activity based on stochastic modeling of threat events capable of affecting at least one computer network in which a plurality of systems operate."

The Examiner also disagrees with the Applicants. The Examiner respectfully submits that Gong does teach "determine predicted threat activity based on stochastic modelling of threat events capable of affecting at least one computer network in which a plurality of systems operate." Gong, in Paragraph 0047, recites *"Analytical modeling may combine data from the fault model and fault injection simulations to determine*

mean time to system failure (reliability), mean downtime (availability) and degraded time (performability). The modeling may also involve the use of fault trees, Markov chains or stochastic Petri nets." Gong teaches that a fault model is developed taking into account the types of faults, the handling procedure for each and the occurrence rate. A fault model is well known to be a model that a person can use to predict the consequences of a particular fault. This fault model is used in Gong's invention of creating an intrusion tolerant server, which would base its model on such events such as intrusion which is synonymous with a threat event. Gong goes on to state that the fault model maybe be developed using stochastic Petri nets. This has been interpreted to as a form of stochastic modeling, thus teaching a stochastic method of predicting threat activity. As the result, Gong does disclose all limitations argued above.

D) Applicant's arguments filed on 11/12/2013, regarding the dependent claims, have been fully considered but they are not persuasive. The independent claims are still rejected under 35 USC 103 therefore the 103 rejections of the dependent claims remain rejected as well.

Claim Objections

Claim 1 is objected to because of the following informalities:

Claim 1 is objected for its construction as the claimed apparatus fails to further include any element(s) that further points out the scope of the claim (i.e., the claimed apparatus).

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1 and 27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As per claim 1, the recited apparatus fails to further specify whether it encompasses both software and hardware or software itself only. The Specification, in particular paragraphs 0023, teaches the plurality of systems may include a plurality of software systems and fails to teach any hardware. It is the interpretation of the Examiner that the process of claim 1 could be software. If constructed in this way, as software, the invention would be considered to be software per se and which would be considered to be non-statutory. MPEP Section 2106.01 states “Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory). Such claimed data structures do not define any

structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory." Inclusion of a specific machine would overcome this USC 101 rejection.

6. Claim 27 is rejected under 35 U.S.C. 101 based on Supreme Court precedent and recent Federal Circuit decisions, a 35 U.S.C § 101 process must (1) be tied to a particular machine or (2) transform underlying subject matter (such as an article or materials) to a different state or thing. In re Bilski et al, 88 USPQ 2d 1385 CAFC (2008); Diamond v. Diehr, 450 U.S. 175, 184 (1981); Parker v. Flook, 437 U.S. 584, 588 n.9 (1978); Gottschalk v. Benson, 409 U.S. 63, 70 (1972); Cochrane v. Deener, 94 U.S. 780,787-88 (1876).

An example of a method claim that would not qualify as a statutory process would be a claim that recited purely mental steps. Thus, to qualify as a § 101 statutory process, the claim should positively recite the particular machine to which it is tied, for example by identifying the apparatus that accomplishes the method steps, or positively recite the subject matter that is being transformed, for example by identifying the material that is being changed to a different state.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1 – 3, 24 and 27 – 31 are rejected under pre-AIA 35 U.S.C. 102b as being anticipated by Gong et al. U.S. PG-Publication No. (2002/0188870).

As per claims 1 and 27, Gong discloses to determine predicted threat activity based on stochastic modelling of threat events capable of affecting at least one computer network in which a plurality of systems operate *(Gong, Paragraph 0047, teaches Analytical modeling may combine data from the fault model and fault injection simulations to determine mean time to system failure (reliability), mean downtime (availability) and degraded time (performability). The modeling may also involve the use of fault trees, Markov chains or stochastic Petri nets).*

As per claims 2 and 28, Gong discloses wherein the apparatus is further configured to determine expected downtime of each of said systems in dependence upon said predicted threat activity and to determine loss for each of a plurality of operational processes dependent on the downtimes of each of said systems and to add losses for said plurality of processes so as to obtain a combined loss arising from the threat activity *(Gong, Paragraph 0047, teaches Analytical modeling may combine data from the fault model and fault injection simulations to determine mean time to system*

failure (reliability), mean downtime (availability) and degraded time (performability). The modeling may also involve the use of fault trees, Markov chains or stochastic Petri nets).

As per claim 3, Gong discloses wherein the apparatus is configured to model a set of threat events so as to obtain at least one model parameter *(Gong, Paragraph 0054, teaches Upon detection of an intrusion event, the adaptive reconfigurer alters the tolerance protocol and reconfigures the network forwarding scheme to distribute the functions of the acceptance monitors, ballot monitors and proxy servers to provide the requisite redundancy or isolation to minimize the impact of such a threat).*

As per claim 24, Gong discloses at least one computer system, wherein the or each computer system comprises at least one processor and memory *(Gong, Paragraph 0013, teaches A proxy server receives network service requests from a client and forwards the requests to a protected server. A client is a computer system.).*

As per claim 29, Gong discloses wherein the determining of predicted threat activity based on stochastic modelling of threat events comprises: modelling a set of threat events so as to obtain at least one model parameter *(Gong, Paragraph 0054, teaches Upon detection of an intrusion event, the adaptive reconfigurer alters the tolerance protocol and reconfigures the network forwarding scheme to distribute the*

functions of the acceptance monitors, ballot monitors and proxy servers to provide the requisite redundancy or isolation to minimize the impact of such a threat).

As per claim 30, Gong discloses wherein the determining of predicted threat activity based on stochastic modelling of threat events includes: predicting threat events using at least one model parameter and a stochastic model using said at least one model parameter *(Gong, Paragraph 0054, teaches Upon detection of an intrusion event, the adaptive reconfigurer alters the tolerance protocol and reconfigures the network forwarding scheme to distribute the functions of the acceptance monitors, ballot monitors and proxy servers to provide the requisite redundancy or isolation to minimize the impact of such a threat).*

Regarding claims 31, claim 31 is directed to a non-transitory computer readable storage medium associated with the apparatus claimed in claim 1 respectively. Claim 31 is similar in scope to claim 1, respectively, and are therefore rejected under similar rationale.

Claim Rejections - 35 USC § 103

9. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been

obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 4 and 5 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Gong et al. U.S. PG-Publication No. (2002/0188870) in view of Elenbaas et al. U.S. PG-Publication No. (2009/0204471).

As per claim 4, Gong fails to teach wherein the apparatus is configured to model the set of threat events using regression.

However, in an analogous art Elenbaas teaches wherein the apparatus is configured to model the set of threat events using regression *(Elenbaas, Paragraph 0165, teaches In one embodiment, regression and machine learning techniques may be used to determine which methods are more accurate in predicting performance relative to the above reputation scores and how each factor should be weighted in the prediction).*

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use Elenbaas' Trust Level Based Task Assignment in an Online Work Management System with Gong's Intrusion tolerant server system because it offers the advantage of providing a trust quotient is generated based on the retrieved set of information to indicate the trustworthiness of the user (Elenbaas, Paragraph 0006).

As per claim 5, Gong as modified by Elenbaas teaches wherein the apparatus is configured to model the set of threat events using weighted regression *(Elenbaas,*

Paragraph 0165, teaches In one embodiment, regression and machine learning techniques may be used to determine which methods are more accurate in predicting performance relative to the above reputation scores and how each factor should be weighted in the prediction).

11. Claims 6 – 15 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Gong et al. U.S. PG-Publication No. (2002/0188870) and Elenbaas et al. U.S. PG-Publication No. (2009/0204471) and in further view of Barnett U.S. Patent No. (7,409,716).

As per claim 6, Gong as modified by Elenbaas fails to teach wherein the apparatus is configured to model the set of threat events using linear regression.

However, in an analogous art Barnett teaches wherein the apparatus is configured to model the set of threat events using linear regression *(Barnett, Col. 7 Lines 1 – 8, teaches A linear regression of log (compressed filtered trace size) vs. log (filtered trace size) on the attack series due to the exponential nature of the curves may be fitted. The F-statistic indicates a highly significant fit for which the p-value is less than 0.0001. The closest piece of normal traffic may differ from this attack model by 4 sigma (99.99%)).*

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use Barnett's system for intrusion detection with Gong's Intrusion tolerant server system because it offers the advantage of providing a system for utilizing a complexity metric for detecting intrusion to a wireless network (Barnett, Col. 1 Lines 10 – 13).

As per claim 7, Gong as modified by Barnett teaches wherein the apparatus is configured to model the set of threat events using exponential regression *(Barnett, Col. 7 Lines 1 – 8, teaches A linear regression of log (compressed filtered trace size) vs. log (filtered trace size) on the attack series due to the exponential nature of the curves may be fitted. The F-statistic indicates a highly significant fit for which the p-value is less than 0.0001. The closest piece of normal traffic may differ from this attack model by 4 sigma (99.99%)).*

As per claim 8, Gong as modified by Barnett teaches wherein the apparatus is configured to model the set of threat events using at least two different models and to obtain at least two different sets of model parameters *(Barnett, Col. 7 Lines 1 – 8, teaches A linear regression of log (compressed filtered trace size) vs. log (filtered trace size) on the attack series due to the exponential nature of the curves may be fitted. The F-statistic indicates a highly significant fit for which the p-value is less than 0.0001. The closest piece of normal traffic may differ from this attack model by 4 sigma (99.99%)).*

As per claim 9, Gong as modified by Barnett teaches wherein the apparatus is the at least one model parameter includes at least one parameter indicating goodness of fit of the model *(Barnett, Col. 7 Lines 1 – 8, teaches A linear regression of log (compressed filtered trace size) vs. log (filtered trace size) on the attack series due to the exponential nature of the curves may be fitted. The F-statistic indicates a highly significant fit for which the p-value is less than 0.0001. The closest piece of normal traffic may differ from this attack model by 4 sigma (99.99%)).*

As per claim 10, Gong as modified teaches a user interface which is configured to present at least one model parameter to a user *(Elenbaas, Paragraph 0015 and FIG. 5A is a graphic representation of a user interface for receiving a job registration from a job owner, according to one embodiment).*

As per claim 11, Gong as modified teaches wherein the apparatus is configured to predict threat events using at least one model parameter and a stochastic model using said at least one model parameter *(Gong, Paragraph 0047, teaches Analytical modeling may combine data from the fault model and fault injection simulations to determine mean time to system failure (reliability), mean downtime (availability) and degraded time (performability). The modeling may also involve the use of fault trees, Markov chains or stochastic Petri nets).*

As per claim 12, Gong as modified teaches wherein the apparatus is configured to randomly draw at least one variable according to a predefined distribution and to use said at least one variable in the stochastic model *(Gong, Paragraph 0047, teaches Analytical modeling may combine data from the fault model and fault injection simulations to determine mean time to system failure (reliability), mean downtime (availability) and degraded time (performability). The modeling may also involve the use of fault trees, Markov chains or stochastic Petri nets).*

As per claim 13, Gong as modified teaches wherein the apparatus is configured to predict a distribution of threat events by repeating a simulation *(Gong, Paragraph 0047, teaches Analytical modeling may combine data from the fault model and fault injection simulations to determine mean time to system failure (reliability), mean downtime (availability) and degraded time (performability). The modeling may also involve the use of fault trees, Markov chains or stochastic Petri nets).*

As per claim 14, Gong as modified teaches wherein the apparatus is configured to allow for parameter uncertainty *(Gong, Paragraph 0047, teaches Analytical modeling may combine data from the fault model and fault injection simulations to determine mean time to system failure (reliability), mean downtime (availability) and degraded time (performability). The modeling may also involve the use of fault trees, Markov chains or stochastic Petri nets).*

As per claim 15, Gong as modified teaches a user interface which is configured to present an outcome of stochastic modelling to a user *(Elenbaas, Paragraph 0015 and FIG. 5A is a graphic representation of a user interface for receiving a job registration from a job owner, according to one embodiment).*

12. Claims 16 – 23, 25 and 26 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Gong et al. U.S. PG-Publication No. (2002/0188870), Elenbaas et al. U.S. PG-Publication No. (2009/0204471) and Barnett U.S. Patent No. (7,409,716) and in further view of Jones U.S. PG-Publication No. (2005/0066195).

As per claim 16, Gong fails to teach wherein the apparatus is configured to determine said predicted threat activity using a Monte Carlo method.

However, in an analogous art Jones teaches wherein the apparatus is configured to determine said predicted threat activity using a Monte Carlo method *(Jones, Paragraph 0240, teaches Risk is derived using Monte Carlo (MC) analysis of two probability distributions--the probability of a loss event (exposure), and the probable loss magnitude (impact)).*

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use Jones' factor analysis of information risk with Gong's Intrusion tolerant server system because it offers the advantage of the effective and

efficient management of loss event probability and the probable loss associated with such events (Jones, Paragraph 0016).

As per claim 17, Gong as modified teaches wherein the apparatus is configured to store at least one of the losses and the combined loss in a storage device *(Jones, Paragraph 0240, teaches Risk is derived using Monte Carlo (MC) analysis of two probability distributions--the probability of a loss event (exposure), and the probable loss magnitude (impact)).*

As per claim 18, Gong as modified teaches wherein the apparatus is configured to display at least one of the losses and the combined loss on a display device *(Jones, Paragraph 0240, teaches Risk is derived using Monte Carlo (MC) analysis of two probability distributions--the probability of a loss event (exposure), and the probable loss magnitude (impact)).*

As per claim 19, Gong as modified teaches wherein the apparatus is configured to retrieve a list of observed threats and to determine the predicted threat activity based upon the list of observed threats *(Jones, Paragraph 0146, teaches Threat communities are defined by a set of characteristics that describe capabilities and tendencies. These characteristics establish the frequency and manner in which threat agents interact with objects within the information risk environment).*

As per claim 20, Gong as modified teaches wherein the observed list of threats includes, for each threat, information identifying at least one system *(Jones, Paragraph 0146, teaches Threat communities are defined by a set of characteristics that describe capabilities and tendencies. These characteristics establish the frequency and manner in which threat agents interact with objects within the information risk environment).*

As per claim 21, Gong as modified teaches wherein the observed list of threats includes, for each threat, information identifying frequency of occurrence of the threat *(Jones, Paragraph 0146, teaches Threat communities are defined by a set of characteristics that describe capabilities and tendencies. These characteristics establish the frequency and manner in which threat agents interact with objects within the information risk environment).*

As per claim 22, Gong as modified teaches wherein the frequency of occurrence of the threat includes at least one period of time and corresponding frequency of occurrence for the at least one period of time *(Jones, Paragraph 0146, teaches Threat communities are defined by a set of characteristics that describe capabilities and tendencies. These characteristics establish the frequency and manner in which threat agents interact with objects within the information risk environment).*

As per claim 23, Gong as modified teaches wherein the plurality of systems include a plurality of software systems *(Jones, Paragraph 0184, teaches Responsive*

controls mechanisms and processes have three primary purposes: To contain the effect a threat agent is having on an object, to investigate and remediate (if possible) the source of the threat, and to recover the information or systems affected by the event).

As per claim 25, Gong as modified teaches wherein loss is value at risk *(Jones, Paragraph 0240, teaches Risk is derived using Monte Carlo (MC) analysis of two probability distributions--the probability of a loss event (exposure), and the probable loss magnitude (impact)).*

As per claim 26, Gong as modified teaches at least two modules including a first module configured to determine the predicted threat activity and to output the predicted threat activity to a second module *(Jones, Paragraph 0184, teaches Responsive controls mechanisms and processes have three primary purposes: To contain the effect a threat agent is having on an object, to investigate and remediate (if possible) the source of the threat, and to recover the information or systems affected by the event).*

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RODERICK TOLENTINO whose telephone number is (571)272-2661. The examiner can normally be reached on Monday - Friday 9am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Luu Pham can be reached on (571) 270-5002. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Roderick Tolentino

Examiner
Art Unit 2439

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