501959042 06/18/2012

PATENT ASSIGNMENT

Electronic Version v1.1 Stylesheet Version v1.1

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

CONVEYING PARTY DATA

| Name | Execution Date |
|---------------------|----------------|
| E. Webb Stacy | 04/09/2012 |
| John Colonna-Romano | 04/09/2012 |

RECEIVING PARTY DATA

| Name: | Aptima, Inc. |
|-------------------|----------------|
| Street Address: | 12 Gill Street |
| Internal Address: | Suite 1400 |
| City: | Woburn |
| State/Country: | MASSACHUSETTS |
| Postal Code: | 01801 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 13502120 |

CORRESPONDENCE DATA

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Mail.

Correspondent Name: John J. Brooks, IIII
Address Line 1: 12 Gill Street
Address Line 2: Suite 1400

Address Line 4: Woburn, MASSACHUSETTS 01801

| ATTORNEY DOCKET NUMBER: | APTI0903PPPCPU | |
|-------------------------|--------------------|--|
| NAME OF SUBMITTER: | John J. Brooks III | |

Total Attachments: 3

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> PATENT REEL: 028394 FRAME: 0137

OF \$40.00 13502120

501959042

PATENT APPLICATION ASSIGNMENT

| Whereas we, the undersigned, E. WEBB STACY and JOHN COLONNA-ROMANO, |
|-----------------------------------------------------------------------------------------------|
| hereby have made certain inventions or discoveries (or both) set forth in an application for |
| Letters Patent with the United States of America and/or the International Bureau of the World |
| Intellectual Property Organization entitled SYSTEMS AND METHODS TO DEFINE AND |
| MONITOR A SCENARIO OF CONDITIONS identified as Attorney Docket No. |
| APTI0903PPPCPU, and which application was filed on and Assigned |
| Application No A draft of an Abstract of the inventions or discoveries is |
| included at Attachment A. |

In the event that the filing date and/or Application No. are not entered above at the time we executed this document, and if such information is deemed necessary, we hereby authorize and request our attorney, John J. Brooks III of Aptima, 12 Gill Street, Suite 1400, Woburn, MA 01801, to insert above the filing date and/or Application No. of said application.

Whereas Aptima, Inc., a Massachusetts Corporation having a place of business at 12 Gill Street, Suite 1400, Woburn, MA 01801, and which, together with its successors and assigns, is hereinafter called "Assignee," is desirous of acquiring the title, rights, benefits and privileges hereinafter recited.

Now, therefore, for valuable consideration furnished by Assignee to us, receipt and sufficiency of which we hereby acknowledge, we hereby, without reservation:

- 1. Assign, transfer and convey to Assignee the entire right, title and interest in and to said inventions, discoveries, improvements, said application for Letters Patent of the United States of America, any and all other applications for Letters Patent on said inventions and discoveries in whatsoever countries, including all divisional, renewal, substitute, continuation, reissue, reexamination and Convention applications based in whole or in part upon said inventions or discoveries, or upon said applications, and any and all Letters Patent, reissues, reexaminations, and extensions of Letters Patent granted for said inventions and discoveries or upon said applications, and every priority right that is or may be predicated upon or arise from said inventions, said discoveries, said applications and said Letters Patent and any provisional applications from which priority is claimed in said Letters Patent.
- 2. Authorize Assignee to file patent applications in any or all countries on any or all of said inventions and discoveries in my name or in the name of Assignee or otherwise as Assignee may deem advisable, under the International Convention or otherwise.

| Init.: 202, | JUR. | 1 |
|----------------------------------------|------|---|
| ************************************** | | |

- 3. Authorize and request the Commissioner of Patents and Trademarks of the United States of America and the empowered officials of all other governments to issue or transfer all said Letters Patent to Assignee, as assignee of the entire right, title and interest therein or otherwise as Assignee may direct.
- 4. Warrant that I have not knowingly conveyed to others any right in said inventions, discoveries, applications or patents or any license to use the same or to make, use or sell anything embodying or utilizing any of said inventions or discoveries; and that I have good right to assign the same to Assignee without encumbrance.
- 5. Bind my heirs, legal representatives and assigns, as well as myself, to do, upon Assignee's request and at Assignee's expense, but without additional consideration to me or them, all acts reasonably serving to assure that the said inventions and discoveries, the said patent applications and the said Letters Patent shall be held and enjoyed by Assignee as fully and entirely as the same could have been held and enjoyed by me, my heirs, legal representatives and assigns if this assignment had not been made; and particularly to execute and deliver to Assignee all lawful application documents including petitions, specifications, and oaths, and all assignments, disclaimers, and lawful affidavits in form and substance as may be requested by Assignee; to communicate to Assignee all facts known to me relating to said inventions and discoveries or the history thereof; and to furnish Assignee with any and all documents, photographs, models, samples and other physical exhibits in my control or in the control of my heirs, legal representatives or assigns which may be useful for establishing the facts of my conceptions, disclosures, and reduction to practice of said inventions and discoveries.

In testimony of which we have each executed this Assignment on the date indicated above each of our respective names.

Dated $\frac{4/9/20(2)}{E. \text{ Webb Stacy}}$

Dated 9-APR-2012 John Colonna Romano

Init: ENS JUL

ATTACHMENT A

DRAFT OF ABSTRACT:

Init.: EN, TOR, _____,

RECORDED: 06/18/2012

Systems and methods to define a scenario of conditions comprising the steps of defining at least one condition for at least one educational objective, the at least one condition being represented by a constraint and scheduling the conditions into a scenario of conditions. In some embodiments, the scheduling is performed by analyzing the constraints using constraint programming. In some embodiments, the constraints comprise mathematical or computational constraints representing a range of variables. Also disclosed are systems and methods to monitor a scenario of conditions.

| On this Am day of April | $\frac{12}{2012}$, before me, the undersigned notary |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| public, personally appeared <u>L. Webb</u> | , proved to me |
| through satisfactory evidence of identification, wh | |
| Massachusets Drivers Lice | |
| whose name is signed on the preceding or attached | d document, in my presence. |
| | |
| Debra L. McNeely | DEBRA L. MCNEELY Notary Public COMMONWEALTH OF MASSACHUSETTS |
| Debra L. McNeely | My Commission Expires |
| Debra L. McNeely My commission expires: 28 Feb 2019 | February 28, 2019 |
| On this day of from Lote public, personally appeared from Lote through satisfactory evidence of identification, where the lote of the lote | |
| whose name is signed on the preceding or attached | d document, in my presence. |
| Debra L. McNeely My commission expires: 28 Fdb 2019 | |

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PATENT REEL: 028394 FRAME: 0140