

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
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EPAS ID: PAT3136738

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
JIE WU	09/24/2014
ROSALYN HOBSON HARGRAVES	08/29/2014
KAYVAN NAJARIAN	08/15/2014
ASHWIN BELLE	08/15/2014
KEVIN R. WARD	08/18/2014
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	VIRGINIA COMMONWEALTH UNIVERSITY
<b>Street Address:</b>	910 WEST FRANKLIN STREET
<b>Internal Address:</b>	P.O. BOX 842512
<b>City:</b>	RICHMOND
<b>State/Country:</b>	VIRGINIA
<b>Postal Code:</b>	23284
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	14070457
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(312)474-0448
<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>	
<b>Phone:</b>	3124746300
<b>Email:</b>	docket@marshallip.com
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<b>ATTORNEY DOCKET NUMBER:</b>	30275/48103
<b>NAME OF SUBMITTER:</b>	PAUL B. STEPHENS
<b>SIGNATURE:</b>	/Paul B. Stephens/
<b>DATE SIGNED:</b>	12/08/2014
<b>Total Attachments: 6</b>	

PATENT

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MARSHALL, GERSTEIN & BORUN LLP, 233 S. Wacker Drive, 6300 Willis Tower, Chicago, Illinois 60606-6357

## ASSIGNMENT

Serial No: 14/070,457

Filed: November 1, 2013

Title: Segmentation and Fracture Detection in CT Images

For good and valuable consideration, the receipt and sufficiency of which are hereby agreed, each of the undersigned hereby assigns to Virginia Commonwealth University, P.O. Box 842512, 910 West Franklin Street, Richmond, Virginia 23284 and its successors and assigns ("Assignee") the entire right, title and interest in and to the inventions of such undersigned disclosed in the application listed above, and in any and all other applications anywhere in the world which the undersigned may file and/or be named as an inventor of, solely or jointly, on said inventions, in any and all patents which may be obtained on any of said applications and in any and all reissues, reexaminations, supplemental examinations, inter partes reviews, oppositions, post-grant reviews, supplementary protection certificates and/or extensions thereof, including without limitation, the right to bring suit and to claim and retain all damages and/or seek other remedies for the past, present and future infringement of any of the foregoing, the right of priority, including without limitation to claim priority benefit of or to said patent applications, and request the Commissioner for Patents in the United States and similar authorities outside the United States to issue said patents to and in the name of the Assignee.

Each of the undersigned states that the application listed above is or was made or authorized to be made by him or her. Each of the undersigned believes himself or herself to be the original inventor or a joint inventor with another undersigned of a claimed invention in the application listed above. Each of the undersigned acknowledges that any willful false statement made by him or her in this paragraph is punishable under 18 U.S.C. §1001 by fine or imprisonment of not more than five years, or both.

Except in favor of Assignee, each of the undersigned warrants that: (i) he or she is the owner of all its rights, titles and interests herein assigned and has the right to make this unconditional and irrevocable assignment to Assignee without obtaining any approval or permission of a third party; and (ii) there are no outstanding encumbrances, liens, prior assignments, licenses, or other obligations or restrictions on the rights, titles and interests herein assigned.

Upon the request of Assignee and at no expense to the undersigned, each of the undersigned hereby agrees to execute any and all applications on said inventions, including without limitation for the reissue, reexamination, supplementary protection certificate or extension thereof and any oath, declaration or affidavit relating thereto that said Assignee may deem necessary or expedient, and to cooperate to the best of the ability of the undersigned with and perform any and all affirmative acts requested by Assignee to prepare, file, prosecute, maintain, defend, enforce and vest in Assignee the rights, titles and interests assigned herein, including without limitation, preparing and executing statements and giving and producing evidence in support thereof, whereby said rights, titles and interests will be held and enjoyed by said Assignee to the full end of the term for which said

patents may be granted as fully and entirely as the same would have been held and enjoyed by the undersigned if this assignment had not been made.

On behalf of Assignee,

Ivelina S. Metcheva, Ph.D., MBA, CLP

Name

Executive Director, VCU Innovation Gateway

Title

hereby confirms Assignee's acceptance of all rights, privileges, titles and interests conveyed by this assignment.

[Signature]

Signature

11/21/14

Date

WITNESS our hands this

24 day of Sep . 2014 .

State of  
County of

California  
San Diego

Jie Wu  
Jie Wu

On this 24th day of September . 2014 , before me, a  
Notary Public in and for the County and State aforesaid, appeared  
Jie Wu known to me  
personally or proved to me on the basis of satisfactory evidence to be the same person/persons whose name  
is/are subscribed to the foregoing instrument and acknowledged that he/she/they executed said instrument as  
his/her/their free and voluntary act and for the uses and purposes therein expressed.

WITNESS my hand and seal the same day and year last above given.



My Commission Expires:

2/23/17 Kenneth C Shook

Notary Public

WITNESS our hands this

\_\_\_\_\_ day of \_\_\_\_\_ . \_\_\_\_\_ .

State of  
County of

\_\_\_\_\_  
\_\_\_\_\_

Rosalyn Hobson Hargraves

On this \_\_\_\_\_ day of \_\_\_\_\_ , before me, a  
Notary Public in and for the County and State aforesaid, appeared \_\_\_\_\_ known to me  
personally or proved to me on the basis of satisfactory evidence to be the same person/persons whose name  
is/are subscribed to the foregoing instrument and acknowledged that he/she/they executed said instrument as  
his/her/their free and voluntary act and for the uses and purposes therein expressed.

WITNESS my hand and seal the same day and year last above given.

My Commission Expires:

\_\_\_\_\_

Notary Public

WITNESS our hands this \_\_\_\_\_ day of \_\_\_\_\_ , \_\_\_\_\_ .

State of \_\_\_\_\_

County of \_\_\_\_\_

Jie Wu

On this \_\_\_\_\_ day of \_\_\_\_\_ , \_\_\_\_\_ , before me, a  
Notary Public in and for the County and State aforesaid, appeared \_\_\_\_\_ known to me  
personally or proved to me on the basis of satisfactory evidence to be the same person/persons whose name  
is/are subscribed to the foregoing instrument and acknowledged that he/she/they executed said instrument as  
his/her/their free and voluntary act and for the uses and purposes therein expressed.

WITNESS my hand and seal the same day and year last above given.

My Commission Expires: \_\_\_\_\_

Notary Public

WITNESS our hands this

29 day of August, 2014.

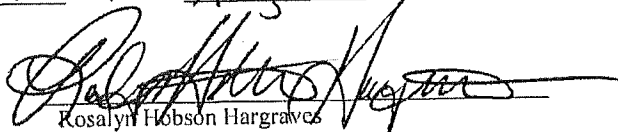
State of

Virginia

County of

Richmond

City

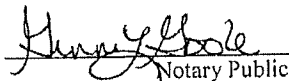
  
Rosalyn Hobson Hargraves

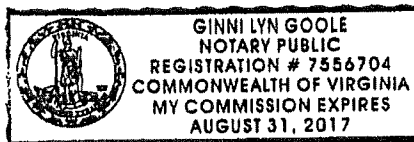
On this 29 day of August, 2014, before me, a  
Notary Public in and for the County and State aforesaid, appeared  
Rosalyn Hobson Hargraves known to me  
personally or proved to me on the basis of satisfactory evidence to be the same person/persons whose name  
is/are subscribed to the foregoing instrument and acknowledged that he/she/they executed said instrument as  
his/her/their free and voluntary act and for the uses and purposes therein expressed.

WITNESS my hand and seal the same day and year last above given.

My Commission Expires:

August 31, 2017

  
Notary Public



WITNESS our hands this

15 day of August, 2014.

State of \_\_\_\_\_

County of \_\_\_\_\_

Kayvan Najarian

Kayvan Najarian

Witness On this 15 day of August, 2014, before me, a  
~~Notary Public~~ in and for the County and State aforesaid, appeared

\_\_\_\_\_ known to me  
personally or proved to me on the basis of satisfactory evidence to be the same person/persons whose name  
is/are subscribed to the foregoing instrument and acknowledged that he/she/they executed said instrument as  
his/her/their free and voluntary act and for the uses and purposes therein expressed.

WITNESS my hand and seal the same day and year last above given.

My Commission Expires:

Meg Weideman Meg Weideman  
~~Notary Public~~ Witness

WITNESS our hands this

15 day of August, 2014.

State of \_\_\_\_\_

County of \_\_\_\_\_

Ashwin Belle

Ashwin Belle

Witness On this 15 day of August, 2014, before me, a  
~~Notary Public~~ in and for the County and State aforesaid, appeared

\_\_\_\_\_ known to me  
personally or proved to me on the basis of satisfactory evidence to be the same person/persons whose name  
is/are subscribed to the foregoing instrument and acknowledged that he/she/they executed said instrument as  
his/her/their free and voluntary act and for the uses and purposes therein expressed.

WITNESS my hand and seal the same day and year last above given.

My Commission Expires:

Meg Weideman Meg Weideman  
~~Notary Public~~ Witness

WITNESS our hands this 18 day of August, 2014.

State of \_\_\_\_\_  
County of \_\_\_\_\_

Kevin R. Ward  
Kevin R. Ward

Witness On this 18 day of August, 2014, before me, a  
~~Notary Public~~ in and for the County and State aforesaid, appeared \_\_\_\_\_ known to me  
personally or proved to me on the basis of satisfactory evidence to be the same person/persons whose name  
is/are subscribed to the foregoing instrument and acknowledged that he/she/they executed said instrument as  
his/her/their free and voluntary act and for the uses and purposes therein expressed.

WITNESS my hand and seal the same day and year last above given.

My Commission Expires:

Meg Weideman Meg Weideman  
~~Notary Public~~ — Witness