

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT5018547

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
IULIAN IORDACHITA	01/16/2018
HAO LIU	01/17/2018
MEHRAN ARMAND	02/10/2018
RUSSELL H. TAYLOR	01/18/2018
AMIRHOSSEIN FARVARDIN	05/14/2018
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	THE JOHNS HOPKINS UNIVERSITY
<b>Street Address:</b>	3400 NORTH CHARLES STREET
<b>City:</b>	BALTIMORE
<b>State/Country:</b>	MARYLAND
<b>Postal Code:</b>	21218
<b>PROPERTY NUMBERS Total: 3</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	14970177
Application Number:	62092070
Application Number:	62169307
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(202)344-8300
<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>Email:</b>	PTOMail@Venable.com, HJDaley.team@venable.com, JNewell@Venable.com
<b>Correspondent Name:</b>	LAURA G. REMUS, PH.D.
<b>Address Line 1:</b>	P.O. BOX 34385
<b>Address Line 4:</b>	WASHINGTON, D.C. 20043-9998
<b>ATTORNEY DOCKET NUMBER:</b>	02240-392858
<b>NAME OF SUBMITTER:</b>	LAURA G. REMUS
<b>SIGNATURE:</b>	/LAURA G. REMUS/
<b>DATE SIGNED:</b>	06/21/2018

**Total Attachments: 15**

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## WORLDWIDE ASSIGNMENT

WHEREAS, **Julian IORDACHITA, Hao LIU, Mehran ARMAND, Russell H. TAYLOR, Amirhossein FARVARDIN** hereinafter referred to as the Assignor, has invented a certain improvement relating to **SHAPE TRACKING OF A DEXTEROUS CONTINUUM MANIPULATOR**, for which said Assignor has caused an application for United States Letters Patent to be prepared,

☐ the inventor's declaration for said application being executed concurrently with the execution of this instrument; said application to be filed in the U.S. Patent and Trademark Office;

☒ said application having been filed in the U.S. Patent and Trademark Office on **December 15, 2015**, and given Application No. **14/970,177**; and

☒ said U.S. Provisional Application having been filed in the U.S. Patent and Trademark Office on **December 15, 2014**; and given Application No. **62/092,070**; and

☒ said U.S. Provisional Application having been filed in the U.S. Patent and Trademark Office on **June 1, 2015**; and given Application No. **62/169,307**;

☐ said application having been filed under the Patent Cooperation Treaty on \_\_\_\_\_, and given International Application No. \_\_\_\_\_, the United States of America having been designated;

WHEREAS, **The Johns Hopkins University** having a principal place of business located at **3400 North Charles St, Baltimore, MD, 21218**, hereinafter referred to as the Assignee, is desirous of acquiring the entire right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefore, including any and all renewals, reissues and prolongations thereof;

NOW THIS WITNESSETH, that for and in consideration of One Dollar (\$1.00), and other good and valuable consideration paid by Assignee to Assignor, the receipt and sufficiency of which is hereby acknowledged, Assignor hereby assigns, sells and transfers, and has assigned, sold, and transferred to Assignee, its successors and assigns, the entire and exclusive right, title, and interest for the United States in and to the invention, the application, any non-provisional application, and any patents which may be granted therefor, including any and all divisions, continuations, in whole or in part, substitutions, renewals, reissues, reexaminations, and extensions thereof, and all applications claiming priority therefrom; and Assignor authorizes and requests the Commissioner of Patents and Trademarks to issue all patents for the invention, or patents resulting therefrom, insofar as their interest is concerned, to Assignee; to have, hold, exercise, and enjoy, with all the rights, powers, privileges, and advantages in anywise arising therefrom or appertaining thereto, for and during the term or terms of any and all such patents when granted, for the use and benefit of said assignee, and said assignee's successors and assigns, in as ample and beneficial a manner as Assignor might or could have held and enjoyed the same, if this assignment had not been made.

Assignor further hereby assigns, sells and transfers, and has assigned, sold, and transferred to Assignee, its successors and assigns, the entire right, title and interest in all countries of the world, in and to the invention and in and to the application and all patents which may be granted therefor, and all national applications, regional applications, divisions, reissues, substitutions, continuations, in whole or in part, re-examinations, and extensions thereof, including the right to file applications and obtain patents for the invention in its own name, in all countries and including all rights of priority in all countries under the terms of any applicable international convention, insofar as its interest is concerned; and the Assignor hereby authorizes and requests the applicable patent office in each country of the world to issue all patents for the invention, or patents resulting therefrom, insofar as its interest is concerned, to the Assignee, 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 which any and all of such patents for the invention may issue, to the same extent as the Assignor would hold and enjoy if this Assignment had not been made.

The Assignor further agrees to execute any and all patent applications, assignments, affidavits, and any other papers in connection therewith necessary to perfect such patent rights, and also agrees, at the request of the Assignee, to testify in any legal proceedings, sign all lawful papers, make all lawful oaths, and generally do everything possible to aid said Assignee, its successors and assigns, to obtain, maintain and enforce proper patent protection for said invention.

## WORLDWIDE ASSIGNMENT

IN WITNESS WHEREOF, each individual collectively referred to as Assignor has caused this Assignment to be executed.

EXECUTED this 16<sup>th</sup> day of January, 2018.

ASSIGNOR: **Iulian IORDACHITA**

Signature: Iulian Iordachita

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

ASSIGNOR: **Hao LIU**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

ASSIGNOR: **Mehran ARMAND**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

ASSIGNOR: **Russell H. TAYLOR**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

**WORLDWIDE ASSIGNMENT**

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

ASSIGNOR: **Amirhossein FARVARDIN**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

## WORLDWIDE ASSIGNMENT

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[ ] the inventor's declaration for said application being executed concurrently with the execution of this instrument; said application to be filed in the U.S. Patent and Trademark Office;

[X] said application having been filed in the U.S. Patent and Trademark Office December 15, 2015 and given Application No. 14/970,177; and

[X] said U.S. Provisional Application having been filed in the U.S. Patent and Trademark Office on December 15, 2014; and given Application No. 62/092,070; and

[X] said U.S. Provisional Application having been filed in the U.S. Patent and Trademark Office on June 1, 2015; and given Application No. 62/169,307;

[ ] said application having been filed under the Patent Cooperation Treaty on \_\_\_\_\_, and given International Application No. \_\_\_\_\_, the United States of America having been designated;

WHEREAS, **The Johns Hopkins University** having a principal place of business located at 3400 North Charles St, Baltimore, MD, 21218, hereinafter referred to as the Assignee, is desirous of acquiring the entire right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefore, including any and all renewals, reissues and prolongations thereof;

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## WORLDWIDE ASSIGNMENT

IN WITNESS WHEREOF, each individual collectively referred to as Assignor has caused this Assignment to be executed.

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

ASSIGNOR: **Julian IORDACHITA**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

ASSIGNOR: **Hao LIU**

Signature: Hao Liu

WITNESS:

Signature: Zhaoyang Xue

Name: Zhaoyang Xue

Address: #19, Feiyun Road, Hunnan  
New District, Sheng Yang, China

EXECUTED this 17<sup>th</sup> day of Jan, 2018.

ASSIGNOR: **Mehran ARMAND**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

ASSIGNOR: **Russell H. TAYLOR**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

**WORLDWIDE ASSIGNMENT**

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

ASSIGNOR: **Amirhossein FARVARDIN**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

## WORLDWIDE ASSIGNMENT

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## WORLDWIDE ASSIGNMENT

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EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

ASSIGNOR: **Iulian IORDACHITA**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

ASSIGNOR: **Hao LIU**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

EXECUTED this 10 day of February, 2018.

ASSIGNOR: **Mehran ARMAND**

Signature: M. Armand

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

ASSIGNOR: **Russell H. TAYLOR**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

**WORLDWIDE ASSIGNMENT**

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

ASSIGNOR: **Amirhossein FARVARDIN**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

## WORLDWIDE ASSIGNMENT

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## WORLDWIDE ASSIGNMENT

IN WITNESS WHEREOF, each individual collectively referred to as Assignor has caused this Assignment to be executed.

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

ASSIGNOR: **Iulian IORDACHITA**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

ASSIGNOR: **Hao LIU**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

ASSIGNOR: **Mehran ARMAND**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

EXECUTED this 18 day of January, 2018.

ASSIGNOR: **Russell H. TAYLOR**

Signature: Russell H. Taylor

WITNESS:

Signature: Ashley Monierby

Name: Ashley Monierby

Address: 3400 N Charles ST.

Baltimore, MD 21201

**WORLDWIDE ASSIGNMENT**

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

ASSIGNOR: **Amirhossein FARVARDIN**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

## WORLDWIDE ASSIGNMENT

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NOW THIS WITNESSETH, that for and in consideration of One Dollar (\$1.00), and other good and valuable consideration paid by Assignee to Assignor, the receipt and sufficiency of which is hereby acknowledged, Assignor hereby assigns, sells and transfers, and has assigned, sold, and transferred to Assignee, its successors and assigns, the entire and exclusive right, title, and interest for the United States in and to the invention, the application, any non-provisional application, and any patents which may be granted therefor, including any and all divisions, continuations, in whole or in part, substitutions, renewals, reissues, reexaminations, and extensions thereof, and all applications claiming priority therefrom; and Assignor authorizes and requests the Commissioner of Patents and Trademarks to issue all patents for the invention, or patents resulting therefrom, insofar as their interest is concerned, to Assignee; to have, hold, exercise, and enjoy, with all the rights, powers, privileges, and advantages in anywise arising therefrom or appertaining thereto, for and during the term or terms of any and all such patents when granted, for the use and benefit of said assignee, and said assignee's successors and assigns, in as ample and beneficial a manner as Assignor might or could have held and enjoyed the same, if this assignment had not been made.

Assignor further hereby assigns, sells and transfers, and has assigned, sold, and transferred to Assignee, its successors and assigns, the entire right, title and interest in all countries of the world, in and to the invention and in and to the application and all patents which may be granted therefor, and all national applications, regional applications, divisions, reissues, substitutions, continuations, in whole or in part, re-examinations, and extensions thereof, including the right to file applications and obtain patents for the invention in its own name, in all countries and including all rights of priority in all countries under the terms of any applicable international convention, insofar as its interest is concerned; and the Assignor hereby authorizes and requests the applicable patent office in each country of the world to issue all patents for the invention, or patents resulting therefrom, insofar as its interest is concerned, to the Assignee, 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 which any and all of such patents for the invention may issue, to the same extent as the Assignor would hold and enjoy if this Assignment had not been made.

The Assignor further agrees to execute any and all patent applications, assignments, affidavits, and any other papers in connection therewith necessary to perfect such patent rights, and also agrees, at the request of the Assignee, to testify in any legal proceedings, sign all lawful papers, make all lawful oaths, and generally do everything possible to aid said Assignee, its successors and assigns, to obtain, maintain and enforce proper patent protection for said invention.

## WORLDWIDE ASSIGNMENT

IN WITNESS WHEREOF, each individual collectively referred to as Assignor has caused this Assignment to be executed.

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

ASSIGNOR: **Iulian IORDACHITA**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

ASSIGNOR: **Hao LIU**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

ASSIGNOR: **Mehran ARMAND**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

ASSIGNOR: **Russell H. TAYLOR**

Signature: \_\_\_\_\_

WITNESS:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

## WORLDWIDE ASSIGNMENT

EXECUTED this 14 day of May, 2018.

ASSIGNOR: **Amirhossein FARVARDIN**

Signature: Amirhossein Farvardin

WITNESS:

Signature: Ali Ebrahimi

Name: Ali Ebrahimi

Address: 176 W. University pkwy  
, Apt 724, Baltimore MD  
, 21270