

<b>PATENT ASSIGNMENT COVER SHEET</b>
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Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT7361051

<b>SUBMISSION TYPE:</b>	CORRECTIVE ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	Corrective Assignment to correct the FIRST NAME OF THE 8TH INVENTOR FROM LLYA TO ILYA previously recorded on Reel 058858 Frame 0302. Assignor(s) hereby confirms the CORRECT NAME OF THE 8TH INVENTOR IS ILYA A. LAVRIK.
<b>RESUBMIT DOCUMENT ID:</b>	507158423

**CONVEYING PARTY DATA**

Name	Execution Date
ILYA A. LAVRIK	01/10/2022

**RECEIVING PARTY DATA**

<b>Name:</b>	NORFOLK SOUTHERN CORPORATION
<b>Street Address:</b>	THREE COMMERCIAL PLACE
<b>City:</b>	NORFOLK
<b>State/Country:</b>	VIRGINIA
<b>Postal Code:</b>	23510

**PROPERTY NUMBERS Total: 1**

Property Type	Number
<b>Application Number:</b>	17549499

**CORRESPONDENCE DATA**

**Fax Number:** (404)365-9532

*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.*

**Phone:** 4042337000

**Email:** mmccaskill@mmmlaw.com

**Correspondent Name:** MORRIS, MANNING & MARTIN, LLP

**Address Line 1:** 1600 ATLANTA FINANCIAL CENTER

**Address Line 2:** 3343 PEACHTREE ROAD, NE

**Address Line 4:** ATLANTA, GEORGIA 30326

<b>ATTORNEY DOCKET NUMBER:</b>	37079-147604
<b>NAME OF SUBMITTER:</b>	MONTRELL MCCASKILL
<b>SIGNATURE:</b>	/Montrell McCaskill/
<b>DATE SIGNED:</b>	06/02/2022

**Total Attachments: 7**

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## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
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EPAS ID: PAT7154512

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
LLYA A. LAVRIK	01/10/2022
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	NORFOLK SOUTHERN CORPORATION
<b>Street Address:</b>	THREE COMMERCIAL PLACE
<b>City:</b>	NORFOLK
<b>State/Country:</b>	VIRGINIA
<b>Postal Code:</b>	23510
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	17549499
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(404)365-9532
<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>	4042337000
<b>Email:</b>	ipdocket@mmmlaw.com
<b>Correspondent Name:</b>	MORRIS, MANNING & MARTIN, LLP
<b>Address Line 1:</b>	1600 ATLANTA FINANCIAL CENTER
<b>Address Line 2:</b>	3343 PEACHTREE ROAD, NE
<b>Address Line 4:</b>	ATLANTA, GEORGIA 30326
<b>ATTORNEY DOCKET NUMBER:</b>	37079-147604
<b>NAME OF SUBMITTER:</b>	KIMMYANN P. BILLINGS
<b>SIGNATURE:</b>	/Kimmy-Ann P. Billings/
<b>DATE SIGNED:</b>	02/02/2022
<b>Total Attachments: 6</b>	
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**ASSIGNMENT**

**THIS ASSIGNMENT** is made by **Mahbod Amouie**, residing at 2626 Peachtree Road NW, Atlanta, Georgia 30305; **Evan T. Gebhardt**, residing at 761 Morosgo DR NE Unit 512, Atlanta, Georgia 30324; **Gongli Duan**, residing at 2382 Ivy Mountain Drive, Snellville, Georgia 30078, **Myles Grayson Akin**, residing at 2505 Woodfern Ct, Marietta, Georgia 30062, **Wei Liu**, residing at 8431 Woodbox Road, Manlius, New York 13104, **Tianchen Wang**, residing at 463 Summer Dr., Atlanta, Georgia 30328, **Mayuresch Manoj Sardesai**, residing at 95 8th St NW Unit 208, Atlanta, Georgia 30309; and **Ilya A. Lavrik**, residing at 3400 Malone Drive, United 217, Atlanta, Georgia 30341 (hereinafter referred to as “Assignors”).

**WHEREAS**, Assignors have invented certain new and useful inventions and improvements in “**MACHINE-LEARNING FRAMEWORK FOR DETECTING DEFECTS OR CONDITIONS OF RAILCAR SYSTEMS**”, set forth in a Non-Provisional Patent Application for Letters Patent of the United States, filed on December 13, 2021, as U.S. Application No. 17/549,499; hereinafter referred to as the “Application”); and

**WHEREAS**, **Norfolk Southern Corporation**, a Corporation organized under and pursuant to the laws of the State of Virginia, having its principal place of business at Three Commercial Place, Norfolk, Virginia 23510 (hereinafter referred to as “Assignee”), is desirous of acquiring the entire right, title and interest in and to said inventions and said Applications for Letters Patent of the United States, and in and to any Letters Patent of the United States to be obtained therefore and thereon.

**NOW, THEREFORE**, in consideration of One Dollar (\$1.00) and other good and sufficient consideration, the receipt of which is hereby acknowledged, Assignors have sold, assigned, transferred and set over, and by these presents do sell, assign, transfer and set over, unto Assignee, its successors, legal representatives and assigns, the entire right, title and interest in and to the above-mentioned inventions and Applications, and in and to any and all direct and indirect divisions, non-provisional applications, continuations and continuations-in-part of said Applications, and any and all Letters Patent in the United States and all foreign countries which

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may be granted therefor and thereon, and reissues, reexaminations and extensions of said Letters Patent, and all rights under the International Convention for the Protection of Industrial Property, the same to be held and enjoyed by Assignee, for its own use and benefit and the use and benefit of its successors, legal representatives and assigns, to the full end of the term or terms for which Letters Patent may be granted and/or extended, as fully and entirely as the same would have been held and enjoyed by Assignors, had this sale and assignment not been made.

**AND** for the same consideration, Assignors hereby represent and warrant to Assignee, its successors, legal representatives and assigns, that, at the time of execution and delivery of these presents, except for any rights, titles and/or interests that have arisen to Assignee under law or that have already been transferred to Assignee, Assignors are the sole and lawful owners of the entire right, title and interest in and to the said inventions and Application, and that the same are unencumbered and that Assignors have good and full right and lawful authority to sell and convey the same in the manner herein set forth.

**AND** for the same consideration, Assignors hereby covenant and agree to and with Assignee, its successors, legal representatives and assigns, that Assignors will sign all papers and documents, take all lawful oaths and do all acts necessary or required to be done for the procurement, maintenance, enforcement and defense of the Application and any Letters Patent issuing therefrom for said inventions, without charge to Assignee, its successors, legal representatives and assigns, whenever counsel of Assignee, or counsel of its successors, legal representatives and assigns, shall advise: that any proceeding in connection with said inventions, or said Application, or any proceeding in connection with any Letters Patent or applications for Letters Patent for said inventions in any country, including but not limited to interference proceedings, is lawful and desirable; or, that any division, continuation or continuation-in-part of the Application, or any reissue, reexamination or extension of any Letters Patent, to be obtained thereon, is lawful and desirable.

**AND** Assignors warrant and represent that the Assignors individually are not aware of any information that is material to patentability of the above-mentioned inventions, namely, any information that, alone or in combination with other information, establishes on its face the

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unpatentability of the inventions or is inconsistent with arguments of patentability made to the U.S. Patent & Trademark Office. Material information may include devices, products, publications, and so forth, that are similar to the present inventions, and/or any public disclosure, commercial use, or offer for sale more than one year prior to the filing date of the Applications.

**AND** Assignors hereby request the Commissioner of Patent and Trademarks to issue said Letters Patent of the United States to Assignee, as Assignee of said inventions and the Letters Patent to be issued thereon, for the sole use and benefit of Assignee, its successors, legal representatives and assigns.

**AND** Assignors hereby grant the following individuals the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document:

MORRIS, MANNING & MARTIN, LLP

All practitioners at Customer Number 24728

[Signatures are on following pages.]

IN TESTIMONY WHEREOF, I have hereunto set my hand this \_\_\_\_\_ day of  
\_\_\_\_\_, 2022.

\_\_\_\_\_  
**MAHBOD AMOUIE**

IN TESTIMONY WHEREOF, I have hereunto set my hand this \_\_\_\_\_ day of  
\_\_\_\_\_, 2022.

\_\_\_\_\_  
**EVAN T. GEBHARDT**

IN TESTIMONY WHEREOF, I have hereunto set my hand this \_\_\_\_\_ day of  
\_\_\_\_\_, 2022.

\_\_\_\_\_  
**GONGLI DUAN**

IN TESTIMONY WHEREOF, I have hereunto set my hand this \_\_\_\_\_ day of  
\_\_\_\_\_, 2022.

\_\_\_\_\_  
**MYLES GRASON AKIN**

Atty Docket No. 37079-147604

IN TESTIMONY WHEREOF, I have hereunto set my hand this \_\_\_\_\_ day of \_\_\_\_\_, 2022.

\_\_\_\_\_  
**WEI LIU**

IN TESTIMONY WHEREOF, I have hereunto set my hand this \_\_\_\_\_ day of \_\_\_\_\_, 2022.

\_\_\_\_\_  
**TIANCHEN WANG**

IN TESTIMONY WHEREOF, I have hereunto set my hand this \_\_\_\_\_ day of \_\_\_\_\_, 2022.

\_\_\_\_\_  
**MAYURESCH MANOJ SARDESAI**

IN TESTIMONY WHEREOF, I have hereunto set my hand this 1/10/2022 day of 1/10/2022, 2022.

\_\_\_\_\_  
DocuSigned by:  
*Ilya Lavrik*  
A787CFFB07FE465...  
**ILYA A. LAVRIK**



Atty Docket No. 37079-147604

ASSIGNEE:

\_\_\_\_\_ day of \_\_\_\_\_, 2022

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

Title:

**Norfolk Southern Corporation**