### PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2

EPAS ID: PAT4999161

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
XUEMEI SUN	05/23/2018
JAMI J. MILLER	05/29/2018
CHRISTOPHER WOLF	05/25/2018
LIQUN NA	05/23/2018

#### **RECEIVING PARTY DATA**

Name:	FORD GLOBAL TECHNOLOGIES, LLC
Street Address:	330 TOWN CENTER DRIVE
Internal Address:	FAIRLANE PLAZA SOUTH, SUITE 800
City:	DEARBORN
State/Country:	MICHIGAN
Postal Code:	48126

#### **PROPERTY NUMBERS Total: 1**

Property Type	Number	
Application Number:	15997532	

#### **CORRESPONDENCE DATA**

Fax Number: (313)322-7162

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: 2483584400

Email: glorenzen@brookskushman.com

BROOKS KUSHMAN P.C. **Correspondent Name:** Address Line 1: 1000 TOWN CENTER

Address Line 2: TWENTY-SECOND FLOOR

Address Line 4: SOUTHFIELD, MICHIGAN 48075-1238

ATTORNEY DOCKET NUMBER:	83932310
NAME OF SUBMITTER:	BENJAMIN C. STASA
SIGNATURE:	/Benjamin C. Stasa/
DATE SIGNED:	06/05/2018
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**Total Attachments: 4** 



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Attorney Docket Number	83932310	ĺ
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# ASSIGNMENT AND DECLARATION (37 C.F.R. 1.63) FOR UTILITY, PROVISIONAL OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76)

Title of Invention	MOTOR OPERATING	REGION	BASED	RANDOM	PULSE	WIDTH
This declaration is dir	MODULATION		***************************************		***************************************	******************************
1 ms accimation 12 on	ected to:					
The	attached application, or					
☐ Uni	ted States application or PCT interna	ational applicati	ion number			
number into this form	filed on (I when they become known.)	hereby authori	ze the insert	tion of the appl	lication filin	g date and
The above-identified a	application was made or authorized to	o be made by m	ne.			
I hereby state that I I including the claims.	have reviewed and understand the o	contents of the	specificatio	n in the above-	-identified a	pplication,
I believe that I am the	original inventor or an original joint	inventor of a cl	laimed inven	ition in the appl	ication.	
- continuation-in-part a	to disclose information which is m pplications, material information v ional or PCT international filing date	Which became	available b	etween the fill	R. 1.56, inc ing date of	cluding for the prior
of the State of Delaw hereinafter referred to interest, domestic and of the ASSIGNEE, its for the inventions and name or names, or in a insert the serial/applied 15/997532  ASSIGNEE, its succeapplications, in and to	eyment agreement heretofore made of HNOLOGIES, LLC, a Ford Motor Care, having its principal place of but as the ASSIGNEE, its successors, foreign, in and to the inventions and successors, assigns or other legal rediscoveries in any and all countries, my name, at its or their election (and cation number and filing date of principal filing Date of June 4, 201 cassors, assigns or other legal reports in the inventions and discoveries in an ions claiming benefit of the filing issue applications.	usiness at Dear assigns or other discoveries in epresentatives to entities and in I hereby author the application are esentatives, all py and all country and all country and all country and all country assigns as a py and all country as a presentatives.	diary, organi rborn, Count er legal repr the above-ic o make appl tergovernme orize the AS: on to receive	ized and existing ty of Wayne, as resentatives, the dentified inventifications and to ental organization SIGNEE or AS to Letters Pater priority, include and interpresent the strenger of the	g by virtue of nd State of a entire right ion including receive Lettons, in its or SIGNEE's a mt herein: Sgn and set of ding any propertyl organical constructions.	of the laws Michigan, t, title and g the right ters Patent their own attorney to Serial No. ver to the rovisional
organizations, and to p	r myself, my heirs, successors, assig for Letters Patent of any and all kir erform any and all acts which the A secure thereto the rights herein sold,	nds and in any ASSIGNEE, its	and all cour	atriac autitias a	wed intomoses	
And I hereby represent	and warrant that I have not granted a	any rights incon	isistent with	the rights grante	ed herein.	
I hereby acknowledge to imprisonment of not	that any willful false statement made more than five (5) years or both.	e in this declar	ation is puni	shable under 18	3 U.S.C. 100	11 by fine
LEGAL NAME OF IN	VENTOR	***************************************	***************************************			
Inventor: <u>Xuemei</u>	Sun	***************************************	Date:	5/23	/2018	
Signature: <u> </u>	mei sun		••••	~~~~~~		
Note: An Application Da Use an additional declarat	nta Sheet (PTO/SB/14 or equivalent), incident for form for each additional inventor	cluding naming t	the entire inve	entive entity, mus	st accompany	this form.

Attorney Docket Number	83932310	

## ASSIGNMENT AND DECLARATION (37 C.F.R. 1.63) FOR UTILITY, PROVISIONAL OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76)

Title of Invention	MOTOR OPERATING REGION BASED RANDOM PULSE WIDTH MODULATION		
This declaration is directed	d to:		
	ached application, or  States application or PCT international application number  filed on (I hereby authorize the insertion of the application filing date and en they become known.)		
The above-identified appl	lication was made or authorized to be made by me.		
I hereby state that I have including the claims.	e reviewed and understand the contents of the specification in the above-identified application,		
I believe that I am the ori	ginal inventor or an original joint inventor of a claimed invention in the application.		
continuation-in-part appl	disclose information which is material to patentability as defined in 37 C.F.R. 1.56, including for ications, material information which became available between the filing date of the prior all or PCT international filing date of the continuation-in-part application.		
FORD GLOBAL TECHN of the State of Delaware hereinafter referred to as interest, domestic and for of the ASSIGNEE, its su for the inventions and disname or names, or in my insert the serial/applicat 15/997532  ASSIGNEE, its success applications, in and to the including all application reexaminations and reissue.	••		
And I hereby agree for myself, my heirs, successors, assigns or other legal representatives to execute any and all papers, including applications for Letters Patent of any and all kinds and in any and all countries, entities and intergovernmental organizations, and to perform any and all acts which the ASSIGNEE, its successors, assigns or other legal representatives may deem necessary to secure thereto the rights herein sold, assigned and set over.			
And I hereby represent an	d warrant that I have not granted any rights inconsistent with the rights granted herein.		
or imprisonment of not m	at any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine ore than five (5) years or both.		
LEGAL NAME OF INVI Inventor:Jami_J, Mi	· / / /		
Signature:	A Mille		
7			
	Sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form.		

Attorney Docket Number	83932310

# ASSIGNMENT AND DECLARATION (37 C.F.R. 1.63) FOR UTILITY, PROVISIONAL OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76)

Title of Invention	MOTOR OPERATING REGION BASED RANDOM PULSE WIDTH
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United	States application or PCT international application number filed on (I hereby authorize the insertion of the application filing date and
number into this form who	en they become known.)
The above-identified appl	ication was made or authorized to be made by me.
I hereby state that I have including the claims.	e reviewed and understand the contents of the specification in the above-identified application,
I believe that I am the orig	ginal inventor or an original joint inventor of a claimed invention in the application.
continuation-in-part appl	disclose information which is material to patentability as defined in 37 C.F.R. 1.56, including for ications, material information which became available between the filing date of the prior al or PCT international filing date of the continuation-in-part application.
FORD GLOBAL TECHN of the State of Delaware hereinafter referred to as interest, domestic and for of the ASSIGNEE, its su- for the inventions and dis name or names, or in my insert the serial/applicati 15/997532  ASSIGNEE, its success applications, in and to the including all application reexaminations and reissu  And I hereby agree for n including applications for organizations, and to per	ent agreement heretofore made or by contractual obligation, I do sell, assign and set over unto IOLOGIES, LLC, a Ford Motor Company subsidiary, organized and existing by virtue of the laws, having its principal place of business at Dearborn, County of Wayne, and State of Michigan, the ASSIGNEE, its successors, assigns or other legal representatives, the entire right, title and eign, in and to the inventions and discoveries in the above-identified invention including the right coessors, assigns or other legal representatives to make applications and to receive Letters Patent coveries in any and all countries, entities and intergovernmental organizations, in its or their own name, at its or their election (and I hereby authorize the ASSIGNEE or ASSIGNEE's attorney to number and filing date of the application to receive Letters Patent herein: Serial No., Filing Date
	d warrant that I have not granted any rights inconsistent with the rights granted herein.
	at any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine ore than five (5) years or both.
LEGAL NAME OF INVI	ENTOR S/2 S/2 S/2 S/2
Inventor: Christophe	Date: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Signature:	in hay
	CL (DTO/CD/14
Note: An Application Data Use an additional declaration	Sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. In form for each additional inventor.

Please direct all correspondence to: 28395

Attorney Docket Number	83932310	

## ASSIGNMENT AND DECLARATION (37 C.F.R. 1.63) FOR UTILITY, PROVISIONAL OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76)

Title of Invention	MOTOR OPERATING REGION BASED RANDOM PULSE WIDTH MODULATION
This declaration is directed to:	
The attached application, or United States application or PCT international application number filed on (I hereby authorize the insertion of the application filing date and number into this form when they become known.)	
The above-identified application was made or authorized to be made by me.	
I hereby state that I have reviewed and understand the contents of the specification in the above-identified application, including the claims.	
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.	
I am aware of the duty to disclose information which is material to patentability as defined in 37 C.F.R. 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.	
Pursuant to my employment agreement heretofore made or by contractual obligation, I do sell, assign and set over unto FORD GLOBAL TECHNOLOGIES, LLC, a Ford Motor Company subsidiary, organized and existing by virtue of the laws of the State of Delaware, having its principal place of business at Dearborn, County of Wayne, and State of Michigan, hereinafter referred to as the ASSIGNEE, its successors, assigns or other legal representatives, the entire right, title and interest, domestic and foreign, in and to the inventions and discoveries in the above-identified invention including the right of the ASSIGNEE, its successors, assigns or other legal representatives to make applications and to receive Letters Patent for the inventions and discoveries in any and all countries, entities and intergovernmental organizations, in its or their own name or names, or in my name, at its or their election (and I hereby authorize the ASSIGNEE or ASSIGNEE's attorney to insert the serial/application number and filing date of the application to receive Letters Patent herein: Serial No. 15/997532, Filing Date	
including applications for Letters Patent of any and all kinds and in any and all countries, entities and intergovernmental organizations, and to perform any and all acts which the ASSIGNEE, its successors, assigns or other legal representatives may deem necessary to secure thereto the rights herein sold, assigned and set over.	
And I hereby represent and warrant that I have not granted any rights inconsistent with the rights granted herein.	
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years or both.	
LEGAL NAME OF INV. Inventor: Liqun Na	ENTOR Date: May 23, Zo18
Signature:	igim (g
Note: An Application Data Sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form.  Use an additional declaration form for each additional inventor.	

PATENT REEL: 046033 FRAME: 0215

**RECORDED: 06/08/2018**