

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT6842095

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	SECURITY INTEREST	
CONVEYING PARTY DATA		
Name		Execution Date
HI LLC		07/01/2021
RECEIVING PARTY DATA		
Name:	TRIPLEPOINT PRIVATE VENTURE CREDIT INC.	
Street Address:	2755 SAND HILL ROAD	
City:	MENLO PARK	
State/Country:	CALIFORNIA	
Postal Code:	94025	
PROPERTY NUMBERS Total: 83		
Property Type	Number	
Application Number:	15939603	
Application Number:	16393002	
Application Number:	16456975	
Application Number:	17177975	
PCT Number:	US2028820	
PCT Number:	US2034062	
PCT Number:	US2058663	
Application Number:	17087988	
Application Number:	17109475	
Application Number:	17160078	
Application Number:	17160109	
Application Number:	17160152	
Application Number:	17160179	
Application Number:	17160195	
Application Number:	17176321	
Application Number:	17161840	
Application Number:	17202524	
Application Number:	17188298	
Application Number:	17202548	
Application Number:	17202554	

PATENT

Property Type	Number
Application Number:	17176307
PCT Number:	US2122484
Application Number:	17202563
PCT Number:	US2122463
Application Number:	17202459
PCT Number:	US2122485
Application Number:	17202572
Application Number:	17202583
Application Number:	17202588
Application Number:	17202598
PCT Number:	US2122487
Application Number:	17202613
Application Number:	17202631
PCT Number:	US2122488
Application Number:	17202641
PCT Number:	US2122489
Application Number:	17202651
Application Number:	17202657
PCT Number:	US2122498
Application Number:	17202668
Application Number:	17176448
PCT Number:	US2118187
Application Number:	17176460
PCT Number:	US2118189
Application Number:	17176466
PCT Number:	US2118190
Application Number:	17176470
Application Number:	17176487
PCT Number:	US2118188
Application Number:	17176539
Application Number:	17202681
PCT Number:	US2118156
Application Number:	17176309
Application Number:	17176560
Application Number:	17233033
Application Number:	17176315
Application Number:	17324819
PCT Number:	US2133861

Property Type	Number
Application Number:	17328235
Application Number:	63170892
Application Number:	17328271
Application Number:	63124711
Application Number:	17328290
PCT Number:	US2133864
Application Number:	17328315
Application Number:	63158700
Application Number:	63139469
Application Number:	63139478
Application Number:	63179080
Application Number:	63189870
Application Number:	63190153
Application Number:	63179957
Application Number:	63191822
Application Number:	63154131
Application Number:	63154157
Application Number:	63156785
Application Number:	63173341
Application Number:	63154162
Application Number:	63156793
Application Number:	63159823
Application Number:	63188783
Application Number:	63193473
Application Number:	17202539

CORRESPONDENCE DATA

Fax Number:

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: 6508157637

Email: aalwine@mwe.com

Correspondent Name: JUDY M. MOHR / MCDERMOTT WILL & EMERY

Address Line 1: 415 MISSION STREET, SUITE 5600

Address Line 4: SAN FRANCISCO, CALIFORNIA 94105

ATTORNEY DOCKET NUMBER:	082853-0010-HI LLC
NAME OF SUBMITTER:	JUDY M. MOHR
SIGNATURE:	/Judy M. Mohr/
DATE SIGNED:	07/30/2021

Total Attachments: 12

source=HI LLC_First Amend to IP Security Agreement_7-1-21 (005)#page1.tif
source=HI LLC_First Amend to IP Security Agreement_7-1-21 (005)#page2.tif
source=HI LLC_First Amend to IP Security Agreement_7-1-21 (005)#page3.tif
source=HI LLC_First Amend to IP Security Agreement_7-1-21 (005)#page4.tif
source=HI LLC_First Amend to IP Security Agreement_7-1-21 (005)#page5.tif
source=HI LLC_First Amend to IP Security Agreement_7-1-21 (005)#page6.tif
source=HI LLC_First Amend to IP Security Agreement_7-1-21 (005)#page7.tif
source=HI LLC_First Amend to IP Security Agreement_7-1-21 (005)#page8.tif
source=HI LLC_First Amend to IP Security Agreement_7-1-21 (005)#page9.tif
source=HI LLC_First Amend to IP Security Agreement_7-1-21 (005)#page10.tif
source=HI LLC_First Amend to IP Security Agreement_7-1-21 (005)#page11.tif
source=HI LLC_First Amend to IP Security Agreement_7-1-21 (005)#page12.tif

FIRST AMENDMENT TO PLAIN ENGLISH INTELLECTUAL PROPERTY SECURITY AGREEMENT

This is a **First Amendment to Plain English Intellectual Property Security Agreement** dated July 1, 2021 by and between TRIPLEPOINT PRIVATE VENTURE CREDIT INC., a Maryland corporation, in its capacity as collateral agent for itself and lenders party to the Loan Agreement (as defined below) from time to time and HI LLC, a Delaware limited liability company (the "Amendment").

RECITALS

A. The words "We", "Us", or "Our", refer to the Grantee, which is TRIPLEPOINT PRIVATE VENTURE CREDIT INC. The words "You" or "Your" refers to the Grantor, which is HI LLC and not any individual. The words "the Parties" refers to both TRIPLEPOINT PRIVATE VENTURE CREDIT INC. and HI LLC.

B. The Parties, TRIPLEPOINT CAPITAL LLC, a Delaware limited liability company and KRNL, INC., a Delaware corporation, entered into a Plain English Growth Capital Loan and Security Agreement dated as of December 21, 2020 (together with amendments, supplements, extensions and exhibits, collectively the "Loan Agreement"). Pursuant to the Loan Agreement, We agreed to extend certain financial accommodations to or for the direct or indirect benefit of You.

C. The Parties are also parties to that certain Plain English Intellectual Property Security Agreement dated as of December 21, 2020 (together with amendments, supplements, extensions and exhibits, collectively the "IP Security Agreement"), pursuant to which, among other things, You granted to Us a security interest in Your intellectual property to secure Your obligations to Us under the Loan Agreement. All term capitalized but not defined in this Amendment shall have the respective meanings set forth in the IP Security Agreement.

D. The Parties are entering into this Amendment in order to reaffirm and continue in effect the Liens granted by You under the IP Security Agreement and, to the extent not granted in the IP Security Agreement, to grant the Liens contemplated by this Amendment.

NOW, THEREFORE, in consideration of the mutual covenants and agreements contained in this Amendment, and for other good and valuable consideration, the receipt and sufficiency of which are acknowledged, the Parties agree as follows:

AGREEMENT

1. SUPPLEMENT TO IP SECURITY AGREEMENT

⇒ **Schedule A** to the IP Security Agreement is hereby supplemented by Supplement A attached to this Amendment and made a part of this Amendment.

2. MISCELLANEOUS

Acknowledgment and Confirmation of Security Interest. You confirm and ratify Your prior assignment and grant, and assigns and grants to Us a continuing, first priority security interest in all of Your right, title and interest in, to and under the Intellectual Property Collateral.

Conditions to Effectiveness. This Amendment shall become effective as of the date hereof when We have received executed counterparts of this Amendment.

Ratification. Except as specifically modified by this Amendment, the Parties acknowledge the IP Security Agreement shall remain binding upon the Parties, and all provisions of the IP Security Agreement shall remain in full force and effect. You expressly ratify and affirm Your obligations to Us under the IP Security Agreement, the Loan Agreement and the other Loan Documents.

Complete Agreement. This Amendment, together with the IP Security Agreement, is the entire agreement between the Parties with respect to the subject matter of this Amendment. This Amendment supersedes all prior and contemporaneous oral and written agreements and discussions with respect to the subject matter of this Amendment. Except as otherwise expressly modified in this Amendment, the IP Security Agreement shall remain in full force and effect.

Recitals. The recitals to this Amendment shall constitute a part of the agreement of the Parties in this Amendment.

Governing Law. THIS AMENDMENT SHALL BE GOVERNED BY AND INTERPRETED, CONSTRUED AND ENFORCED IN ACCORDANCE WITH THE LAWS OF THE STATE OF CALIFORNIA.

No Novation. Except as specifically set forth in this Amendment, the execution, delivery and effectiveness of this Amendment shall not (a) limit, impair, constitute a waiver by, or otherwise affect any right, power or remedy of, Us under the Loan Agreement or any other Loan Document, (b) constitute a waiver of any provision in the Loan Agreement or in any of the other Loan Documents, or (c) alter, modify, amend or in any way affect any of the terms, conditions, obligations, covenants or agreements contained in the Loan Agreement or in any of the other Loan Documents, all of which are ratified and affirmed in all respects and shall continue in full force and effect.

Counterparts. This Amendment may be executed in any number of counterparts and by different parties hereto in separate counterparts, each of which when so delivered shall be deemed an original, but all of which counterparts shall constitute but one and the same instrument. Delivery of an executed counterpart of a signature page to this Amendment by facsimile transmission shall be effective as delivery of a manually executed counterpart thereof.

IN WITNESS WHEREOF, the Parties have caused this First Amendment to Plain English Intellectual Property Security Agreement to be duly executed and delivered as of the date first written above.

"You"

HI LLC

By: Bryan Johnson
Name: BRYAN JOHNSON
Title: CEO, FOUNDER

**[SIGNATURE PAGE TO FIRST AMENDMENT TO PLAIN ENGLISH INTELLECTUAL PROPERTY
SECURITY AGREEMENT]**

SUPPLEMENT TO SCHEDULE A

**To Plain English Intellectual Property Security Agreement
Between HI LLC, as You (Grantor)
and TRIPLEPOINT PRIVATE VENTURE CREDIT INC., as Us (Grantee)**

PATENTS AND PATENT APPLICATIONS

PATENTS

(See Attached)

PATENT APPLICATIONS

(See Attached)

Kernel's Docket Number	Inventor(s)	Technology Group	Title of Invention	Filing Date	Serial Number	Post-Filing Status	Publication Date	Publication Number
KERN-019JUS02-CON04	Yang, Changhui; Marblestone, Adam; Alford, Jamu; Sobek, Daniel	OTHER TECHNOLOGY: UOT: OLC	SYSTEM AND METHOD FOR SIMULTANEOUSLY DETECTING PHASE MODULATED OPTICAL SIGNALS	29-Mar-2018	15/939,603	US - Pending	23-May-2019	US 2019/0150751 A1
KERN-034EP01	Ruan, Haowen; Marblestone, Adam; Horstmeyer, Roarke; Shen, Yuecheng; Zhou, Haojiang; Alford, Jamu	OTHER TECHNOLOGY: INIRS: Interferometric parallel detection	NON-INVASIVE OPTICAL DETECTION SYSTEM AND METHOD OF MULTIPLE-SCATTERED LIGHT WITH SWEEP SOURCE ILLUMINATION	24-Apr-2019	16/393,002	US - Pending	7-Nov-2019	US 2019/0336007 A1
KERN-042JUS01-CON01	Mohseri, Hosman	MEG: magnetic shielding and beamforming using ferrofluid	DYNAMIC MAGNETIC SHIELDING AND BEAMFORMING USING FERROFLUID FOR COMPACT MAGNETOENCEPHALOGRAPHY (MEG)	28-Jun-2019	16/456,975	US - Pending	19-Mar-2020	US 2020/0088811 A1
KERN-044JUS01-CON01	Johnson, Bryan; Katnani, Husam; Alford, Jamu; Jiménez-Martínez, Ricardo	SYSTEM APPLICATIONS: Biofeedback for awareness and modulation of mental state (magnetic system)	BIOFEEDBACK FOR AWARENESS AND MODULATION OF MENTAL STATE USING A NON-INVASIVE BRAIN INTERFACE SYSTEM AND METHOD	17-Feb-2021	17/177,975	US - Pending		
KERN-057JUS01-CON01	Do Valle, Bruno; Field, Ryan; Dahle, Jacob; Jin, Rong; Sorgenfrei, Sebastian	OPTICAL: SPAD Architectures, Fast Gating	PHOTODETECTOR ARCHITECTURES FOR EFFICIENT FAST-GATING	17-Apr-2020	PCT/US20/28820	PCT - Pending	26-Nov-2020	WO 2020/236371 A1
KERN-060JUS01-CON01	Sorgenfrei, Sebastian; Dahle, Jacob; Field, Ryan; Do Valle, Bruno; Jin, Rong	OPTICAL: SPAD Low Power Calibrated GRO for gamma chip	PHOTODETECTOR SYSTEMS WITH LOW-POWER TIME-TO-DIGITAL CONVERTER ARCHITECTURES	21-May-2020	PCT/US20/34062	PCT - Pending	10-Dec-2020	WO 2020/247185 A1
KERN-076PCT01	Seidman, Scott Jeremy, Pratt, Ethan; Gormley, Jeffrey Kang; Decker, Dakota Blue; Ledbetter, Micah	MEG: Homogenous Optically-Pumped Vapor Cell Array Assembly	METHODS AND SYSTEMS FOR HOMOGENOUS OPTICALLY-PUMPED VAPOR CELL ARRAY ASSEMBLY FROM INDIVIDUAL VAPOR CELLS	3-Nov-2020	PCT/US20/58663	PCT - Pending	14-May-2021	WO 2021/091867 A1
KERN-076JUS01	Seidman, Scott Jeremy, Pratt, Ethan; Gormley, Jeffrey Kang; Decker, Dakota Blue; Ledbetter, Micah	MEG: Homogenous Optically-Pumped Vapor Cell Array Assembly	METHODS AND SYSTEMS FOR HOMOGENOUS OPTICALLY-PUMPED VAPOR CELL ARRAY ASSEMBLY FROM INDIVIDUAL VAPOR CELLS	3-Nov-2020	17/087,988	US - Pending	13-May-2021	US 2021/0139742 A1
KERN-077JUS01	Ojeda, Alejandro; Katnani, Husam	SYSTEM APPLICATIONS: Data-Driven Real-Time Heart Rate Signal Extraction	REAL-TIME PERIODIC ARTIFACT EXTRACTION FROM A PHYSIOLOGICAL SIGNAL	2-Dec-2020	17/109,475	US - Pending		
KERN-078JUS01	Kates-Harbeck, Julian; Maurice, Vincent; Jimenez Martinez, Ricardo; Alford, Jamu; Shapiro, Benjamin	MEG: CONTROLS Active Shielding control techniques	SELF-CALIBRATION OF FLUX GATE OFFSET AND GAIN DRIFT TO IMPROVE MEASUREMENT ACCURACY OF MAGNETIC FIELDS FROM THE BRAIN USING A WEARABLE NEURAL DETECTION SYSTEM	27-Jan-2021	17/160,078	US - Pending		

KERN-079US01	Leadbetter, Micah; Jimenez-Martinez, Ricardo; Kates- Harbeck, Julian; Siepser, Benjamin; Shapiro, Benjamin	MEG: CONTROLS Active Shielding control techniques	NESTED AND PARALLEL FEEDBACK CONTROL LOOPS FOR ULTRA-FINE MEASUREMENTS OF MAGNETIC FIELDS FROM THE BRAIN USING A NEURAL DETECTION SYSTEM	27-Jan-2021	17/160,109	US - Pending		
KERN-080US01	Shapiro, Benjamin; Jimenez-Martinez, Ricardo; Kates- Harbeck, Julian; Bednarke, Zachary; Alford, Jannu	MEG: CONTROLS Active Shielding control techniques	ESTIMATING THE MAGNETIC FIELD AT DISTANCES FROM DIRECT MEASUREMENTS TO ENABLE FINE SENSORS TO MEASURE THE MAGNETIC FIELD FROM THE BRAIN USING A NEURAL DETECTION SYSTEM	27-Jan-2021	17/160,152	US - Pending		
KERN-081US01	Shapiro, Benjamin; Bednarke, Zachary; Jimenez-Martinez, Ricardo; Kates- Harbeck, Julian	MEG: CONTROLS Active Shielding control techniques	SYSTEMS AND METHODS THAT EXPLOIT MAXWELL'S EQUATIONS AND GEOMETRY TO REDUCE NOISE FOR ULTRA-FINE MEASUREMENTS OF MAGNETIC FIELDS FROM THE BRAIN USING A NEURAL DETECTION SYSTEM	27-Jan-2021	17/160,179	US - Pending		
KERN-082US01	Shapiro, Benjamin; Jimenez-Martinez, Ricardo; Kates- Harbeck, Julian	MEG: CONTROLS Active Shielding control techniques	OPTIMAL METHODS TO FEEDBACK CONTROL AND ESTIMATE MAGNETIC FIELDS TO ENABLE A NEURAL DETECTION SYSTEM TO MEASURE MAGNETIC FIELDS FROM THE BRAIN	27-Jan-2021	17/160,195	US - Pending		
KERN-084US01	Katnani, Husam; Lara, Antonio H; Ojeda, Alejandro; Dubois, Julien; Poljkova, Viktoria; Johnson, Byran; Lemer, Gabriel	SYSTEM APPLICATIONS: Designing Custom Research Studies	METHODS AND SYSTEMS FOR INITIATING AND CONDUCTING A CUSTOMIZED COMPUTER-ENABLED BRAIN RESEARCH STUDY	16-Feb-2021	17/176,321	US - Pending		
KERN-085US01	Garber, Stephen; Mohseni, Hooman	MEG: Circuit configuration reduce common mode voltages	MITIGATION OF AN EFFECT OF CAPACITIVELY COUPLED CURRENT WHILE DRIVING A SENSOR COMPONENT OVER AN UNSHIELDED TWISTED PAIR WIRE CONFIGURATION	29-Jan-2021	17/161,840	US - Pending		
KERN-086US01	Dahle, Jacob; Do Valle, Bruno; Jin, Rong; Field, Ryan; Sorgefrei, Sebastian	OPTICAL: Precision Phase Generation	PHASE LOCK LOOP CIRCUIT BASED SIGNAL GENERATION IN AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	17/202,524	US - Pending		
KERN-089US01	Do Valle, Bruno; Jin, Rong; Dahle, Jacob; Katnani, Husam; Field, Ryan	OPTICAL: Compensation for Delays	COMPENSATION FOR DELAYS IN AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	17/202,539	US - Pending		
KERN-090US01	Johnson, Bryan; Pratt, Ethan; Alford, Jannu; Katnani, Husam; Kates-Harbeck, Julian; Field, Ryan; Lara, Antonio H; Lemer, Gabriel	SYSTEM APPLICATIONS: Individual's neurome	SYSTEMS AND METHODS FOR TRAINING AND USING A NEUROME THAT EMULATES THE BRAIN OF A USER	1-Mar-2021	17/188,298	US - Pending		

KERN-091JUS01	Siepsner, Benjamin; Park, Sangyong; Sorgenfrei, Sebastian; Dahle, Jacob, Field, Ryan, Borisevich, Alex, Patel, Milin J.	OPTICAL: Device Enumeration	DEVICE ENUMERATION IN AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	17/202,548	US - Pending		
KERN-092JUS01	Borisevich, Alex, Field, Ryan	OPTICAL: Laser Driver Circuits	CONTROL CIRCUIT FOR A LIGHT SOURCE IN AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	17/202,554	US - Pending		
KERN-093JUS01	Sorgenfrei, Sebastian; Field, Ryan, Perdue, Katherine, Dahle, Jacob	OPTICAL: Multiplexing Techniques	MULTIPLEXING TECHNIQUES FOR INTERFERENCE REDUCTION IN TIME- CORRELATED SINGLE PHOTON COUNTING	16-Feb-2021	17/176,307	US - Pending		
KERN-094PCT01	Jin, Rong, Sorgenfrei, Sebastian, Field, Ryan, Do Valle, Bruno, Dahle, Jacob	OPTICAL: SPAD Bias Compensation	MAINTAINING CONSISTENT PHOTODETECTOR SENSITIVITY IN AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	PCT/US21/22484	PCT - Pending		
KERN-094JUS01	Jin, Rong, Sorgenfrei, Sebastian, Field, Ryan, Do Valle, Bruno, Dahle, Jacob	OPTICAL: SPAD Bias Compensation	MAINTAINING CONSISTENT PHOTODETECTOR SENSITIVITY IN AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	17/202,563	US - Pending		
KERN-095PCT01	Lasser, Teague; Lerner, Gabriel; Siepsner, Benjamin; Alford, Jannu	SYSTEM APPLICATIONS: user neural authentication	AUTHENTICATION SYSTEMS AND METHODS USING A BRAIN COMPUTER INTERFACE	16-Mar-2021	PCT/US21/22463	PCT - Pending		
KERN-095JUS01	Lasser, Teague; Lerner, Gabriel; Siepsner, Benjamin; Alford, Jannu	SYSTEM APPLICATIONS: user neural authentication	AUTHENTICATION SYSTEMS AND METHODS USING A BRAIN COMPUTER INTERFACE	16-Mar-2021	17/202,459	US - Pending		
KERN-096PCT01	Field, Ryan, Dahle, Jacob, Jin, Rong, Do Valle, Bruno; Sorgenfrei, Sebastian	OPTICAL: Measurement Window Calibration for Detection of TSPF	PHASE LOCK LOOP CIRCUIT BASED ADJUSTMENT OF A MEASUREMENT TIME WINDOW IN AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	PCT/US21/22485	PCT - Pending		
KERN-096JUS01	Field, Ryan, Dahle, Jacob, Jin, Rong, Do Valle, Bruno; Sorgenfrei, Sebastian	OPTICAL: Measurement Window Calibration for Detection of TSPF	PHASE LOCK LOOP CIRCUIT BASED ADJUSTMENT OF A MEASUREMENT TIME WINDOW IN AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	17/202,572	US - Pending		
KERN-097JUS01	Field, Ryan, Do Valle, Bruno, Dahle, Jacob; Sorgenfrei, Sebastian	OPTICAL: Impulse Response of SPAD and TDC Systems	TECHNIQUES FOR DETERMINING A TIMING UNCERTAINTY OF A COMPONENT OF AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	17/202,583	US - Pending		
KERN-098JUS01	Sorgenfrei, Sebastian; Ambalapuzha Gopalakrishnan, Viswanath, Perdue, Katherine, Oliveira, Isai, Field, Ryan	OPTICAL: Histogram based code density characterization	TECHNIQUES FOR CHARACTERIZING A NONLINEARITY OF A TIME-TO-DIGITAL CONVERTER IN AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	17/202,588	US - Pending		
KERN-099JUS01	Do Valle, Bruno, Field, Ryan, Jin, Rong; Dahle, Jacob	OPTICAL: Selectable Resolution Modes in an Optical Measurement System	TEMPORAL RESOLUTION CONTROL FOR TEMPORAL POINT SPREAD FUNCTION GENERATION IN AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	17/202,598	US - Pending		

KERN-100PCT01	Field, Ryan, Dahle, Jacob, Jin, Rong; Borisevich, Alex; Sorgentei, Sebastian; Do Valle, Bruno	OPTICAL: bias voltage generation	BIAS VOLTAGE GENERATION IN AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	PCT/US21/22487	PCT - Pending		
KERN-100US01	Field, Ryan, Dahle, Jacob, Jin, Rong; Borisevich, Alex; Sorgentei, Sebastian; Do Valle, Bruno	OPTICAL: bias voltage generation	BIAS VOLTAGE GENERATION IN AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	17/202,613	US - Pending		
KERN-101US01	Perdue, Katherine; Field, Ryan, Kainani, Husam; Rines, Jennifer; Ojeda, Alejandro	OPTICAL: Detection and Removal of Motion Artifacts	DETECTION OF MOTION ARTIFACTS IN SIGNALS OUTPUT BY DETECTORS OF A WEARABLE OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	17/202,631	US - Pending		
KERN-102PCT01	Field, Ryan, Kainani, Husam; Perdue, Katherine	OPTICAL: ToF System with Minimal Number of Sources	HIGH DENSITY OPTICAL MEASUREMENT SYSTEMS WITH MINIMAL NUMBER OF LIGHT SOURCES	16-Mar-2021	PCT/US21/22488	PCT - Pending		
KERN-102US01	Field, Ryan, Kainani, Husam; Perdue, Katherine	OPTICAL: ToF System with Minimal Number of Sources	HIGH DENSITY OPTICAL MEASUREMENT SYSTEMS WITH MINIMAL NUMBER OF LIGHT SOURCES	16-Mar-2021	17/202,641	US - Pending		
KERN-103PCT01	Field, Ryan; Do Valle, Bruno, Dahle, Jacob	OPTICAL: Dynamic Range Improvement (mitigate effect of photon pile-up)	DYNAMIC RANGE OPTIMIZATION IN AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	PCT/US21/22489	PCT - Pending		
KERN-103US01	Field, Ryan; Do Valle, Bruno, Dahle, Jacob	OPTICAL: Dynamic Range Improvement (mitigate effect of photon pile-up)	DYNAMIC RANGE OPTIMIZATION IN AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	17/202,651	US - Pending		
KERN-104US01	Field, Ryan; Do Valle, Bruno	OPTICAL: SPAD bias constant charge	MAINTAINING CONSISTENT PHOTODETECTOR SENSITIVITY IN AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	17/202,657	US - Pending		
KERN-105PCT01	Sorgentei, Sebastian; Field, Ryan; Do Valle, Bruno; Oliveira, Isai; Dahle, Jacob; Kainani, Husam	OPTICAL: Calibration of SPAD	PHOTODETECTOR CALIBRATION OF AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	PCT/US21/22498	PCT - Pending		
KERN-105US01	Sorgentei, Sebastian; Field, Ryan; Do Valle, Bruno; Oliveira, Isai; Dahle, Jacob; Kainani, Husam	OPTICAL: Calibration of SPAD	PHOTODETECTOR CALIBRATION OF AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	17/202,668	US - Pending		
KERN-106US01	Field, Ryan; Perdue, Katherine; Deighani, Hamid	OPTICAL: Estimation of source-detector separation	ESTIMATION OF SOURCE-DETECTOR SEPARATION IN AN OPTICAL MEASUREMENT SYSTEM	16-Feb-2021	17/176,448	US - Pending		
KERN-107PCT01	Seidman, Scott; Jeremy, Field, Ryan; Kainani, Husam; Perdue, Katherine; Oliveira, Isai; Millman, Alan; Sheldon, Zachary Phillip	OPTICAL: module assemblies configured for tiling multiple modules together	WEARABLE MODULE ASSEMBLIES FOR AN OPTICAL MEASUREMENT SYSTEM	16-Feb-2021	PCT/US21/18187	PCT - Pending		

KERN-1070US01	Seidman, Scott Jeremy, Field, Ryan, Kahnani, Husam, Perdue, Katheine, Olvera, Isai, Millman, Alan, Sheldon, Zachary Phillip	OPTICAL: module assemblies configured for tiling multiple modules together	WEARABLE MODULE ASSEMBLIES FOR AN OPTICAL MEASUREMENT SYSTEM	16-Feb-2021	17/176,460	US - Pending		
KERN-108PCT01	Seidman, Scott Jeremy, Rines, Jennifer, Field, Ryan, Olvera, Isai, Sheldon, Zachary Phillip, Perdue, Katheine	OPTICAL: wearable device with conforming headset fixation	WEARABLE DEVICES AND WEARABLE ASSEMBLIES WITH ADJUSTABLE POSITIONING FOR USE IN AN OPTICAL MEASUREMENT SYSTEM	16-Feb-2021	PCT/US21/18189	PCT - Pending		
KERN-108US01	Seidman, Scott Jeremy, Rines, Jennifer, Field, Ryan, Olvera, Isai, Sheldon, Zachary Phillip, Perdue, Katheine	OPTICAL: wearable device with conforming headset fixation	WEARABLE DEVICES AND WEARABLE ASSEMBLIES WITH ADJUSTABLE POSITIONING FOR USE IN AN OPTICAL MEASUREMENT SYSTEM	16-Feb-2021	17/176,466	US - Pending		
KERN-109PCT01	Seidman, Scott Jeremy, Field, Ryan, Olvera, Isai, Rines, Jennifer	OPTICAL: Integrated detector assemblies	INTEGRATED DETECTOR ASSEMBLIES FOR A WEARABLE MODULE OF AN OPTICAL MEASUREMENT SYSTEM	16-Feb-2021	PCT/US21/18190	PCT - Pending		
KERN-109US01	Seidman, Scott Jeremy, Field, Ryan, Olvera, Isai, Rines, Jennifer	OPTICAL: Integrated detector assemblies	INTEGRATED DETECTOR ASSEMBLIES FOR A WEARABLE MODULE OF AN OPTICAL MEASUREMENT SYSTEM	16-Feb-2021	17/176,470	US - Pending		
KERN-110US01	Seidman, Scott Jeremy, Rines, Jennifer, Field, Ryan, Olvera, Isai	OPTICAL: Integrated detector assemblies with spring loaded light pipes	DETECTOR ASSEMBLIES FOR A WEARABLE MODULE OF AN OPTICAL MEASUREMENT SYSTEM AND INCLUDING SPRING-LOADED LIGHT-RECEIVING MEMBERS	16-Feb-2021	17/176,487	US - Pending		
KERN-111PCT01	Olvera, Isai, Seidman, Scott Jeremy, Field, Ryan, Rines, Jennifer	OPTICAL: Integrated light source assembly with laser coupling	INTEGRATED LIGHT SOURCE ASSEMBLY WITH LASER COUPLING FOR A WEARABLE OPTICAL MEASUREMENT SYSTEM	16-Feb-2021	PCT/US21/18188	PCT - Pending		
KERN-111US01	Olvera, Isai, Seidman, Scott Jeremy, Field, Ryan, Rines, Jennifer	OPTICAL: Integrated light source assembly with laser coupling	INTEGRATED LIGHT SOURCE ASSEMBLY WITH LASER COUPLING FOR A WEARABLE OPTICAL MEASUREMENT SYSTEM	16-Feb-2021	17/176,539	US - Pending		
KERN-112US01	Kahnani, Husam, Olveda, Alejandro, Perdue, Katheine	OPTICAL: Removal of Noise from Histogram Data	SYSTEMS AND METHODS FOR NOISE REMOVAL IN AN OPTICAL MEASUREMENT SYSTEM	16-Mar-2021	17/202,681	US - Pending		
KERN-113PCT01	Olveda, Alejandro, Field, Ryan, Kahnani, Husam, Do Valle, Bruno, Olvera, Isai	OPTICAL: Multimodal Measurement system EEG and fNIRS data fusion	MULTIMODAL WEARABLE MEASUREMENT SYSTEMS AND METHODS	16-Feb-2021	PCT/US21/18156	PCT - Pending		
KERN-113US01	Olveda, Alejandro, Field, Ryan, Kahnani, Husam, Do Valle, Bruno, Olvera, Isai	OPTICAL: Multimodal Measurement system EEG and fNIRS data fusion	MULTIMODAL WEARABLE MEASUREMENT SYSTEMS AND METHODS	16-Feb-2021	17/176,309	US - Pending		

KERN-114US01	Katnani, Husam; Perdue, Kathenne; Field, Ryan; Oliveira, Isai	OPTICAL: Measuring absolute properties of tissue	TIME DOMAIN-BASED OPTICAL MEASUREMENT SYSTEMS AND METHODS CONFIGURED TO MEASURE ABSOLUTE PROPERTIES OF TISSUE	16-Feb-2021	17/176,560	US - Pending		
KERN-117US01	Rojkova, Viktoria; Kates-Harbeck, Julian	OPTICAL: Removing Random Matrix Noise Spectra in Neural Signals	SYSTEMS AND METHODS FOR NOISE REMOVAL IN AN OPTICAL MEASUREMENT SYSTEM	16-Apr-2021	17/733,033	US - Pending		
KERN-118US01	Do Valle, Bruno; Oliveira, Isai; Field, Ryan	OPTICAL: reducing common-mode noise	SYSTEMS, CIRCUITS, AND METHODS FOR REDUCING COMMON-MODE NOISE IN BIOPOTENTIAL RECORDINGS	16-Feb-2021	17/176,315	US - Pending		
KERN-120US01	Delghani, Hamid; Field, Ryan; Kates-Harbeck, Julian; Rojkova, Viktoria; Chaturvedi, Ashutosh	OPTICAL: Time resolved histogram data compression	SYSTEMS AND METHODS FOR DATA REPRESENTATION IN AN OPTICAL MEASUREMENT SYSTEM	19-May-2021	17/324,819	US - Pending		
KERN-121PCT01	Alford, Jannu; Ledbetter, Micah; Jimenez-Martinez, Ricardo; Pratt, Ethan	MEG: Flux system for natural user movement	SYSTEMS AND METHODS FOR RECORDING NEURAL ACTIVITY	24-May-2021	PCT/US21/33861	PCT - Pending		
KERN-121US01	Alford, Jannu; Ledbetter, Micah; Jimenez-Martinez, Ricardo; Pratt, Ethan	MEG: Flux system for natural user movement	SYSTEMS AND METHODS FOR RECORDING NEURAL ACTIVITY	24-May-2021	17/328,235	US - Pending		
KERN-122PCT03	Gornley, Jeffrey Kang; Pratt, Ethan; Marsh, Lucas; Coyne, James; Giovannoli, Teresa; Decker, Dakota Blue; Garber, Stephen; Homan, Scott Michael; and Phillips, Jake	MEG: Flux OPM Module Assembly and Headgear Mounting Arrangements	OPM MODULE ASSEMBLY WITH ALIGNMENT AND MOUNTING COMPONENTS AS USED IN A VARIETY OF HEADGEAR ARRANGEMENTS	5-Apr-2021	63/170,892	Provisional - Pending		
KERN-123US01	Jimenez-Martinez, Ricardo; Alford, Jannu; Iwata, Geoffrey; Pratt, Ethan	MEG: Flux Pose and Motion Tracking	SYSTEMS AND METHODS FOR MULTIMODAL POSE AND MOTION TRACKING FOR MAGNETIC FIELD MEASUREMENT OR RECORDING SYSTEMS	24-May-2021	17/328,271	US - Pending		
KERN-124PCT02	Alford, Jannu; House, Patrick; Lerner, Gabriel; Pratt, Ethan	SYSTEM APPLICATIONS: Morality & Kindness Engines used to Mitigate Harmful AI Actions (Neurome Application)	SYSTEMS AND METHODS USED TO ENHANCE ARTIFICIAL INTELLIGENCE SYSTEMS BY MITIGATING HARMFUL ARTIFICIAL INTELLIGENCE ACTIONS	11-Dec-2020	63/124,711	Provisional - Pending		
KERN-127US01	Iwata, Geoffrey; Jimenez-Martinez, Ricardo; Alford, Jannu	MEG: Validation with Optical Tracking Data	MAGNETIC FIELD MEASUREMENT OR RECORDING SYSTEMS WITH VALIDATION USING OPTICAL TRACKING DATA	24-May-2021	17/328,290	US - Pending		
KERN-128PCT01	Alford, Jannu; Pratt, Ethan; Ledbetter, Micah; Jimenez-Martinez, Ricardo	MEG: Flux System Recording Cardiac Activity - Magnetocardiography (MEG) recordings	SYSTEMS AND METHODS FOR RECORDING BIOMAGNETIC FIELDS OF THE HUMAN HEART	24-May-2021	PCT/US21/33864	PCT - Pending		

KERN-128US01	Alford, Jannu; Pratt, Ethan; Ledbetter, Micah; Jimenez-Martinez, Ricardo	MEG: Flux System Recording Cardiac Activity - Magnetocardiography (MCG) recordings	SYSTEMS AND METHODS FOR RECORDING BIOMAGNETIC FIELDS OF THE HUMAN HEART	24-May-2021	17/328,315	US - Pending		
KERN-130PRO2	Ledbetter, Micah; Shapiro, Benjamin; Pratt, Ethan; Jimenez-Martinez, Ricardo; Delis, Argyros; Wright-Freeman, Kayla; Iwata, Geoffrey; Romalis, Michael	MEG: Three-axis magnetic field sensing	DEVICES, SYSTEMS, AND METHODS WITH OPTICAL PUMPING MAGNETOMETERS FOR THREE-AXIS MAGNETIC FIELD SENSING	9-Mar-2021	63/158,700	Provisional - Pending		
KERN-131PRO2	Field, Ryan; Johnson, Bryan; Lemer, Gabriel; Lara, Antonio H.	SYSTEM APPLICATIONS: brain interface plus VR - Systems	WEARABLE EXTENDED REALITY-BASED NEUROSCIENCE ANALYSIS SYSTEMS	20-Jan-2021	63/139,469	Provisional - Pending		
KERN-132PRO2	Field, Ryan; Johnson, Bryan; Lemer, Gabriel; Lara, Antonio H.	SYSTEM APPLICATIONS: brain interface plus VR - Synchronization	SYNCHRONIZATION BETWEEN BRAIN INTERFACE SYSTEM AND EXTENDED REALITY SYSTEM	20-Jan-2021	63/139,478	Provisional - Pending		
KERN-134PRO4	Field, Ryan; Henninger, Michael; Perdue, Katherine; Oliveira, Isai; Deighani, Hamid; Kates-Harbeck, Julian; Antonio H.; Johnson, Bryan; Poissant, Victoria, A.	OPTICAL: Wearable Time Domain-Based Activity Tracker - Pulse Oximetry	DEVICES, SYSTEMS, AND METHODS USING WEARABLE TIME DOMAIN-BASED ACTIVITY TRACKER	23-Apr-2021	63/179,080	Provisional - Pending		
KERN-135PRO2	Delis, Argyros; Pratt, Ethan; Decker, Dakota Blue; Wright-Freeman, Kayla; Ledbetter, Micah; Iwata, Geoffrey	MEG: Piezo driven Intensity modulator	DEVICES, SYSTEMS, AND METHODS WITH A PIEZOELECTRIC-DRIVEN LIGHT INTENSITY MODULATOR	18-May-2021	63/189,870	Provisional - Pending		
KERN-136PRO2	Henninger, Michael; Field, Ryan; Ban, Han Yong	OPTICAL: Detector Calibration	DEVICES, SYSTEMS, AND METHODS FOR CALIBRATING AN OPTICAL MEASUREMENT DEVICE	18-May-2021	63/190,153	Provisional - Pending		
KERN-137PRO2	Johnson, Bryan; Field, Ryan	SYSTEM APPLICATIONS: OPTICAL: Sleep and Impulse Control Data Analysis	BRAIN ACTIVITY DERIVED FORMULATION OF TARGET SLEEP ROUTINE FOR A USER	26-Apr-2021	63/179,957	Provisional - Pending		
KERN-138PRO2	Johnson, Bryan; Field, Ryan	OPTICAL: TD-NIRS integrated into a hearing device	OPTICAL MEASUREMENT SYSTEM INTEGRATED INTO A HEARING DEVICE	21-May-2021	63/191,822	Provisional - Pending		
KERN-139PRO1	Johnson, Bryan; Field, Ryan	OPTICAL: time-domain measurement system wearable glasses	TIME DOMAIN-BASED OPTICAL MEASUREMENT SYSTEM INTEGRATED INTO WEARABLE GLASSES	26-Feb-2021	63/154,131	Provisional - Pending		

KERN-140PRO1	Johnson, Bryan, Field, Ryan, Perdue, Katherine	SYSTEM APPLICATIONS: tracking brain activity during gaming	REAL-TIME BRAIN ACTIVITY TRACKING DURING GAMING	26-Feb-2021	63/154,157	Provisional - Pending		
KERN-141PRO1	Johnson, Bryan, Field, Ryan, Perdue, Katherine	SYSTEM APPLICATIONS: presenting brain activity to a user	PRESENTATION OF BRAIN ACTIVITY DATA TO A USER	4-Mar-2021	63/156,785	Provisional - Pending		
KERN-142PRO2	Johnson, Bryan, Kates, Harbeck, Julian, Field, Ryan, House, Patrick	SYSTEM APPLICATIONS: Optimizing Autonomous Self	OPTIMIZING AUTONOMOUS SELF USING NON-INVASIVE MEASUREMENT SYSTEMS AND METHODS	9-Apr-2021	63/173,341	Provisional - Pending		
KERN-143PRO1	Borisevich, Alex, Field, Ryan, Ban, Han Yong	OPTICAL: Stabilizing laser diode power	METHODS AND SYSTEMS FOR STABILIZING LASER DIODE POWER SUBJECT TO TEMPERATURE VARIATIONS	26-Feb-2021	63/154,162	Provisional - Pending		
KERN-144PRO1	Field, Ryan, Dahle, Jacob, Borisevich, Alex, Poon, Wingyuen, Patel, Milin J.	OPTICAL: Data aggregation and power distribution	DATA AGGREGATION AND POWER DISTRIBUTION IN TIME DOMAIN-BASED OPTICAL MEASUREMENT SYSTEMS AND METHODS	4-Mar-2021	63/156,793	Provisional - Pending		
KERN-145PRO1	Ledbetter, Micah, Jimenez-Martinez, Ricardo, Iwata, Geoffrey	MEG: Suppressing Optical Noise Due To Group Delays in OPMs	DEVICES, SYSTEMS, AND METHODS FOR SUPPRESSING OPTICAL NOISE DUE TO GROUP DELAYS IN OPTICALLY PUMPED MAGNETOMETERS	11-Mar-2021	63/159,823	Provisional - Pending		
KERN-146PRO2	Johnson, Bryan, Field, Ryan	SYSTEM APPLICATIONS: Optimizing Wellness Therapy Using Non-Invasive Brain Interface	OPTIMIZING AN INDIVIDUAL'S WELLNESS THERAPY USING A NON-INVASIVE BRAIN INTERFACE SYSTEM BY PROVIDING BIOFEEDBACK PARAMETERS FROM DETECTED BRAIN ACTIVITY	14-May-2021	63/188,783	Provisional - Pending		
KERN-149PRO1	Johnson, Bryan, Field, Ryan	SYSTEM APPLICATIONS: Creating emotion-based characters from brain activity	SYSTEMS AND METHODS FOR CREATING AND VIEWING EMOTION-BASED CHARACTERS FROM DETECTED BRAIN ACTIVITY WHILE A PARTICIPANT IS CONCURRENTLY ENGAGED IN A COMMUNICATION APPLICATION WITH ANOTHER PARTICIPANT	26-May-2021	63/193,473	Provisional - Pending		