PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 Assignment ID: PATI325436

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	RELEASE OF SECURITY INTEREST

CONVEYING PARTY DATA

Name	Execution Date
JPMorgan Chase Bank, N.A., as Administrative Agent	06/26/2024

RECEIVING PARTY DATA

Company Name:	Pindrop Security, Inc.
Street Address:	1115 Howell Mill Road NW, Suite 700
City:	Atlanta
State/Country:	GEORGIA
Postal Code:	30318

PROPERTY NUMBERS Total: 126

Property Type	Number
Patent Number:	10141009
Patent Number:	10666792
Patent Number:	10257591
Patent Number:	9930186
Patent Number:	10672403
PCT Number:	US1813965
Patent Number:	10397398
Patent Number:	10325601
Patent Number:	10692502
PCT Number:	US1750927
Patent Number:	9883040
Patent Number:	10381009
PCT Number:	US1752335
Patent Number:	9824692
Patent Number:	10142463
Patent Number:	10362172
Patent Number:	10347256
Patent Number:	10553218
Patent Number:	10685008
PCT Number:	US1752316

PATENT

REEL: 069477 FRAME: 0962 508622060

Property Type	Number
Patent Number:	10027816
PCT Number:	US1817249
Patent Number:	10873461
PCT Number:	US1841779
Patent Number:	10375248
Patent Number:	10623403
Patent Number:	10665244
Patent Number:	10440178
Patent Number:	11019203
Patent Number:	10867621
Patent Number:	10542135
PCT Number:	US1921063
PCT Number:	US1919349
PCT Number:	US1921062
PCT Number:	US1919353
Patent Number:	11495244
Patent Number:	10904643
Application Number:	16442279
Patent Number:	10679630
Patent Number:	10854205
Patent Number:	10902105
Patent Number:	10715656
Patent Number:	10841802
Patent Number:	11468901
Patent Number:	10735581
Patent Number:	10715660
Patent Number:	11355103
Patent Number:	11019201
Application Number:	16841473
Patent Number:	11646018
Patent Number:	11470194
Patent Number:	11283919
Patent Number:	11335353
Patent Number:	11488605
Patent Number:	11670304
Patent Number:	11445060
Application Number:	17004921
Patent Number:	11659082

Property Type	Number
Application Number:	17079082
Application Number:	17066210
Patent Number:	11657823
Application Number:	17159748
PCT Number:	US2120891
Application Number:	17192464
Application Number:	17121291
Application Number:	17155851
Application Number:	17165180
Patent Number:	11632460
Patent Number:	11388490
Application Number:	17157837
Application Number:	17231672
PCT Number:	US2127474
Application Number:	17317559
Patent Number:	11290593
Patent Number:	10938982
Patent Number:	11611652
Application Number:	17365970
Application Number:	17378567
PCT Number:	US2146901
Application Number:	17408281
Application Number:	17475226
PCT Number:	US2149809
Application Number:	17491292
Application Number:	17503152
Application Number:	17491312
Application Number:	17491363
PCT Number:	US2155267
Application Number:	17706398
PCT Number:	US2232065
Application Number:	17832404
Application Number:	17832146
Application Number:	17855149
PCT Number:	US2235766
Application Number:	17746832
Application Number:	63399132
PCT Number:	US2236506

Property Type	Number
Application Number:	17833674
Application Number:	17857618
Application Number:	63389283
Application Number:	63392077
Application Number:	17963091
Application Number:	17948991
Application Number:	17943893
Application Number:	17953156
Application Number:	63402624
Application Number:	17960725
PCT Number:	US2245777
Application Number:	17977521
PCT Number:	US2248365
Application Number:	63443598
Application Number:	63443599
Application Number:	63443601
Application Number:	63443603
Application Number:	63443604
Application Number:	18321353
Application Number:	18109095
Application Number:	63427498
Application Number:	18117134
Application Number:	18123463
Application Number:	63452351
Application Number:	18301897
Application Number:	63497587
Application Number:	18317799
Application Number:	63462913
Application Number:	18329138
Application Number:	63503903

CORRESPONDENCE DATA

Fax Number: 7147558290

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: (714)755-8102

Email: rhonda.deleon@lw.com

Correspondent Name: Rhonda DeLeon

Address Line 1: Latham & Watkins LLP, 650 Town Center Drive, 20th Floor

Address Line 4: Costa Mesa, CALIFORNIA 92626-1925

PATENT

REEL: 069477 FRAME: 0965

ATTORNEY DOCKET NUMBER:	054809-0109
NAME OF SUBMITTER:	Rhonda DeLeon
SIGNATURE:	Rhonda DeLeon
DATE SIGNED:	06/26/2024

Total Attachments: 24

source=Pindrop (JPM) - Release of Security Interests in Patents#page21.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page24.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page9.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page22.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page1.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page8.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page19.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page17.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page23.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page18.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page6.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page11.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page14.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page10.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page12.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page20.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page15.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page13.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page2.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page16.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page4.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page5.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page3.tiff source=Pindrop (JPM) - Release of Security Interests in Patents#page7.tiff

RELEASE OF SECURITY INTERESTS IN PATENTS

THIS RELEASE OF SECURITY INTERESTS IN PATENTS ("Release") is made as of this 26th day of June 2024, by JPMorgan Chase Bank, N.A., in its capacity as the administrative agent (the "Administrative Agent") for the Lenders (as defined in the Security Agreement, as defined below), in favor of Pindrop Security, Inc., a Delaware corporation ("Grantor").

WHEREAS, pursuant to that certain Patent Security Agreement dated as of July 20, 2023 made by Grantor in favor of the Administrative Agent (the "Security Agreement") and recorded with the U.S. Patent and Trademark Office on July 31, 2023 at Reel/Frame No. 64443/0584, a security interest was granted by Grantor to the Administrative Agent in the Patent Collateral (as defined in the Security Agreement), including the United States patents and patent applications set forth in Schedule A hereto;

WHEREAS, the Administrative Agent now desires to terminate the Security Agreement and terminate, release and discharge its security interest in all Patent Collateral;

NOW, THEREFORE, for good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, and upon the terms set forth in this Release, the Administrative Agent hereby states as follows:

- 1. <u>Release of Security Interest.</u> The Administrative Agent, on its and the Lenders' behalf, hereby terminates the Security Agreement and terminates, releases, cancels and discharges the collateral pledges, grants, liens and security interests granted by Grantor in favor of the Administrative Agent in and to the Patent Collateral.
- 2. <u>Recordation of Release</u>. The Administrative Agent understands and agrees that this Release may be recorded by or for Grantor, or its successors or assigns, with the United States Patent and Trademark Office.
- 3. <u>Governing Law.</u> This Release shall be governed by, and construed and enforced in accordance with, the laws of the State of New York, excluding conflict of laws principles that would cause the application of laws of any other jurisdiction.

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IN WITNESS WHEREOF, the Administrative Agent has caused this Release to be executed by its authorized officer as of the date of this Release.

JPMORGAN CHASE BANK, N.A., as Administrative Agent

By: Mike McKenzie

Name: Mike McKenzie

Title: Vice President

REEL: 069477 FRAME: 0968

SCHEDULE A

Patents and Patent Applications

	Patent No. or Application	Date Filed/Application	C .	Assign
Title SYSTEM AND	No.	Date	Country	ce
METHOD FOR			TT '4 1	D: 1
CLUSTER-BASED			United	Pindrop
AUDIO EVENT	10111000	# /O 1 /O 1 #	States of	Securit
DETECTION	10141009	5/31/2017	America	y, Inc.
APPARATUS AND				
METHOD FOR				
DETECTING NEW				
CALLS FROM A				
KNOWN				
ROBOCALLER AND				
IDENTIFYING				
RELATIONSHIPS			United	Pindrop
AMONG TELEPHONE			States of	Securit
CALLS	10666792	7/22/2016	America	y, Inc.
CALL				
CLASSIFICATION			United	Pindrop
THROUGH ANALYSIS			States of	Securit
OF DTMF EVENTS	10257591	5/19/2017	America	y, Inc.
CALL DETAIL				
RECORD ANALYSIS				
TO IDENTIFY			United	Pindrop
FRAUDULENT			States of	Securit
ACTIVITY	9930186	10/14/2016	America	y, Inc.
AGE COMPENSATION	220100	13/11/2010	1 1111011011	J , 2220.
IN BIOMETRIC				
SYSTEMS USING			United	Pindrop
TIME-INTERVAL,			States of	Securit
GENDER AND AGE	10672403	2/7/2018	America	y, Inc.
GENDER AND AGE	10072403	2/7/2016	America	Pindrop
AUTHENTICATION				Securit
USING DTMF TONES	PCT/US2018/013965	1/17/2018	P.C.T.	y, Inc.
OSING DIMITIONES	FC1/032018/013903	1/17/2018	United	Pindrop
AUTHENTICATION			States of	Securit
USING DTMF TONES	10397398	1/16/2018		
SPEAKER	10397398	1/10/2018	America United	y, Inc.
				Pindrop
RECOGNITION IN	10225601	0/10/2017	States of	Securit
THE CALL CENTER	10325601	9/19/2017	America	y, Inc.
METHOD AND				
APPARATUS FOR				n
DETECTING			United	Pindrop
SPOOFING	10000000	2/2/2010	States of	Securit
CONDITIONS	10692502	3/2/2018	America	y, Inc.
END-TO-END				
SPEAKER				
RECOGNITION USING				Pindrop
DEEP NEURAL				Securit
NETWORK	PCT/US2017/050927	9/11/2017	P.C.T.	y, Inc.
FRAUD DETECTION				
IN INTERACTIVE			United	Pindrop
VOICE RESPONSE			States of	Securit
SYSTEMS	9883040	10/14/2016	America	y, Inc.
END-TO-END				
SPEAKER				
RECOGNITION USING			United	Pindrop
DEEP NEURAL			States of	Securit
NETWORK	10381009	11/20/2017	America	y, Inc.
· · · · · · · · · · · · · · · · · · ·				

	Patent No. or Application	Date Filed/Application		Assign
Title	No.	Date	Country	ee
IMPROVEMENTS OF				D: 1
SPEAKER RECOGNITION IN				Pindrop Securit
THE CALL CENTER	PCT/US2017/052335	9/19/2017	P.C.T.	y, Inc.
END-TO-END	PC1/03201//032333	9/19/2017	P.C.1.	y, me.
SPEAKER				
RECOGNITION USING			United	Pindrop
DEEP NEURAL			States of	Securit
NETWORK	9824692	9/12/2016	America	y, Inc.
METHOD AND				
APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS OF				
COMMUNICATIONS			United	Pindrop
SIGNALING, EVENTS,			States of	Securit
AND PARTICIPANTS	10142463	8/2/2017	America	y, Inc.
FRAUD DETECTION				<u> </u>
IN INTERACTIVE			United	Pindrop
VOICE RESPONSE			States of	Securit
SYSTEMS	10362172	1/25/2018	America	y, Inc.
CHANNEL-				
COMPENSATED LOW-				
LEVEL FEATURES			United	Pindrop
FOR SPEAKER RECOGNITION	10347256	9/19/2017	States of America	Securit y, Inc.
DIMENSIONALITY	10347230	9/19/2017	America	y, me.
REDUCTION OF				
BAUM-WELCH				
STATISTICS FOR			United	Pindrop
SPEAKER			States of	Securit
RECOGNITION	10553218	9/19/2017	America	y, Inc.
FEATURE				
EMBEDDINGS WITH				
RELATIVE LOCALITY FOR FAST PROFILING			United	Pindrop
OF USERS ON			States of	Securit
STREAMING DATA	10685008	5/4/2017	America	y, Inc.
DIMENSIONALITY	1000000		1 111101101	1,,,,,,,,,,,
REDUCTION OF				
BAUM WELCH				
STATISTICS FOR				Pindrop
SPEAKER				Securit
RECOGNITION	PCT/US2017/052316	9/19/2017	P.C.T.	y, Inc.
CALL			Linited	Dinder
AUTHENTICATION USING CALL			United States of	Pindrop Securit
FORWARDING	10027816	2/28/2017	America	y, Inc.
AGE COMPENSATION	10021010	hard him VI him V X I	2 333103300	7, 1110.
IN BIOMETRIC				
SYSTEMS USING				Pindrop
TIME-INTERVAL,				Securit
GENDER AND AGE	PCT/US2018/017249	2/7/2018	P.C.T.	y, Inc.
CALL DETAIL				
RECORD ANALYSIS				
TO IDENTIFY				
FRAUDULENT ACTIVITY AND				
FRAUD DETECTION				
IN INTERACTIVE				Pindrop
VOICE RESPONSE				Securit
SYSTEMS	3001839	4/12/2018	Canada	y, Inc.
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	Patent No. or Application	Date Filed/Application		Assign
Title	No.	Date Date	Country	ee
CALL DETAIL			•	
RECORD ANALYSIS				
TO IDENTIFY				
FRAUDULENT				
ACTIVITY AND				
FRAUD DETECTION				D:1
IN INTERACTIVE VOICE RESPONSE				Pindrop Securit
SYSTEMS	2016338689	4/10/2018	Australia	y, Inc.
ZERO-KNOWLEDGE	2010330007	471072010	2 Kustrana	y, me.
MULTIPARTY			United	Pindrop
SECURE SHARING OF			States of	Securit
VOICEPRINTS	10873461	7/13/2018	America	y, Inc.
ZERO-KNOWLEDGE				
MULTIPARTY				Pindrop
SECURE SHARING OF	D.C. T.C. C.			Securit
VOICEPRINTS	PCT/US2018/041779	7/12/2018	P.C.T.	y, Inc.
CALL AUTHENTICATION			United	Dindess
USING CALL			States of	Pindrop Securit
FORWARDING	10375248	7/3/2018	America	y, Inc.
LEVERAGING	100702-70	77572010	1 IIII CIICA	7, 1110.
MULTIPLE AUDIO			United	Pindrop
CHANNELS FOR			States of	Securit
AUTHENTICATION	10623403	1/4/2019	America	y, Inc.
LEVERAGING				
MULTIPLE AUDIO			United	Pindrop
CHANNELS FOR			States of	Securit
AUTHENTICATION	10665244	1/4/2019	America	y, Inc.
CALLER ID				
VERIFICATION USING CALL			United	Pindrop
IDENTIFICATION			States of	Securit
AND BLOCK LISTS	10440178	3/1/2019	America	y, Inc.
SILENT CALLER ID				7,
VERIFICATION			United	Pindrop
USING CALLBACK			States of	Securit
REQUEST	11019203	2/27/2019	America	y, Inc.
SYSTEM AND				
METHOD FOR				,
CLUSTER-BASED			United	Pindrop
AUDIO EVENT	10867621	11/26/2018	States of	Securit
DETECTION METHOD AND	10807021	11/20/2018	America	y, Inc.
APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS				
OF				
COMMUNICATIONS			United	Pindrop
SIGNALING, EVENTS,			States of	Securit
AND PARTICIPANTS	10542135	11/26/2018	America	y, Inc.
CALL				n: 1
CLASSIFICATION				Pindrop Securit
THROUGH ANALYSIS OF DTMF EVENTS	2017305245	2/15/2019	Australia	y, Inc.
CALLER ID	2017303243	2/13/2017	rustialia	y, me.
VERIFICATION				
USING CALL				Pindrop
IDENTIFICATION				Securit
AND BLOCK LISTS	PCT/US2019/021063	3/7/2019	P.C.T.	y, Inc.
CALL				
CLASSIFICATION				Pindrop
THROUGH ANALYSIS	202202	2/1/2012		Securit
OF DTMF EVENTS	3032807	2/1/2019	Canada	y, Inc.

	Patent No. or Application	Date Filed/Application	100000000000000000000000000000000000000	Assign
Title	No.	Date	Country	ee -
LEVERAGING				
MULTIPLE AUDIO				Pindrop
CHANNELS FOR				Securit
AUTHENTICATION	PCT/US2019/019349	2/25/2019	P.C.T.	y, Inc.
SILENT CALLER ID				
VERIFICATION				Pindrop
USING CALLBACK				Securit
REQUEST	PCT/US2019/021062	3/7/2019	P.C.T.	y, Inc.
LEVERAGING				
MULTIPLE AUDIO				Pindrop
CHANNELS FOR				Securit
AUTHENTICATION	PCT/US2019/019353	2/25/2019	P.C.T.	y, Inc.
METHOD AND				77
APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS				
OF				
COMMUNICATIONS			European	Pindrop
SIGNALING, EVENTS,			Patent	Securit
AND PARTICIPANTS	3494690	2/14/2019	Office	y, Inc.
METHOD AND				J,
APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS				
OF				
COMMUNICATIONS				Pindrop
SIGNALING, EVENTS,				Securit
AND PARTICIPANTS	3494690	8/2/2017	Austria	y, Inc.
METHOD AND				
APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS				
OF				
COMMUNICATIONS				Pindrop
SIGNALING, EVENTS,				Securit
AND PARTICIPANTS	3494690	8/2/2017	Belgium	y, Inc.
METHOD AND				
APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS				
OF				n
COMMUNICATIONS				Pindrop
SIGNALING, EVENTS,	2404600	9/2/2017	Switzerlan	Securit
AND PARTICIPANTS	3494690	8/2/2017	d	y, Inc.
METHOD AND				
APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS OF				
COMMUNICATIONS				Dindage
SIGNALING, EVENTS,				Pindrop Securit
AND PARTICIPANTS	3494690	8/2/2017	Germany	y, Inc.
AND FARTICIPANTS	2424090	0/2/201/	1 Jermany	ју, шс.

	Botont No. or Application	Date Filed/Application		A agine
Title	Patent No. or Application No.	Date Fried/Application -	Country	Assign ee
METHOD AND	19.	Bute	Country	
APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS				
OF				
COMMUNICATIONS				Pindrop
SIGNALING, EVENTS,				Securit
AND PARTICIPANTS	3494690	8/2/2017	Spain	y, Inc.
METHOD AND				
APPARATUS FOR				
THREAT				
IDENTIFICATION THROUGH ANALYSIS				
OF				
COMMUNICATIONS				Pindrop
SIGNALING, EVENTS,				Securit
AND PARTICIPANTS	3494690	8/2/2017	France	y, Inc.
METHOD AND			-	
APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS				
OF COLUMN TO THE OFFICE AND THE OFFI				
COMMUNICATIONS			T	Pindrop
SIGNALING, EVENTS,	2404600	9/2/2017	United	Securit
AND PARTICIPANTS METHOD AND	3494690	8/2/2017	Kingdom	y, Inc.
APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS				
OF				
COMMUNICATIONS				Pindrop
SIGNALING, EVENTS,				Securit
AND PARTICIPANTS	3494690	8/2/2017	Ireland	y, Inc.
METHOD AND				
APPARATUS FOR				
THREAT				
IDENTIFICATION THROUGH ANALYSIS				
OF				
COMMUNICATIONS				Pindrop
SIGNALING, EVENTS,				Securit
AND PARTICIPANTS	3494690	8/2/2017	Italy	y, Inc.
METHOD AND				***************************************
APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS				
OF				n:
COMMUNICATIONS			Luxomborr	Pindrop
SIGNALING, EVENTS, AND PARTICIPANTS	3494690	8/2/2017	Luxembour	Securit y, Inc.
METHOD AND	3494090	0/2/2017	g	y, me.
APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS				
OF				
COMMUNICATIONS				Pindrop
SIGNALING, EVENTS,			Netherland	Securit
AND PARTICIPANTS	3494690	8/2/2017	S	y, Inc.

	Patent No. or Application	Date Filed/Application		Assign
Title	No.	Date	Country	ee
METHOD AND APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS				
OF				
COMMUNICATIONS				Pindrop
SIGNALING, EVENTS,				Securit
AND PARTICIPANTS	3494690	8/2/2017	Norway	y, Inc.
METHOD AND				
APPARATUS FOR				
THREAT				
IDENTIFICATION THROUGH ANALYSIS				
OF				
COMMUNICATIONS				Pindrop
SIGNALING, EVENTS,				Securit
AND PARTICIPANTS	3494690	8/2/2017	Turkey	y, Inc.
METHOD AND				
APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS				
OF				
COMMUNICATIONS				Pindrop
SIGNALING, EVENTS,	2017206202	2/26/2010	A . 1:	Securit
AND PARTICIPANTS	2017306302	2/26/2019	Australia	y, Inc.
METHOD AND APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS				
OF				
COMMUNICATIONS				Pindrop
SIGNALING, EVENTS,				Securit
AND PARTICIPANTS	3032817	2/1/2019	Canada	y, Inc.
CALL DETAIL				
RECORD ANALYSIS				
TO IDENTIFY				
FRAUDULENT				
ACTIVITY AND FRAUD DETECTION				
IN INTERACTIVE				Pindrop
VOICE RESPONSE				Securit
SYSTEMS	2019200722	2/4/2019	Australia	y, Inc.
VOICE				
MODIFICATION				
DETECTION USING				
PHYSICAL MODELS			United	Pindrop
OF SPEECH			States of	Securit
PRODUCTION	11495244	4/4/2019	America	y, Inc.
END-TO-END				
SPEAKER BECOCNITION LISTING			F	Dia dos o
RECOGNITION USING			European Patent	Pindrop Securit
DEEP NEURAL NETWORK	3501025	3/18/2019	Office	y, Inc.
END-TO-END	3301023	3/10/2019	Office	y, me.
SPEAKER				
RECOGNITION USING				Pindrop
DEEP NEURAL			Switzerlan	Securit
NETWORK	3501025	9/11/2017	d	y, Inc.

	Patent No. or Application	Date Filed/Application		Assign
Title	No.	Date Date	Country	ee
END-TO-END			Country	
SPEAKER				
RECOGNITION USING				Pindrop
DEEP NEURAL				Securit
NETWORK	3501025	9/11/2017	Germany	y, Inc.
END-TO-END				
SPEAKER				
RECOGNITION USING				Pindrop
DEEP NEURAL				Securit
NETWORK	3501025	9/11/2017	Spain	y, Inc.
END-TO-END				
SPEAKER				
RECOGNITION USING				Pindrop
DEEP NEURAL				Securit
NETWORK	3501025	9/11/2017	France	y, Inc.
END-TO-END				
SPEAKER				
RECOGNITION USING			TImit- 1	Pindrop
DEEP NEURAL	2501025	0/11/2017	United	Securit
NETWORK END-TO-END	3501025	9/11/2017	Kingdom	y, Inc.
SPEAKER				
RECOGNITION USING				Pindrop
DEEP NEURAL				Securit
NETWORK	3501025	9/11/2017	Ireland	y, Inc.
END-TO-END	3331323	3,11,201,	Trottaria	
SPEAKER				
RECOGNITION USING				Pindrop
DEEP NEURAL				Securit
NETWORK	3501025	9/11/2017	Italy	y, Inc.
CHANNEL-				
COMPENSATED LOW-				
LEVEL FEATURES			European	Pindrop
FOR SPEAKER			Patent	Securit
RECOGNITION	3516652	3/13/2019	Office	y, Inc.
CHANNEL-				
COMPENSATED LOW-				
LEVEL FEATURES				Pindrop
FOR SPEAKER	3516652	0/10/2017	A	Securit
RECOGNITION CHANNEL-	3310032	9/19/2017	Austria	y, Inc.
COMPENSATED LOW-				
LEVEL FEATURES				Pindrop
FOR SPEAKER				Securit
RECOGNITION	3516652	9/19/2017	Belgium	y, Inc.
CHANNEL-				
COMPENSATED LOW-				
LEVEL FEATURES				Pindrop
FOR SPEAKER			Switzerlan	Securit
RECOGNITION	3516652	9/19/2017	d	y, Inc.
CHANNEL-				
COMPENSATED LOW-				
LEVEL FEATURES				Pindrop
FOR SPEAKER	2716672	0/10/2017		Securit
RECOGNITION	3516652	9/19/2017	Germany	y, Inc.
CHANNEL-				
COMPENSATED LOW-				Dimeter.
LEVEL FEATURES FOR SPEAKER				Pindrop Securit
RECOGNITION	3516652	9/19/2017	Spain	y, Inc.
CHANNEL-	3310032	3/13/2017	Spani	y, mc.
CHANNEL- COMPENSATED LOW-				
LEVEL FEATURES				Pindrop
FOR SPEAKER				Securit
RECOGNITION	3516652	9/19/2017	France	y, Inc.
			,	, ,

	Patent No. or Application	Date Filed/Application	 	Assign
Title	No.	Date Pried/Apprication	Country	ee
CHANNEL-	19.	Date	Country	
COMPENSATED LOW-				
LEVEL FEATURES				Pindrop
FOR SPEAKER			United	Securit
RECOGNITION	3516652	9/19/2017	Kingdom	y, Inc.
CHANNEL-				
COMPENSATED LOW-				
LEVEL FEATURES				Pindrop
FOR SPEAKER				Securit
RECOGNITION	3516652	9/19/2017	Ireland	y, Inc.
CHANNEL-				
COMPENSATED LOW-				
LEVEL FEATURES				Pindrop
FOR SPEAKER				Securit
RECOGNITION	3516652	9/19/2017	Italy	y, Inc.
CHANNEL-				
COMPENSATED LOW-				
LEVEL FEATURES				Pindrop
FOR SPEAKER			Liechtenste	Securit
RECOGNITION	17778046.7	9/19/2017	in	y, Inc.
CHANNEL-				
COMPENSATED LOW-				
LEVEL FEATURES				Pindrop
FOR SPEAKER	2715572	0/10/2017	Luxembour	Securit
RECOGNITION	3516652	9/19/2017	g	y, Inc.
CHANNEL-				
COMPENSATED LOW-				n. 1
LEVEL FEATURES			NT 41 1 1	Pindrop
FOR SPEAKER	2516652	0/10/2017	Netherland	Securit
RECOGNITION	3516652	9/19/2017	S	y, Inc.
CHANNEL-COMPENSATED LOW-				
LEVEL FEATURES				Pindrop
FOR SPEAKER				Securit
RECOGNITION	3516652	9/19/2017	Norway	y, Inc.
CHANNEL-	3310032	2/12/2017	Horway	y, me.
COMPENSATED LOW-				
LEVEL FEATURES				Pindrop
FOR SPEAKER				Securit
RECOGNITION	3516652	9/19/2017	Turkey	y, Inc.
END-TO-END		37,237,243,27		J,
SPEAKER				
RECOGNITION USING				Pindrop
DEEP NEURAL				Securit
NETWORK	3036533	3/11/2019	Canada	y, Inc.
END-TO-END				
SPEAKER				
RECOGNITION USING				Pindrop
DEEP NEURAL				Securit
NETWORK	2017322591	4/12/2019	Australia	y, Inc.
A TERMINAL				
BETWEEN THE				
SPEAKER				
RECOGNITION USING				Pindrop
A DEEP NEURAL				Securit
NETWORK	7173974	3/8/2019	Japan	y, Inc.
CHANNEL-				
COMPENSATED LOW-				
LEVEL FEATURES				Pindrop
FOR SPEAKER	202555	0/11/2010]	Securit
RECOGNITION	3036561	3/11/2019	Canada	y, Inc.

Title	Patent No. or Application No.	Date Filed/Application Date	Country	Assign ee
END-TO-END SPEAKER		Direc	Country	
RECOGNITION USING				Pindrop
DEEP NEURAL				Securit
NETWORK	201947014575	4/11/2019	India	y, Inc.
CHANNEL-				
COMPENSATED LOW-				n: 1
LEVEL FEATURES FOR SPEAKER				Pindrop Securit
RECOGNITION	2017327003	4/18/2019	Australia	y, Inc.
END-TO-END	201,52,005	1,10,201	11GSHUIG	 , , , , , , , , , , , , , , , , , , ,
SPEAKER				
RECOGNITION USING				Pindrop
DEEP NEURAL	10.20222	. (0.(5.0.1.0	South	Securit
NETWORK	10-2072782	4/9/2019	Korea	y, Inc.
END-TO-END SPEAKER				
RECOGNITION USING				Pindrop
DEEP NEURAL				Securit
NETWORK	11201902122Y	3/11/2019	Singapore	y, Inc.
CALL				
CLASSIFICATION			United	Pindrop
THROUGH ANALYSIS	10004642	4/9/2010	States of	Securit
OF DTMF EVENTS DEEP NEURAL	10904643	4/8/2019	America	y, Inc.
NETWORK BASED			United	Pindrop
SPEECH			States of	Securit
ENHANCEMENT	16/442279	6/14/2019	America	y, Inc.
METHOD AND				
APPARATUS FOR				
THREAT				
IDENTIFICATION THROUGH ANALYSIS				
OF				
COMMUNICATIONS				Pindrop
SIGNALING, EVENTS,				Securit
& PARTICIPANTS	2019204617	6/28/2019	Australia	y, Inc.
SPEAKER			United	Pindrop
RECOGNITION IN THE CALL CENTER	10679630	6/14/2019	States of America	Securit y, Inc.
METHOD AND	10079030	0/14/2019	America	y, mc.
APPARATUS FOR				
DETECTING			European	Pindrop
SPOOFING			Patent	Securit
CONDITIONS	18712052.2	8/14/2019	Office	y, Inc.
METHOD AND				
APPARATUS FOR DETECTING				Pindrop
SPOOFING				Securit
CONDITIONS	2018226844	8/26/2019	Australia	y, Inc.
METHOD AND				
APPARATUS FOR				
DETECTING				Pindrop
SPOOFING	2054062	9/10/2010	Comedia	Securit
CONDITIONS CHANNEL-	3054063	8/19/2019	Canada	y, Inc.
CHANNEL- COMPENSATED LOW-				
LEVEL FEATURES			United	Pindrop
FOR SPEAKER			States of	Securit
RECOGNITION	10854205	7/8/2019	America	y, Inc.
FRAUD DETECTION]
IN INTERACTIVE			United	Pindrop
VOICE RESPONSE SYSTEMS	10902105	7/18/2019	States of America	Securit y, Inc.
PIBIEMP	10302103	//10/2019	America	y, me.

	Patent No. or Application	Date Filed/Application		Assign
Title	No.	Date	Country	ee
METHOD AND				
APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS				
OF COMMUNICATIONS			United	Dissilation
COMMUNICATIONS SIGNALING EVENTS,			States of	Pindrop Securit
AND PARTICIPANTS	10715656	7/25/2019	America	1
CALL	10713636	112312019	America	y, Inc.
AUTHENTICATION			United	Dindran
USING CALL			States of	Pindrop Securit
FORWARDING	10841802	8/5/2019	America	y, Inc.
END-TO-END	10841802	8/3/2019	America	y, mc.
SPEAKER				
RECOGNITION USING			United	Pindrop
DEEP NEURAL			States of	Securit
NETWORK	11468901	8/8/2019	America	y, Inc.
TILI WORK	11400301	0/0/2019	United	Pindrop
AUTHENTICATION			States of	Securit
USING DTMF TONES	10735581	8/26/2019	America	y, Inc.
CALL DETAIL	1075551	0,20,2019	1 IIII CII Ca	<i>y</i> , me.
RECORD ANALYSIS				
TO IDENTIFY				
FRAUDULENT				
ACTIVITY AND				
FRAUD DETECTION				
IN INTERACTIVE				Pindrop
VOICE RESPONSE				Securit
SYSTEMS	2019229365	9/11/2019	Australia	y, Inc.
CALLER ID				
VERIFICATION				
USING CALL			United	Pindrop
IDENTIFICATION			States of	Securit
AND BLOCK LISTS	10715660	10/7/2019	America	y, Inc.
UNSUPERVISED				
KEYWORD SPOTTING				
AND WORD			United	Pindrop
DISCOVERY FOR			States of	Securit
FRAUD ANALYTICS	11355103	1/28/2020	America	y, Inc.
UNSUPERVISED				
KEYWORD SPOTTING				
AND WORD				Pindrop
DISCOVERY FOR				Securit
FRAUD ANALYTICS	PCT/US2020/015310	1/28/2020	P.C.T.	y, Inc.
SYSTEMS AND				
METHODS OF				
GATEWAY				
DETECTION IN A			United	Pindrop
TELEPHONE	11010201	2/6/2020	States of	Securit
NETWORK	11019201	2/6/2020	America	y, Inc.
END-TO-END				
SPEAKER PECOCNITION HEDIC				Dia dan a
RECOGNITION USING			Countle	Pindrop
DEEP NEURAL	10.2109925	1/29/2020	South	Securit
NETWORK SYSTEM AND	10-2198835	1/28/2020	Korea	y, Inc.
SYSTEM AND				
METHODS FOR END- TO-END				
ARCHITECTURES				
FOR VOICE			United	Pindrop
SPOOFING			States of	Securit
DETECTION	16/841473	4/6/2020	America	y, Inc.
DETECTION	10/0414/3	1,0,2020	America	1 y, mc.

Title	Patent No. or Application No.	Date Filed/Application Date	Country	Assign
DETECTION OF		Duite	United	Pindrop
CALLS FROM VOICE			States of	Securit
ASSISTANTS METHOD AND	11646018	3/25/2020	America	y, Inc.
APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS OF				
COMMUNICATIONS				Pindrop
SIGNALING, EVENTS,				Securit
AND PARTICIPANTS	3066442	1/3/2020	Canada	y, Inc.
CALL DETAIL RECORD ANALYSIS				
TO IDENTIFY				
FRAUDULENT				
ACTIVITY AND FRAUD DETECTION				
IN INTERACTIVE			European	Pindrop
VOICE RESPONSE			Patent	Securit
SYSTEMS	19181536.4	6/20/2019	Office	y, Inc.
END-TO-END SPEAKER				
RECOGNITION USING				Pindrop
DEEP NEURAL				Securit
NETWORK	3075049	3/10/2020	Canada United	y, Inc.
CALLER VERIFICATION VIA			States of	Pindrop Securit
CARRIER METADATA	11470194	8/13/2020	America	y, Inc.
CALLER ID				
VERIFICATION USING CALL			United	Pindrop
IDENTIFICATION			States of	Securit
AND BLOCK LISTS	11283919	4/27/2020	America	y, Inc.
AGE COMPENSATION				
IN BIOMETRIC SYSTEMS USING			United	Pindrop
TIME-INTERVAL,			States of	Securit
GENDER AND AGE	11335353	6/1/2020	America	y, Inc.
METHOD AND APPARATUS FOR				
DETECTING			United	Pindrop
SPOOFING			States of	Securit
CONDITIONS	11488605	6/22/2020	America	y, Inc.
SPEAKER RECOGNITION IN			United States of	Pindrop Securit
THE CALL CENTER	11670304	6/8/2020	America	y, Inc.
METHOD AND				
APPARATUS FOR THREAT				
IDENTIFICATION				
THROUGH ANALYSIS				
OF COMMUNICATIONS			T.T., id. 1	Diagram
COMMUNICATIONS SIGNALING EVENTS,			United States of	Pindrop Securit
AND PARTICIPANTS	11445060	7/13/2020	America	y, Inc.
CALL				
AUTHENTICATION			United	Dindran
AT THE CALL CENTER USING A			United States of	Pindrop Securit
MOBILE DEVICE	17/004921	8/27/2020	America	y, Inc.
A T 100 T 10			United	Pindrop
AUTHENTICATION USING DTMF TONES	11659082	8/3/2020	States of America	Securit y, Inc.
CSING DIME TONES	11039082	1 0/3/2020	America	y, me.

	Patent No. or Application	Date Filed/Application		Assign
Title	No.	Date	Country	ee
JOINT ESTIMATION				
OF ACOUSTIC				
PARAMETERS FROM				1
SINGLE-			United	Pindrop
MICROPHONE	17/070000	10/22/2020	States of	Securit
SPEECH	17/079082	10/23/2020	America	y, Inc.
Z-VECTORS: SPEAKER				
EMBEDDINGS FROM				
RAW AUDIO USING				
SINCNET, EXTENDED				
CNN ARCHITECTURE				
AND IN-NETWORK			United	Pindrop
AUGMENTATION			States of	Securit
TECHNIQUES	17/066210	10/8/2020	America	y, Inc.
END-TO-END				
SPEAKER				
RECOGNITION USING				Pindrop
DEEP NEURAL	200/270	10/10/2020		Securit
NETWORK METHOD AND	3096378	10/19/2020	Canada	y, Inc.
METHOD AND APPARATUS FOR				
THREAT				
IDENTIFICATION				
THROUGH ANALYSIS				
OF				
COMMUNICATIONS			European	Pindrop
SIGNALING, EVENTS,			Patent	Securit
AND PARTICIPANTS	20209613.7	11/24/2020	Office	y, Inc.
DEEP NEURAL				
NETWORK BASED			European	Pindrop
SPEECH	10010546.0	12/22/222	Patent	Securit
ENHANCEMENT	19819546.3	12/23/2020	Office	y, Inc.
DEEP NEURAL NETWORK BASED				Dindron
SPEECH SPEECH				Pindrop Securit
ENHANCEMENT	3099805	11/9/2020	Canada	y, Inc.
CHANNEL-	302203	11/2/2020	Canada	1 y, me.
COMPENSATED LOW-				
LEVEL FEATURES			United	Pindrop
FOR SPEAKER			States of	Securit
RECOGNITION	11657823	11/30/2020	America	y, Inc.
DYNAMIC ACCOUNT				
RISK ASSESSMENT				
FROM			United	Pindrop
HETEROGENEOUS EVENTS	17/159748	1/27/2021	States of America	Securit y, Inc.
SYSTEMS AND	1//139/40	1/2//2021	America	y, me.
METHODS OF				
SPEAKER-				
INDEPENDENT				
EMBEDDING FOR				
IDENTIFICATION				Pindrop
AND VERIFICATION				Securit
FROM AUDIO	PCT/US2021/020891	3/4/2021	P.C.T.	y, Inc.
SYSTEMS AND				
METHODS OF				
SPEAKER-				
INDEPENDENT EMBEDDING FOR				
IDENTIFICATION			United	Pindrop
AND VERIFICATION			States of	Securit
FROM AUDIO	17/192464	3/4/2021	America	y, Inc.
	1/1/2/2/107	1 2, 1, 2, 2, 1	1 111101104	1 7, 1110.

	Patent No. or Application	Date Filed/Application	-	Assign
Title	No.	Date Date	Country	ee
SYSTEM AND			•	
METHOD FOR				
CLUSTER-BASED			United	Pindrop
AUDIO EVENT			States of	Securit
DETECTION	17/121291	12/14/2020	America	y, Inc.
ROBUST SPOOFING				
DETECTION SYSTEM			1 1 1	D: 1
USING DEEP RESIDUAL NEURAL			United States of	Pindrop Securit
NETWORKS	17/155851	1/22/2021	America	y, Inc.
END-TO-END	17/133831	1/22/2021	America	y, me.
SPEAKER				
RECOGNITION USING				Pindrop
DEEP NEURAL			South	Securit
NETWORK	10-2239129	12/29/2020	Korea	y, Inc.
CROSS-CHANNEL				
ENROLLMENT AND				
AUTHENTICATION			United	Pindrop
OF VOICE	1=0.53.65	0.10.10.00.7	States of	Securit
BIOMETRICS	17/165180	2/2/2021	America	y, Inc.
SYSTEMS AND				
METHODS EMPLOYING GRAPH-				
DERIVED FEATURES			United	Pindrop
FOR FRAUD			States of	Securit
DETECTION	11632460	3/15/2021	America	y, Inc.
CALL		-,,		<i>J</i> , ===0.
CLASSIFICATION			United	Pindrop
THROUGH ANALYSIS			States of	Securit
OF DTMF EVENTS	11388490	1/25/2021	America	y, Inc.
FRAUD DETECTION				
IN INTERACTIVE			United	Pindrop
VOICE RESPONSE	17/157027	1/25/2021	States of	Securit
SYSTEMS PASSIVE AND	17/157837	1/25/2021	America	y, Inc.
CONTINUOUS MULTI-			United	Pindrop
SPEAKER VOICE			States of	Securit
BIOMETRICS	17/231672	4/15/2021	America	y, Inc.
PASSIVE AND	177201072	171072021	1 111101100	<i>J</i> , me.
CONTINUOUS MULTI-				Pindrop
SPEAKER VOICE				Securit
BIOMETRICS	PCT/US2021/027474	4/15/2021	P.C.T.	y, Inc.
SILENT CALLER ID				
VERIFICATION			United	Pindrop
USING CALLBACK			States of	Securit
REQUEST	17/317559	5/11/2021	America	y, Inc.
CHANNEL-				
COMPENSATED LOW- LEVEL FEATURES				Dindran
FOR SPEAKER				Pindrop Securit
RECOGNITION	3117645	5/10/2021	Canada	y, Inc.
SYSTEMS AND	3117013	3/10/2021	Carran	<i>y</i> ,
METHODS OF				
GATEWAY				
DETECTION IN A			United	Pindrop
TELEPHONE			States of	Securit
NETWORK	11290593	5/11/2021	America	y, Inc.
TELECOMMUNICATI				
ONS VALIDATION			United	Pindrop
SYSTEM AND	1002000	4/4/2010	States of	Securit
METHOD TELECOMMUNICATI	10938982	4/4/2019	America	y, Inc.
TELECOMMUNICATI ONS VALIDATION			United	Pindrop
SYSTEM AND			States of	Securit
METHOD	11611652	2/26/2021	America	y, Inc.
	11011032	1 21 201 20 22 1	1 / Milerica	1 5, 1110.

	Patent No. or Application	Date Filed/Application		Assign
Title	No.	Date	Country	ee
ED ALID IMPORTANCE			United	Pindrop
FRAUD IMPORTANCE SYSTEM	17/365970	7/1/2021	States of America	Securit y, Inc.
SYSTEMS AND	17/303970	7/1/2021	America	y, mc.
METHODS FOR				
AUTHENTICATION			United	Pindrop
USING BROWSER			States of	Securit
FINGERPRINTING	17/378567	7/16/2021	America	y, Inc.
IMPROVING				
SPEAKER				
RECOGNITION WITH				Pindrop
QUALITY INDICATORS	PCT/US2021/046901	8/20/2021	P.C.T.	Securit y, Inc.
SPEAKER	PC 170 S 202 170 4 6 9 0 1	8/20/2021	P.C.1.	y, mc.
RECOGNITION WITH			United	Pindrop
QUALITY			States of	Securit
INDICATORS	17/408281	8/20/2021	America	y, Inc.
SPEAKER SPECIFIC			United	Pindrop
SPEECH			States of	Securit
ENHANCEMENT	17/475226	9/14/2021	America	y, Inc.
SPEAKER SPECIFIC				Pindrop
SPEECH	DCT/LIS2021/040900	0/10/2021	D.C.T.	Securit
ENHANCEMENT ENROLLMENT AND	PCT/US2021/049809	9/10/2021	P.C.T.	y, Inc.
AUTHENTICATION			United	Pindrop
OVER A PHONE CALL			States of	Securit
IN CALL CENTERS	17/491292	9/30/2021	America	y, Inc.
AUDIOVISUAL			United	Pindrop
DEEPFAKE			States of	Securit
DETECTION	17/503152	10/15/2021	America	y, Inc.
SYSTEMS AND				
METHODS FOR END-				
TO-END ARCHITECTURES				
FOR VOICE				Pindrop
SPOOFING				Securit
DETECTION	2020271801	9/25/2021	Australia	y, Inc.
SYSTEMS AND				J , === 0 .
METHODS FOR END-				
TO-END				
ARCHITECTURES				
FOR VOICE				Pindrop
SPOOFING	2125210	0/27/2021	Canada	Securit
SYSTEMS AND	3135210	9/27/2021	Canada	y, Inc.
METHODS FOR END-				
TO-END				
ARCHITECTURES				
FOR VOICE			European	Pindrop
SPOOFING			Patent	Securit
DETECTION	20786776.3	10/12/2021	Office	y, Inc.
ENROLLMENT AND			TT	_{D: 1}
AUTHENTICATION OVER A PHONE CALL			United States of	Pindrop Securit
IN CALL CENTERS	17/491312	9/30/2021	America	y, Inc.
ENROLLMENT AND	17/771312	9/30/2021	America	y, me.
AUTHENTICATION			United	Pindrop
OVER A PHONE CALL			States of	Securit
IN CALL CENTERS	17/491363	9/30/2021	America	y, Inc.
AUDIOVISUAL				Pindrop
DEEPFAKE				Securit
DETECTION	PCT/US2021/055267	10/15/2021	P.C.T.	y, Inc.

	Patent No. or Application	Date Filed/Application		Assign
Title	No.	Date	Country	ee
METHOD AND APPARATUS FOR				
DETECTING				Pindrop
SPOOFING				Securit
CONDITIONS	2021277642	11/30/2021	Australia	y, Inc.
CALLER			European	Pindrop
VERIFICATION VIA			Patent	Securit
CARRIER METADATA	20854174.8	1/19/2022	Office	y, Inc.
CALLER				Pindrop
VERIFICATION VIA CARRIER METADATA	3148829	1/26/2022	Canada	Securit y, Inc.
CALL	3140029	1/20/2022	Canada	y, me.
AUTHENTICATION				
AT THE CALL			European	Pindrop
CENTER USING A			Patent	Securit
MOBILE DEVICE	20859570.2	2/7/2022	Office	y, Inc.
CALL				
AUTHENTICATION				Dist. 1
AT THE CALL CENTER USING A				Pindrop Securit
MOBILE DEVICE	3150456	2/8/2022	Canada	y, Inc.
END-TO-END	3130130	21012022	Carraca	7, 1110.
SPEAKER				
RECOGNITION USING				Pindrop
DEEP NEURAL				Securit
NETWORK	2021286422	12/17/2021	Australia	y, Inc.
SYSTEMS AND				
METHODS OF GATEWAY				
DETECTION IN A			United	Pindrop
TELEPHONE			States of	Securit
NETWORK	17/706398	3/28/2022	America	y, Inc.
Z-VECTORS:				
SPEAKER				
EMBEDDINGS FROM				
RAW AUDIO USING				
SINCNET, EXTENDED CNN ARCHITECTURE				
AND IN-NETWORK				Pindrop
AUGMENTATION				Securit
TECHNIQUES	2020363882	3/8/2022	Australia	y, Inc.
Z-VECTORS:				
SPEAKER				
EMBEDDINGS FROM				
RAW AUDIO USING SINCNET, EXTENDED			1	
CNN ARCHITECTURE				
AND IN-NETWORK			1	Pindrop
AUGMENTATION			1	Securit
TECHNIQUES	3154309	3/10/2022	Canada	y, Inc.
Z-VECTORS:	-			
SPEAKER				
EMBEDDINGS FROM			1	
RAW AUDIO USING SINCNET, EXTENDED			1	
CNN ARCHITECTURE				
AND IN-NETWORK			European	Pindrop
AUGMENTATION			Patent	Securit
TECHNIQUES	20874571.1	3/9/2022	Office	y, Inc.
CALL				[
CLASSIFICATION				Pindrop
THROUGH ANALYSIS	2022201821	2/16/2022	Angtolia	Securit
OF DTMF EVENTS	2022201831	3/16/2022	Australia	y, Inc.

Title No. Date Country LIMITING IDENTITY SPACE FOR VOICE BIOMETRIC AUTHENTICATION PCT/US2022/032065 6/3/2022 P.C.T. LIMITING IDENTITY SPACE FOR VOICE BIOMETRIC States o	Pindrop Securit y, Inc.
SPACE FOR VOICE BIOMETRIC AUTHENTICATION PCT/US2022/032065 6/3/2022 P.C.T. LIMITING IDENTITY SPACE FOR VOICE United	Securit
BIOMETRIC AUTHENTICATION PCT/US2022/032065 6/3/2022 P.C.T. LIMITING IDENTITY SPACE FOR VOICE United	Securit
AUTHENTICATION PCT/US2022/032065 6/3/2022 P.C.T. LIMITING IDENTITY SPACE FOR VOICE United	
LIMITING IDENTITY SPACE FOR VOICE United	
SPACE FOR VOICE United	3,
BIOMETRIC	Pindrop
1	
AUTHENTICATION 17/832404 6/3/2022 America	a y, Inc.
LIMITING IDENTITY	
SPACE FOR VOICE United	Pindrop
BIOMETRIC States or	
AUTHENTICATION 17/832146 6/3/2022 America	a y, Inc.
SPEAKER	
EMBEDDING	
CONVERSION FOR	D: 1
BACKWARD AND United	Pindrop
CROSS-CHANNEL States of COMPATA DILITY 17/855140	
COMPATABILITY 17/855149 6/30/2022 America	a y, Inc.
EMBEDDING	
CONVERSION OF	
BACKWARD AND	Pindrop
CROSS-CHANNEL	Securit
COMPATABILITY PCT/US2022/035766 6/30/2022 P.C.T.	y, Inc.
END-TO-END	
SPEAKER	
RECOGNITION USING	Pindrop
DEEP NEURAL	Securit
NETWORK 10202205655Y 5/25/2022 Singapo	ore y, Inc.
DYNAMIC ACCOUNT	
RISK AND	
ASSESSMENT FROM	Pindrop
HETEROGENEOUS CHO/2022	Securit
EVENTS 2021216997 6/19/2022 Australi	a y, Inc.
DYNAMIC ACCOUNT RISK AND	
ASSESSMENT FROM Europea	n Pindrop
HETEROGENEOUS Patent	Securit
EVENTS 21750003.2 6/21/2022 Office	y, Inc.
DYNAMIC ACCOUNT	y, me.
RISK AND	
ASSESSMENT FROM	Pindrop
HETEROGENEOUS	Securit
EVENTS 3166258 6/27/2022 Canada	y, Inc.
CROSS-CHANNEL	
ENROLLMENT AND	
AUTHENTICATION Europea	
OF VOICE Patent	Securit
BIOMETRICS 21751168.2 6/21/2022 Office	y, Inc.
CROSS-CHANNEL ENROLLMENT AND	
AUTHENTICATION	Pindrop
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BIOMETRICS 3166263 6/27/2022 Canada	
AGE COMPENSATION	<u>y, 1110.</u>
IN BIOMETRIC	
SYSTEMS USING United	Pindrop
TIME-INTERVAL, States of	
GENDER AND AGE 17/746832 5/17/2022 America	l l
United	Pindrop
OMNI CHANNEL States of	
AUTHENTICATION 63/399132 8/18/2022 America	a y, Inc.

5	Patent No. or Application	Date Filed/Application		Assign
Title	No.	Date	Country	ee
SYSTEMS AND				
METHODS FOR				D:1
AUTHENTICATION				Pindrop
USING BROWSER FINGERPRINTING	PCT/US2022/036506	7/8/2022	P.C.T.	Securit y, Inc.
UNSUPERVISED	PC1/US2022/030300	7/8/2022	F.C.1.	y, me.
KEYWORD SPOTTING				
AND WORD			United	Pindrop
DISCOVERY FOR			States of	Securit
FRAUD ANALYTICS	17/833674	6/6/2022	America	y, Inc.
SYSTEMS AND				7 3
METHODS OF				
SPEAKER-				
INDEPENDENT				
EMBEDDING FOR				
IDENTIFICATION			European	Pindrop
AND VERIFICATION			Patent	Securit
FROM AUDIO	21764771.8	8/16/2022	Office	y, Inc.
SYSTEMS AND				
METHODS OF				
SPEAKER- INDEPENDENT				
EMBEDDING FOR				
IDENTIFICATION				Pindrop
AND VERIFICATION				Securit
FROM AUDIO	2021231850	8/12/2022	Australia	y, Inc.
SYSTEMS AND	2021231030	0/12/2022	2 xustiunu	y, me.
METHODS OF				
SPEAKER-				
INDEPENDENT				
EMBEDDING FOR				
IDENTIFICATION				Pindrop
AND VERIFICATION				Securit
FROM AUDIO	3171475	8/16/2022	Canada	y, Inc.
SYSTEMS AND				
METHODS				
EMPLOYING GRAPH-				
DERIVED FEATURES			European	Pindrop
FOR FRAUD	21771022.5	8/16/2022	Patent	Securit
DETECTION SYSTEMS AND	21771023.5	8/16/2022	Office	y, Inc.
SYSTEMS AND METHODS				
EMPLOYING GRAPH-				
DERIVED FEATURES				Pindrop
FOR FRAUD				Securit
DETECTION	2021239845	8/12/2022	Australia	y, Inc.
GRAPH-DERIVED				Pindrop
FEATURES FOR				Securit
FRAUD DETECTION	3171476	8/16/2022	Canada	y, Inc.
CALL				
CLASSIFICATION				Pindrop
THROUGH ANALYSIS				Securit
OF DTMF EVENTS	3178322	10/3/2022	Canada	y, Inc.
CALL				
CLASSIFICATION			United	Pindrop
THROUGH ANALYSIS	17/057610	7/5/2022	States of	Securit
OF DTMF EVENTS	17/857618	7/5/2022	America	y, Inc.
CHANNEL-				
COMPENSATED LOW-				Diameter
LEVEL FEATURES FOR SPEAKER				Pindrop Securit
RECOGNITION	3179080	10/12/2022	Canada	y, Inc.
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Title	Patent No. or Application No.	Date Filed/Application Date	Country	Assign ee
CROSS-CHANNEL		15enc	Country	
ENROLLMENT AND				
AUTHENTICATION				Pindrop
OF VOICE				Securit
BIOMETRICS	202227045378	8/9/2022	India	y, Inc.
SPEECH BANDWIDTH				
EXPANSION FOR				
SPEAKER				Pindrop
RECOGNITION ON			_	Securit
TELEPHONY AUDIO	2022-543649	7/15/2022	Japan	y, Inc.
SPEECH BANDWIDTH				
EXPANSION FOR SPEAKER				Pindrop
RECOGNITION ON			South	Pindrop Securit
TELEPHONY AUDIO	10-2022-7029052	8/23/2022	Korea	y, Inc.
SPEECH BANDWIDTH	10-2022-7029032	0/23/2022	Roica	y, me.
EXPANSION FOR				
SPEAKER				Pindrop
RECOGNITION ON				Securit
TELEPHONY AUDIO	1-2022-551965	8/1/2022	Philippines	v. Inc.
CROSS-CHANNEL			1	
ENROLLMENT AND				
AUTHENTICATION				Pindrop
OF VOICE				Securit
BIOMETRICS	11202251604N	7/26/2022	Singapore	y, Inc.
CROSS-CHANNEL				
ENROLLMENT AND				
AUTHENTICATION				Pindrop
OF VOICE		0.40.40.00		Securit
BIOMETRICS	1-2022-04892	8/2/2022	Vietnam	y, Inc.
CARRIER SIGNALING BASED				
AUTHENTICATION			United	Pindrop
AND FRAUD			States of	Securit
DETECTION	63/389283	7/14/2022	America	y, Inc.
ROBUST SPOOFING	03/30/203	7/14/2022	Atmenea	y, me.
DETECTION SYSTEM				
USING DEEP				Pindrop
RESIDUAL NEURAL				Securit
NETWORKS	2021212621	7/15/2022	Australia	y, Inc.
ROBUST SPOOFING				
DETECTION SYSTEM				
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NETWORKS	3168248	7/15/2022	Canada	y, Inc.
ROBUST SPOOFING				
DETECTION SYSTEM				5. ,
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RESIDUAL NEURAL NETWORKS	21747446 0	7/15/2022	Patent	Securit
ROBUST SPOOFING	21747446.9	7/15/2022	Office	y, Inc.
DETECTION SYSTEM				
USING DEEP				Pindrop
RESIDUAL NEURAL				Securit
NETWORKS	2022-543650	7/15/2022	Japan	v. Inc.
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DETECTION SYSTEM				
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NETWORKS	10-2022-7029053	8/23/2022	Korea	y, Inc.
RESIDUAL NEURAL	10-2022-7029053	8/23/2022		Securit

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	FROM SPEECH	17/960725	10/5/2022	America	y, Inc.

	Patent No. or Application	Date Filed/Application		Assign
Title	No.	Date	Country	ee
PASSIVE AND				D: 1
CONTINUOUS MULTI-			European	Pindrop
SPEAKER VOICE	21780202.2	0/20/2022	Patent	Securit
BIOMETRICS	21789203.3	9/29/2022	Office	y, Inc.
PASSIVE AND				D: 1
CONTINUOUS MULTI-				Pindrop
SPEAKER VOICE	2021254787	9/29/2022	Australia	Securit y, Inc.
BIOMETRICS PASSIVE AND	2021234787	9/29/2022	Austrana	y, mc.
CONTINUOUS MULTI-				Pindrop
SPEAKER VOICE				Securit
BIOMETRICS	3184478	11/22/2022	Canada	y, Inc.
PASSIVE AND	3184478	11/22/2022	Canada	y, mc.
CONTINUOUS MULTI-				Pindrop
SPEAKER VOICE			South	Securit
BIOMETRICS	10-2022-7039892	11/15/2022	Korea	y, Inc.
PASSIVE AND	10-2022-7039892	11/13/2022	Rolea	y, me.
CONTINUOUS MULTI-				Pindrop
SPEAKER VOICE				Securit
BIOMETRICS	11202253750C	9/30/2022	Singapore	y, Inc.
PASSIVE AND	112022337300	713012022	Singapore	y, me.
CONTINUOUS MULTI-				Pindrop
SPEAKER VOICE				Securit
BIOMETRICS	2022-561448	10/7/2022	Japan	y, Inc.
BIOMETICES	2022-301440	10/7/2022	Japan	Pindrop
AGE ESTIMATION				Securit
FROM SPEECH	PCT/US2022/045777	10/5/2022	P.C.T.	y, Inc.
CROSS-LINGUAL	101/082022/013777	10/0/2022	United	Pindrop
SPEAKER			States of	Securit
RECOGNITION	17/977521	10/31/2022	America	y, Inc.
CROSS-LINGUAL	11/2/1/02/	10/01/2022	7 111101104	Pindrop
SPEAKER				Securit
RECOGNITION	PCT/US2022/048365	10/31/2022	P.C.T.	y, Inc.
SYSTEMS AND	101,002022,010303	10,51,2022	1.0.1.	
METHODS FOR CALL				
FRAUD ANALYSIS				
USING A MACHINE-				
LEARNING				
ARCHITECTURE AND				
MAINTAINING			United	Pindrop
CALLER ANI			States of	Securit
PRIVACY	63/443598	2/6/2023	America	y, Inc.
SYSTEMS AND				
METHODS FOR CALL				
FRAUD ANALYSIS				
USING A MACHINE-				
LEARNING				
ARCHITECTURE AND				
MAINTAINING			United	Pindrop
CALLER ANI			States of	Securit
PRIVACY	63/443599	2/6/2023	America	y, Inc.
SYSTEMS AND				1
METHODS FOR CALL				
FRAUD ANALYSIS				
USING A MACHINE-				
LEARNING				
ARCHITECTURE AND				1
MAINTAINING			United	Pindrop
CALLER ANI			States of	Securit
PRIVACY	63/443601	2/6/2023	America	y, Inc.

S	Patent No. or Application	Date Filed/Application		Assign
Title	No.	Date	Country	ee
SYSTEMS AND				
METHODS FOR CALL				
FRAUD ANALYSIS				
USING A MACHINE-				
LEARNING				
ARCHITECTURE AND			TT	D: 1
MAINTAINING CALLER ANI			United	Pindrop
PRIVACY	63/443603	2/6/2023	States of America	Securit
SYSTEMS AND	03/443003	2/0/2023	America	y, Inc.
METHODS FOR CALL				
FRAUD ANALYSIS				
USING A MACHINE-				
LEARNING				
ARCHITECTURE AND				
MAINTAINING			United	Pindrop
CALLER ANI			States of	Securit
PRIVACY	63/443604	2/6/2023	America	y, Inc.
CHANNEL-				1,
COMPENSATED LOW-				
LEVEL FEATURES			United	Pindrop
FOR SPEAKER			States of	Securit
RECOGNITION	18/321353	5/22/2023	America	y, Inc.
SYSTEMS AND				22
METHODS FOR JIP				
AND CLLI				
MATCHING IN				
TELECOMMUNICATI				
ONS METADATA			United	Pindrop
AND MACHINE-			States of	Securit
LEARNING	18/109095	2/13/2023	America	y, Inc.
SYSTEMS AND				
METHODS FOR JIP				
AND CLLI				
MATCHING IN				
TELECOMMUNICATI				
ONS METADATA				Pindrop
AND MACHINE-				Securit
LEARNING	3189600	2/14/2023	Canada	y, Inc.
IMPROVING				
SPEAKER				
RECOGNITION WITH				Pindrop
QUALITY	2100161	1/24/2022		Securit
INDICATORS	3190161	1/24/2023	Canada	y, Inc.
BEHAVIORAL				
BIOMETRICS USING			T.T	
KEYPRESS			United	Pindrop
TEMPORAL	62/427409	11/22/2022	States of	Securit
INFORMATION	63/427498	11/23/2022	America	y, Inc.
ENROLLMENT AND				Dia desert
AUTHENTICATION	Dans 3			Pindrop
OVER A PHONE CALL	Based on	2/28/2022	Canada	Securit
IN CALL CENTERS	PCT/US2021/052909	3/28/2023	Canada	y, Inc.
SYSTEMS AND METHODS FOR STIP				
METHODS FOR STIR- SHAKEN			United	Pindrop
ATTESTATION USING			States of	Securit
SPID	19/117124	2/2/2022	1	
SEID.	18/117134	3/3/2023	America	y, Inc.

	Patent No. or Application	Date Filed/Application		Assign
Title	No.	Date	Country	ee
SYSTEMS AND				
METHODS FOR JIP				
AND CLLI				
MATCHING IN				
TELECOMMUNICATI				
ONS METADATA				Pindrop
AND MACHINE-				Securit
LEARING	3191780	3/3/2023	Canada	y, Inc.
SPEAKER SPECIFIC		0,0,200	Cuitada	Pindrop
SPEECH				Securit
ENHANCEMENT	3193267	2/27/2023	Canada	y, Inc.
TELECOMMUNICATI	3193207	212112025	Cunada	y, me.
ONS VALIDATION			United	Pindrop
SYSTEM AND			States of	Securit
METHOD	18/123463	3/20/2023	America	y, Inc.
AUDIOVISUAL	10/125405	312012023	America	Pindrop
DEEPFAKE				Securit
DETECTION	3198473	4/11/2023	Canada	y, Inc.
AUDIOVISUAL	3170473	7/11/2023	European	Pindrop
DEEPFAKE			Patent	Securit
	21991214.7	4/12/2022	Office	
DETECTION	21881214.7	4/13/2023	Office	y, Inc. Pindrop
AUDIOVISUAL				Pindrop Securit
DEEPFAKE	2022 522075	4/14/2022	T	1
DETECTION	2023-523075	4/14/2023	Japan	y, Inc.
AUDIOVISUAL			G 41	Pindrop
DEEPFAKE	10 2022 701 522 5	- 14 /2 0 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	South	Securit
DETECTION	10-2023-7015335	5/4/2023	Korea	y, Inc.
AUDIOVISUAL				Pindrop
DEEPFAKE	11202202770	1/11/2022		Securit
DETECTION	11202302770	4/11/2023	Singapore	y, Inc.
PRESENTATION				
ATTACKS IN			United	Pindrop
REVERBERANT			States of	Securit
CONDITIONS	63/452351	3/15/2023	America	y, Inc.
SYSTEMS AND				
METHODS				
EMPLOYING GRAPH-				
DERIVED FEATURES			United	Pindrop
FOR FRAUD	10/2/		States of	Securit
DETECTION	18/301897	4/17/2023	America	y, Inc.
DEEPFAKE			United	Pindrop
DETECTION IN A			States of	Securit
CALL CENTER	63/497587	4/21/2023	America	y, Inc.
			United	Pindrop
AUTHENTICATION			States of	Securit
USING DTMF TONES	18/317799	5/15/2023	America	y, Inc.
ACTIVE VOICE			United	Pindrop
LIVENESS			States of	Securit
DETECTION SYSTEM	63/462913	4/28/2023	America	y, Inc.
SPEAKER			United	Pindrop
RECOGNITION IN			States of	Securit
THE CALL CENTER	18/329138	6/5/2023	America	y, Inc.
			United	Pindrop
DEEPFAKE			States of	Securit
DETECTION	63/503903	5/23/2023	America	y, Inc.
	1 00/0 00/00		1	7,

RECORDED: 06/26/2024