PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT7371156

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	SECURITY INTEREST

CONVEYING PARTY DATA

Name	Execution Date
AVALON HOLOGRAPHICS INCORPORATED	06/03/2022

RECEIVING PARTY DATA

Name:	BDC CAPITAL INC., A WHOLLY OWNED SUBSIDIARY OF BUSINESS DEVELOPMENT BANK OF CANADA
Street Address:	81 BAY STREET
Internal Address:	SUITE 3700
City:	TORONTO
State/Country:	CANADA
Postal Code:	M5J 0E7

PROPERTY NUMBERS Total: 14

Property Type	Number
Patent Number:	10244230
Patent Number:	10432944
Patent Number:	10340480
Patent Number:	10536688
Patent Number:	10651424
Patent Number:	10924727
Patent Number:	10911735
Patent Number:	10972737
Patent Number:	11025895
Patent Number:	10986326
Patent Number:	11119253
Patent Number:	11252392
Patent Number:	11330244
Patent Number:	11303858

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:	4163614796
Email:	padamsmarchetti@wildlaw.ca
Correspondent Name:	WILDEBOER DELLELCE LLP
Address Line 1:	365 BAY STREET
Address Line 2:	SUITE 800
Address Line 4:	TORONTO, CANADA M5H 2V1

ATTORNEY DOCKET NUMBER:	2201289
NAME OF SUBMITTER:	PENNY ADAMS-MARCHETTI
SIGNATURE:	/padamsmarchetti/
DATE SIGNED:	06/08/2022
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 10
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ASSIGNMENT OF PATENTS

THIS ASSIGNMENT dated June 3, 2022.

BETWEEN:

AVALON HOLOGRAPHICS INCORPORATED, a corporation incorporated under the *Canada Business Corporations Act*

(the "**Assignor**")

AND:

BDC CAPITAL INC., a wholly owned subsidiary of **BUSINESS DEVELOPMENT BANK OF CANADA** having a business centre at 3700 – 81 Bay Street, Toronto, ON M5J 0E7

(the "**Bank**")

WHEREAS:

A. The Assignor has, is or is about to become indebted to the Bank (the "**Loan**") pursuant to Letter of Offer dated as of June 3, 2022 (the "**Commitment Letter**");

B. The Assignor has agreed to grant or has granted to the Bank security for the Loan, pursuant to the Commitment Letter, including *inter alia*, a security interest in all of its present and after acquired personal property pursuant to a General Security Agreement (the "**GSA**");

C. The Assignor is the exclusive owner of the whole right, title and interest of letters patent or applications for letters patent in Canada and elsewhere, as more particularly described in Schedule "A" hereto (the "**Patents**") and the Assignor has the exclusive, uninhibited right to sell, transfer, use and assign the Patents;

D. As additional security for the Loan, the Assignor has agreed to specifically assign to the Bank, at the option of the Bank and effective upon the occurrence of an event of default under the Commitment Letter or in the event the Assignor is deemed to be in default under the GSA, all of the Assignor's right, title and interest in and to the Patents;

THEREFORE in consideration of the premises and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Assignor agrees as follows:

1. The preamble hereto forms an integral part hereof.

2. As security for the payment and performance of the Assignor's obligations to the Bank under the Commitment Letter, the Assignor grants a security interest to the Bank in the Patents and all proceeds thereof.

3. Upon an event of default occurring under the Commitment Letter or if the Assignor is in default under the GSA and upon the exercise by the Bank of its option to cause this Assignment to become effective, the Assignor does hereby transfer and assign to the Bank all of its right, title and interest in and to the Patents, together with any reissue, continuation or other extension of the Patents, the invention claimed therein and all proceeds derived from the Patents, including without limitation, royalties, license fees, and all rights and claims of action that may exist by reason of the infringement of the Patents, the same to be held and enjoyed by the Bank to the full end of the term for which the Patents are granted, as fully and entirely as the same could have been held and enjoyed by the Assignor if this Assignment had not been made.

4. This Assignment shall take effect upon the Bank notifying the Assignor that it is in default under the Commitment Letter or the GSA and that the Bank intends to exercise its option to cause this Assignment to become effective.

5. The Assignor shall do all things and execute and deliver all documents (including all assignments, affidavits, and other instruments, in a form suitable for filing with all patent offices where the Patent is registered and recorded) as may be requested by the Bank from time to time and at any time, in order to give effect to this Assignment or to perfect or record the Bank's interest in the Patents or to maintain the registration or recording of the Patents.

6. The Assignor represents and warrants as follows:

   (a) the Assignor has sole, full and clear title to the Patents in Canada and in all other jurisdictions represented by the Assignor to the Bank;

   (b) the Assignor has not assigned or licensed the Patents to any other entity (except as disclosed in Schedule "B" hereto and except for licences to use the Patents granted to customers in the ordinary course of business) and is duly authorized and has the right to grant this Assignment to the Bank;

   (c) all registrations and recordings of the Patents are valid and subsisting and in full force and effect as of the date of this Assignment;

   (d) the Patents have not lapsed, been abandoned or dedicated to the public, nor to the best of the knowledge of the Assignor, have the Patents been infringed by any other person;

   (e) as of the date of this Assignment, neither the Assignor nor any of its subsidiaries has any patent registered or recorded in or subject to pending applications for registration or recording in Canada, the United States or elsewhere, other than those described in the Schedule hereto; and

   (f) the Assignor has no knowledge of any third-party claims to the Patents.

7. The Assignor hereby irrevocably appoints the Bank or its agent, as the case may be, with full power of substitution, to be the attorney of the Assignor for and in the name of the Assignor, to do, make, sign, endorse or execute under seal or otherwise all deeds, documents, transfers, cheques, instruments, demands, assignments, assurances, consents, acts, matters or things with the right to use the name of the Assignor whenever or wherever it may be necessary or expedient. It is hereby intended that the said power of attorney shall continue in the event of the subsequent legal incapacity of the Assignor, if an individual.

8. Any notice hereunder shall be in writing and shall be effectively given by the Bank by personal delivery or by mailing such notice by prepaid post to the Assignor at the address set out above, or at such other address as may be given in writing by the Assignor to the Bank. Delivery by fax transmission is deemed to be personal service and is deemed to be received on the next business day following transmission. Delivery by prepaid mail is deemed to be received three business days after mailing.

9. This Assignment shall be binding upon the Assignor and its successors and permitted assigns and it shall enure to the benefit of the Bank and its successors and assigns.

10. This Assignment shall be governed by the laws of the Province of Newfoundland and Labrador and the federal laws of Canada applicable therein. For enforcement purposes, the Assignor hereby attorns to the jurisdiction of the courts and laws of any province, state, territory or country in which the Bank enforces its rights and remedies hereunder.

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IN WITNESS WHEREOF the Assignor has hereunto affixed its corporate seal duly attested by the hand(s) of its proper officer(s) in that behalf, on the day and year first above written.

AVALON HOLOGRAPHICS INCORPORATED

DocuSigned by:

Per: Wally Haas

Name: Wally Haas

Title: President

SCHEDULE "A"
PATENTS

COMPANY OWNED IP (Note: There is no licensed IP at this time)

A listing of intellectual property assets, including:

a. Issued patents, including patent numbers and issuing countries

Issuing Country	Patent No.	Title	Date of Issue/Priority Date	Technical Categorization	Display Type
US	US 10,244,230	Directional Pixel for Multiple View Display	Mar. 26, 2019	OLED Design and Fabrication	Flat-Panel
US	US 10,432,944	Layered Scene Decomposition CODEC System and Methods	Oct. 1, 2019	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
US	US 10,340,480	OLED Microcavity Design and Optimization Method	Jul. 2, 2019	OLED Design and Fabrication	Flat-Panel
US	US 10,536,688	Directional Pixel for Multiple View Display	Jan.14, 2020	OLED Design and Fabrication	Flat-Panel
US	US 10,651,424	OLED Microcavity Design and Optimization Method	12-May-20	OLED Design and Fabrication	Flat-Panel
US	US 10,924,727	High-Performance Light Field Display Simulator	Feb. 16, 2021	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
US	US 10,911,735	Layered Scene Decomposition CODEC with Asymptotic Resolution	Feb. 2, 2021	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
US	US 10,972,737	Layered Scene Decomposition CODEC System and Methods	Apr. 6, 2021	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
US	US 11,025,895	Directional Pixel Array for Multiple View Display	Jun. 1, 2021	OLED Design and Fabrication	Flat-Panel
US	US 10,986,326	Layered Scene Decomposition CODEC with Higher Order Lighting	Apr. 20, 2021	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
KR	KR 102098549	Directional Pixel for Multiple View Display	Apr. 9, 2020	OLED Design and Fabrication	Flat-Panel
CA	CA 3053937	Directional Pixel for Multiple View Display	Mar. 1, 2017	OLED Design and Fabrication	Flat-Panel
US	US 11,119,253	Direct Projection Light Field Display	Sep. 14, 2021	Prototype Gen 1 Lens Design Optics Design	Projector-Based
US	US 11252392	Layered Scene Decomposition CODEC with Layered Depth Imaging	Feb. 15, 2022	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
US*	US 20210152807	Layered Scene Decomposition Codec with Asymptotic Resolution	*Issued May 10, 2022 US11,330,244	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
JP	JP 6734519	Directional Pixel for Multiple View Display	Aug. 5, 2020	OLED Design and Fabrication	Flat-Panel
US*	US 20200275074	Layered Scene Decomposition CODEC with Transparency	**Allowed/ not yet issued	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
US	US 11,303,858	Direct Projection Multiplexed Light Field Display	Apr. 12, 2022	Lens Design	Flat-Panel/ Projector-Based
CN**	CN 110678916	Directional Pixel for Multiple View Display	**Allowed/ not yet issued	OLED Design and Fabrication	Flat-Panel

b. Pending patent applications, including patent application numbers and country of filing/PCT

Country	Publication/ Application No.	Title	Priority/Filing Date	Priority Information	Technical Categorization	Display Type
JP	JP 2020532212	Layered Scene Decomposition CODEC System and Methods	Aug. 23, 2017	PCT National Phase filing from US 10,432,944	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
KR	KR 20200041340	Layered Scene Decomposition CODEC System and Methods	Aug. 23, 2017	PCT National Phase filing from US 10,432,944	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
CA	CA 3072260	Layered Scene Decomposition CODEC System and Methods	Aug. 23, 2017	PCT National Phase filing from US 10,432,944	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
CN	CN 111937040	Layered Scene Decomposition CODEC System and Methods	Aug. 23, 2017	PCT National Phase filing from US 10,432,944	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
JP	JP 2021515355	OLED Microcavity Design and Optimization Method	Mar. 1, 2018	US 10,340,480 and US 10,651,424	OLED Design and Fabrication	Flat-Panel
KR	KR 1020200124732	OLED Microcavity Design and Optimization Method	Mar. 1, 2018	US 10,340,480 and US 10,651,424	OLED Design and Fabrication	Flat-Panel
CA	CA 3091397	OLED Microcavity Design and Optimization Method	Mar. 1, 2018	US 10,340,480 and US 10,651,424	OLED Design and Fabrication	Flat-Panel
CN	CN112514102	OLED Microcavity Design and Optimization Method	Mar. 1, 2018	US 10,340,480 and US 10,651,424	OLED Design and Fabrication	Flat-Panel
WO	WO 2020061714	Direct Projection Light Field Display	Jun. 6, 2019	PCT for US 20200103563	Prototype Gen 1 Lens Design Optics Design	Projector-Based
CA	CA3,111,840	Direct Projection Light Field Display	Jun. 6, 2019	PCT National Phase filing from US 20200103563	Prototype Gen 1 Lens Design Optics Design	Projector-Based
CN	CN113544577	Direct Projection Light Field Display	Jun. 6, 2019	PCT National Phase filing from US 20200103563	Prototype Gen 1 Lens Design Optics Design	Projector-Based
JP	JP2022508016	Direct Projection Light Field Display	Jun. 6, 2019	PCT National Phase filing from US 20200103563	Prototype Gen 1 Lens Design Optics Design	Projector-Based
KR	KR1020210068030	Direct Projection Light Field Display	Jun. 6, 2019	PCT National Phase filing from US 20200103563	Prototype Gen 1 Lens Design Optics Design	Projector-Based
WO	WO 2020181360	Layered Scene Decomposition CODEC System and Methods	Feb. 22, 2019	PCT for US 20200275073	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
CA	CA3127545	Layered Scene Decomposition CODEC System and Methods	Feb. 22, 2019	PCT for US 20200275073	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
CN	CN113748682	Layered Scene Decomposition CODEC System and Methods	Feb. 22, 2019	PCT for US 20200275073	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based

JP	JP2021544756* not yet published	Layered Scene Decomposition CODEC System and Methods	Feb. 22, 2019	PCT for US 20200275073	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
KR	KR10202101260 79	Layered Scene Decomposition CODEC System and Methods	Feb. 22, 2019	PCT for US 20200275073	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
US	US 202002731 88	Layered Scene Decomposition CODEC with View Independent Rasterization	Feb. 22, 2019		Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
US	US 202002871 65	OLED Microcavity Design and Optimization Method	Mar. 1, 2018	DIV 2 of US 10,340,480	OLED Design and Fabrication	Flat-Panel
US	US 202100487 35	Light Field Projector Device	Aug. 14, 2019		Prototype Gen 2 Lens Design Optics Design	Projector-Based
WO	WO 2021026663	Light Field Projector Device	Aug. 14, 2019	PCT for US 20210048735	Prototype Gen 2 Lens Design Optics Design	Projector-Based
CN	DSPCIN397.0-CA* not yet published	Light Field Projector Device	Feb. 11, 2022	PCT National Phase Filing from US 20210048735	Prototype Gen 2 Lens Design Optics Design	Projector-Based
JP	2022-502282* not yet published	Light Field Projector Device	Jan. 13, 2022	PCT National Phase Filing from US 20210048735	Prototype Gen 2 Lens Design Optics Design	Projector-Based
KR	KR1020220045185	Light Field Projector Device	Feb. 14, 2022	PCT National Phase Filing from US 20210048735	Prototype Gen 2 Lens Design Optics Design	Projector-Based
CA	CA3144726	Light Field Projector Device	Jan. 18, 2022	PCT National Phase Filing from US 20210048735	Prototype Gen 2 Lens Design Optics Design	Projector-Based
US	US 202103350 31	Light Field Volume Rendering System and Methods	Apr. 27, 2020		Holographic Processing Unit (HPU) Software Volume Rendering Algorithm	Flat-Panel/ Projector-Based
WO	WO 2021217250	Light Field Volume Rendering System and Methods	Apr. 27, 2020	PCT for US 20210335031	Holographic Processing Unit (HPU) Software Volume Rendering Algorithm	Flat-Panel/ Projector-Based
US	US 17/086,201* Not yet published	Optical Metasurface with Sub-Hogels	Oct. 30, 2020		Optics Design	Flat-Panel/ Projector-Based
WO	WO2021050440* Not yet published	Optical Metasurface with Sub-Hogels	Oct. 30, 2020	PCT for US 17/086,201	Optics Design	Flat-Panel/ Projector-Based
US	US 202200137 50	Microcavity Pixel Array Design and Method	Jan. 13, 2022		OLED Design and Fabrication	Flat-Panel
US	US 202102039 48	Layered Scene Decomposition CODEC System and Methods	Jul. 1, 2021	Continuation of US 10,432,944	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
US	US 17/680,777* not yet published	Direction Projection Multiplexed Light Field Display	Apr. 23, 2021	Continuation of US 11,303,858	Lens Design Optics Design	Flat-Panel/ Projector-Based

WO	CA2021050562* not yet published	Direction Projection Multiplexed Light Field Display	Apr. 23, 2021	PCT for US 11,303,858	Lens Design Optics Design	Flat-Panel/ Projector-Based
US	US 17/378,300* not yet published	Multi-Color OLED Array for High Aperture Display	Jul. 16, 2021		OLED Design and Fabrication	Flat-Panel
US	63/217,776* not published	Trilayer Resist System and Methods	Jul. 2, 2021		OLED Design and Fabrication	Flat-Panel
US	US 63/309,027	Short-Channel TFTs	Feb. 11, 2022		Backplane technology	Flat-Panel
US	US20210325573	Direct Projection Light Field Display	Oct. 21, 2021	Continuation of US 11,119,253	Prototype Gen 1 Lens Design Optics Design	Projector-Based
US	US 20220109817	Layered Scene Decomposition CODEC with Layered Depth Imaging	Dec. 15, 2021	Continuation of US 20200275073	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
US	US 20210203903	Layered Scene Decomposition CODEC with Higher Order Lighting	Jul. 1, 2021	Continuation of US 10,986,326	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
US	US 20210286521	Directional Pixel for Multiple View Display	Aug. 26, 2021	Continuation of US 10,244,230	OLED Design and Fabrication	Flat-Panel
US*	US 17/693,561* not yet published	Layered Scene Decomposition CODEC with Volume Rendering	Mar.14, 2022	Continuation of US 10,911,735	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based
US*	US 17/714,340* not yet published	Layered Scene Decomposition CODEC with Transparency	Apr. 6, 2022	Continuation of US 20200275074	Holographic Processing Unit (HPU) Software	Flat-Panel/ Projector-Based

SCHEDULE "B"
LICENSED USERS OF PATENTS

None