
BIOGRAPHICAL SKETCH

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NAME: *Emmanuel Louis Pierre Dumont*

eRA COMMONS USER NAME (credential, e.g., agency login): *dumont-pi*

POSITION TITLE: *Chief Executive Officer at Shade (wearshade.com)*
Junior Faculty at Center for Discovery and Innovation (hmh-cdi.org)

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE	COMPLETION DATE	FIELD OF STUDY
Mines de Paris, France	M.S.	06/2007	Mathematics and Physics
Columbia University	M.Phil.	05/2011	Biophysics
Columbia University	Ph.D.	02/2014	Biophysics
Jacobs Technion-Cornell Institute	n/a	02/2016	Physics

A. Personal Statement

I am the founder and Chief Executive Officer of Shade, a Cornell-Technion spin-off startup commercializing a low-cost and scientific-grade UV sensor for health. We currently have an NSF Phase II SBIR grant and an R&D agreement with a multinational skincare company. Under my leadership, the company has raised nearly \$4.5M in funding from early-stage venture capital funds and from grants, including 2 SBIR Phase II grants (NIH/NCI for \$1.5M and NSF for \$750k). To achieve the company's objectives, I have hired, managed, and grown over 15 people at all levels over the past 4 years. I have also prosecuted 10 patents with the USPTO and established partnerships with UCSF, Weill-Cornell Medicine, Northwestern Medicine, Hospital Europeen, University of Minnesota, and the University of Utah.

I am also a junior faculty member at the Center for Discovery and Innovation (CDI), which is part of Hackensack Meridian Health (<https://hmh-cdi.org/>), where I work on advanced cloud-based bioinformatics pipelines and machine learning applied to genomics. The CDI is a new research institution established by Hackensack Meridian Health, a network of 13 hospitals and more than 200 ambulatory care centers. The CDI is located on the former Roche campus in Nutley, NJ. Its objective is to translate basic science discoveries into commercial ventures.

My company Shade has its headquarters at the CDI and I can easily walk from my CDI office to my Shade office.

B. Positions and Honors

Positions and Employment

2004-2007	Founder and leader of an NGO to bring healthcare to African rural areas.
2007-2009	Investment banker at BNP Paribas in New York, Paris, and Sao Paulo.
2009-2014	Graduate Research Assistant in Biomedical Engineering, Columbia University.
2014-2016	Postdoctoral researcher, the Jacobs Technion-Cornell Institute.
2016-now	Founder and CEO of Shade
2018-2020	Associate Scientist at the Center for Discovery and Innovation (Hackensack Meridian Health)
2020-	Research Associate Member at the Center for Discovery and Innovation (Hackensack Meridian Health)

Honors

2010	Recipient of the Liu-Ping fellowship for best score at the qualifying examinations
2011	Invited speaker at the US-Turkey Advanced Study Institute on Global Healthcare Grand Challenges (Turkey)
2012	Invited speaker at TEDx Columbia Engineering
2015	Invited speaker at the eHealth Summer University (France)
2016	Invited speaker at the Cornell Entrepreneurship event
2016	Invited speaker at the Rosenman Institute Annual Symposium, UCSF
2016	Invited speaker at the {dive} conference (France).
2016	Invited speaker at the 3rd annual Dermatology Innovation Forum (Florida)
2016	Invited speaker at the Association Technion France (France)
2017	Invited speaker at the Hardware Club conference (France)
2018	Invited speaker at the Advanced Manufacturing Event, Panel "Hot Sensor Technologies for Medical Devices" (New York)
2018	Invited keynote speaker at the LDV Vision Summit, organized by LDV Capital (New York).
2018	Invited keynote speaker at the European Tech Night at the Italian Consulat (New York)

C. Contributions to Science

A. I developed an interest for the space of digital health and how connectivity, smartphones, and wearable technologies can impact the care of chronic diseases:

1. Appelboom, G. *et al.* Smart wearable body sensors for patient self-assessment and monitoring. *Arch. Public Heal.* **72**, 28 (2014).
2. Appelboom, G., LoPresti, M., Reginster, J.-Y., Sander Connolly, E. & **Dumont, E. P. L.** The quantified patient: a patient participatory culture. *Curr. Med. Res. Opin.* **30**, 2585–7 (2014).
3. Camacho, E. *et al.* The Ubiquitous Role of Smartphones in Mobile Health. *Biometrics Biostat. Int. J.* **1**, 1–6 (2014).

B. I have advanced the field of optics, specifically ultraviolet radiometry for the skin sensitivity. Through my company, we have developed a wearable sensor that measures the UV index with an accuracy 10x superior to existing sensors, using machine-learning.

1. Banerjee, S Hoch, EG Kaplan, PD Dumont, ELP. A Comparative Study of Wearable Ultraviolet Radiometers. 2017 IEEE Life Sciences Conference (LSC), 9-12.
2. Dumont et al. Methods, systems, and apparatuses for accurate measurement and real-time feedback of solar ultraviolet exposure, 2017, US Patent 9,798,458
3. Dumont et al. Methods, systems, and apparatuses for accurate measurement and real-time feedback of solar ultraviolet exposure, 2018, US Patent 9,880,725
4. Dumont et al. Methods, systems, and apparatuses for accurate measurement and real-time feedback of solar ultraviolet exposure, 2018, US Patent 9,880,052
5. Emmanuel Dumont and Shayak Banerjee. Methods for guiding personal limit selection in UV dosimetry, 2019, US Patent 10,378,953
6. Pumir, T., Dumont, E., Kaplan, P., Banerjee, S. A K-means Cluster-Driven Calibration to Improve the Accuracy of Personal Wearable UV Sensors, Workshop on ML for Systems at NeurIPS 2018.

C. Over the course of my PhD, I have studied tribology effects of proteins; namely the impact of adhesion, force, friction, and wear in protein-protein interactions. I coined the term “molecular wear” for proteins, a novel and bold concept furthering our understanding of protein degradation.

1. **Dumont, E. L. P.**, Belmas, H. & Hess, H. Observing the Mushroom-to-Brush Transition for Kinesin Proteins. *Langmuir* **29**, 15142–5 (2013).
2. **Dumont, E. L. P.**, Do, C. & Hess, H. Molecular wear of microtubules propelled by surface-adhered kinesins. *Nat. Nanotechnol.* **10**, 1–4 (2015).
3. Hess, H. & **Dumont, E. L. P.** Fatigue Failure and Molecular Machine Design. *Small* **7**, 1619–1623 (2011).

D. While at CDI, I developed a cloud-based efficient bioinformatics pipeline to map allele-specific methylation in whole genomes.

1. **Emmanuel LP Dumont**, Benjamin Tycko, Catherine Do. CloudASM: an ultra-efficient cloud-based pipeline for mapping allele-specific DNA methylation, *Bioinformatics*, 2020, <http://dx.doi.org/10.1093/bioinformatics/btaa149>
2. Catherine Do, **Emmanuel LP Dumont**, Martha Salas, Angelica Castano, Huthayfa Mujahed, Leonel Maldonado, Arunjot Singh, Govind Bhagat, Soren Lehman, Angela M. Christiano, Subha Madhavan, Peter L. Nagy, Peter H.R. Green, Rena Feinman, Cornelia Trimble, Karen Marder, Lawrence Honig, Catherine Monk, Andre Goy, Kar Chow, Samuel Goldlust, George Kaptain, David Siegel, Benjamin Tycko. Allele-specific DNA methylation is increased in cancers and its dense mapping in normal plus neoplastic cells increases the yield of disease-associated regulatory SNPs, *Genome Biol* **21**, 153 (2020). <https://doi.org/10.1186/s13059-020-02059-3>

E. Finally, I was invited by Nature Nanotechnology to write an article about the intellectual property model and its role in entrepreneurship:

1. **Dumont, E. L. P.** Remodelling technology transfer. *Nat. Nanotechnol.* **10**, 184 (2015).

Complete List of Published Work in MyBibliography:

<http://www.ncbi.nlm.nih.gov/sites/myncbi/1dQlhGXs0XT5A/bibliography/48332908/public/?sort=date&direction=ascending>

D. Additional Information: Research Support and/or Scholastic Performance

Ongoing Research Support

NSF Phase II SBIR 1951189 6/1/2020 - 12/31/2022
National Science Foundation
Amount: \$750,000
Development of An Accurate Low Cost Wearable Ultraviolet Dosimeter For The General Population
Role: PI

Completed Research Support

NIH Phase II SBIR Contract HHSN261201700005C 01/20/2017-01/19/2019
SBIR Topic 342 - Direct to Phase II
Amount: \$1,494,124
Validation of Shade a Mobile Technology for Monitoring of Ultraviolet Exposure
Role: PI

NSF Phase I SBIR grant 1746461 01/02/2018-07/31/2018
SBIR Topic 342 - Phase I
Amount: \$225,000
Development of An Accurate Low Cost Wearable Ultraviolet Dosimeter For The General Population
Role: PI

Weill-Cornell Medical College 06/01/2015-06/01/2016
Wearable and connected UV sensor for patients suffering from low UV tolerance.
Amount: \$100,000
Role:co-PI

The Jacobs Technion-Cornell Runway fellowship. 02/01/2014-02/01/2016
The Runway fellowship is an exclusive program hiring accomplished researchers to invent new technologies and commercialize them
Role: PI
Amount: \$320,000