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 YouV Labs, Inc (d/b/a “Shade”), a Cornell-Technion spin-off startup commercializing a UV sensor for health that is both low-cost and accurate. My vision for the company is to supply our technology to consumers through an agreement with a smartwatch or a sunscreen manufacturer. We currently have a R&D agreement with a multinational skincare company and our technology is used by top-tier research hospitals for conducting research on behavioral change (e.g. Northwestern).

The technology developed by my company has been shown to be 10x to 30x more accurate and sensitive than competing technologies. We published our results in a peer-reviewed IEEE journal. With the support of the NIH/NCI, we conducted a randomized clinical trial (our sensor vs the standard of care) and measured a decrease in precancerous lesions ($p=0.8$) and cancerous lesions ($p=0.03$) in the group of patients using a UV-sensing device using our technology paired to an app where they could monitor their UV exposure in real-time.

The company is headquartered in the Center for Discovery and Innovation (CDI) at Hackensack Meridian Health in New Jersey, one of the largest hospital networks in the US. As a junior faculty at CDI, I develop and implement novel statistical methods for analyzing genetic-epigenetic interactions.

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-now	Associate Scientist 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.

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 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, bioRxiv 815605; doi: https://doi.org/10.1101/815605

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

Private funding raised from institutional investors.

1R01HD090180-01 06/01/2018 - 8/31/2022
NIH
Epigenetics of Down syndrome
Role: Associate Scientist. Responsible for developing the bioinformatics pipeline and the associated statistical methods to analyze the data.

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