



Camilo Ayala Garcia

● ABOUT ME

I obtained my Ph.D. degree on the topic of Do-It-Yourself Materials as triggers of change at Politecnico di Milano in 2019. Before this Ph.D. research, I received my Bachelor's degree in Industrial Design from the Los Andes University in Bogotá in 2004. I also obtained my Bachelor's degree in Textile Design from the same university simultaneously. In 2007, I received my Master of Arts in Design degree from Domus Academy (the University of Wales accredited school of design) in Milan, awarded with Distinction.

I began my professional career in Colombia in 2001, where I earned experience in product design, developing several projects for renowned local and international clients. After various years of work as a professional designer, I moved to Germany to attend Hochschule Pforzheim for the MSc. Produktentwicklung (Product development) as a guest student and learn the language. Subsequently, I transferred to Italy to complete my Master's studies. After graduation, I started to share time as a tutor at Domus Academy, working as a product designer for Donegani & Lauda studio and Cammarata Gioielli studio in Milan for some years. I returned to my hometown to become a full-time professor and researcher at my alma mater, where I was entitled Associate Professor in the design department until 2022. Currently, I am a researcher in the Design Friction Lab at the Free University of Bozen-Bolzano, bridging emerging technologies and materialities towards a transitional circularity.

Together with my teaching activities, I devote my research to local materials and product development, with several patents granted as well as different academic contributions published.

● EDUCATION AND TRAINING

01/11/2015 – 22/02/2019 Milano, Italy

PHD IN DESIGN Politecnico di Milano

- *Materials and Design*
- *Evolution of Materials*
- *Self-Production of Materials*

Website <https://www.design.polimi.it/it> | **Field of study** Design | **Level in EQF** EQF level 8 | **Type of credits** ECTS |

Number of credits 180 | **Thesis** The Materials Generation

10/01/2007 – 22/12/2007 Milano, Italy

MASTER OF ARTS IN DESIGN Domus Academy - Prifysgol Cimru University of Wales

- *Product Design*
- *Strategic Design*
- *Design Innovation*

Address Via C. Darwin 20, 20143, Milano, Italy | **Website** <https://www.domusacademy.com> | **Field of study** Design |

Final grade Distinction | **Level in EQF** EQF level 7 | **Type of credits** ECTS | **Number of credits** 90

01/08/2001 – 10/12/2004 Bogotá, Colombia
TEXTILE DESIGN Universidad de los Andes

- *Weaving Design*
- *Knitting Design*
- *Textile Printing-*
- *Weaving, Knitting & Printing Production Processes-*
- *Textile Fibers*

Website <https://arqdis.uniandes.edu.co> | **Field of study** Design | **Level in EQF** EQF level 6 | **Type of credits** CFU |

Number of credits 187

01/08/1999 – 10/12/2004 Bogotá, Colombia
INDUSTRIAL DESIGN Universidad de los Andes

- *Product Design*
- *Ergonomics*
- *Production & Manufacturing Processes*
- *Materials*
- *Aesthetics*
- *Visual Communication*

Website <https://arqdis.uniandes.edu.co> | **Field of study** Design | **Level in EQF** EQF level 6 | **Type of credits** CFU |

Number of credits 187

● WORK EXPERIENCE

15/09/2022 – CURRENT Bolzano, Italy
RESEARCHER & ASSISTANT PROFESSOR FREE UNIVERSITY OF BOZEN-BOLZANO

Within the framework of my responsibilities, I focus on the theory and development of product design. The different courses where I teach are connected with the exploration of shape, understanding of technologies to achieve it, the materials which made it possible, the people, and the environment where the project will be inserted.

01/02/2022 – 30/08/2022 Bogotá, Colombia
ASSOCIATE PROFESSOR UNIVERSIDAD DE LOS ANDES

01/01/2010 – 22/12/2021 Bogotá, Colombia
ASSISTANT PROFESSOR UNIVERSIDAD DE LOS ANDES

05/01/2008 – 20/12/2009 Milano, Italy
SENIOR TUTOR MASTER IN PRODUCT DESIGN DOMUS ACADEMY

- *Principal tutor of the master courses*
- *Tutor assistant on related workshops*

Business or Sector Education | **Department** Product Design | **Website** <https://www.domusacademy.com>

01/02/2005 – CURRENT Bogotá, Colombia
HEAD OF DESIGN DINOMAGROUP-UNDECIM SAS

- Senior Design Consultant

Business or Sector Professional, scientific and technical activities | **Email** camilo.ayala@dinomagroup.com |

Website <https://undecim.com.co/dinoma-home/>

01/09/2008 – 30/06/2009 Lentate sul Seveso, Italy
STRATEGIC DESIGNER FABIO CAMMARATA - CAMMARATA GIOIELLI

Business or Sector Professional, scientific and technical activities | **Website** <https://fabiocammarata.it>

● LANGUAGE SKILLS

First Language: **SPANISH**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	C1	C1	C1
ITALIAN	C1	C1	C1	C1	C1
GERMAN	C1	C1	C1	C1	B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● ADDITIONAL INFORMATION

PUBLICATIONS

[Innocell Bioreactor: An Open-Source Development to Produce Biomaterials for Food and Packaging Based on Fermentation Processes](#)

– 2023

Cohen, N., Sicher, E., Ayala-Garcia, C., Sanchez-Fayos, I. M., Conterno, L., & Ugur Yavuz, S. (2023). Innocell Bioreactor: An Open-Source Development to Produce Biomaterials for Food and Packaging Based on Fermentation Processes. *Fermentation*, 9(10), 915.

[\[Changing\] Ecosystems](#) – 2023

Vezzoli, C., Kohtala, C., Rognoli, V., and Ayala Garcia, C. (2023) [Changing] Ecosystems, in De Sainz Molestina, D., Galluzzo, L., Rizzo, F., Spallazzo, D. (eds.), *IASDR 2023: Life-Changing Design*, 9-13 October, Milan, Italy.

[Prototypes for Speculative Design Research](#) – 2023

Celi, M., Rognoli, V., Ayala-Garcia, C. (2023). Prototypes for Speculative Design Research. In: Ferraris, S.D. (eds) *The Role of Prototypes in Design Research*. SpringerBriefs in Applied Sciences and Technology(). Springer, Cham.

[Boihissaata: a material proposal for the technological democratization of microbial fuel cells in the colombian context](#)

– 2023

Walter, AO., Campuzano Correa, P., Ayala-Garcia, C (2023) *Boihissaata: a material proposal for the technological democratization of microbial fuel cells in the colombian context*. In: *Cumulus Detroit- Design for Adaptation Proceedings (pp.657)*. ISBN: 79-8-218-07901-7

[Kingdom Fungi capabilities as materials for design](#) – 2022

Perez Rodriguez C, Ayala-Garcia C and Rognoli V. Kingdom Fungi capabilities as materials for design. *Materials Open Research* 2023, 2:1

[DIY-Materials approach to design meaningful materials for the sustainability transition](#) – 2022

Rognoli, V., Parisi, S., Pollini, B., Taranto, M., Ayala-Garcia, C. (2022). *DIY-Materials approach to design meaningful materials for the sustainability transition*. In: Builes, A. E., et al. (2022). *Education for Sustainability approaching SDG 4 and target 4.7*.

[Generative Design: Co-Creation Process Between Designer and Computational Thinking](#) – 2022

Ayala-Monje C., & Ayala-García C. (2022) *Generative Design: Co-Creation Process Between Designer and Computational Thinking* ISSN: 2758-0989 – The European Conference on Arts, Design & Education 2022 Official Conference Proceedings

Strengthening the avocado industry through developing diy-materials – 2022

Lozano Cardenas, G. A., & Ayala García, C. (2022). Potenciamiento de la industria del aguacate mediante el desarrollo de materiales-DIY. *Base Diseño e Innovación*, 7(7), 123-144.

DIY Recipes: Ingredients, processes & materials qualities – 2021

Rognoli, V., Ayala-Garcia, C., Pollini, B. (2021). *DIY Recipes: Ingredients, processes & materials qualities*. In: *MaDe: Material Designers, Boosting talents toward circular economies*. pp 27-33 ISBN: 978-84-09-24439-3

Reproponer el cuero desde una perspectiva de diseño sostenible – 2021

Ayala-Garcia, C., & Nieman Janssen, C. J. (2021). Reproponer el cuero desde una perspectiva de diseño sostenible. *Cuadernos Del Centro De Estudios De Diseño Y Comunicación*, (126).

La Investigación-Creación en Diseño: cuatro casos de generación de nuevo conocimiento desde la disciplina

– 2021

Orozco-Alvarez, M., Ayala-Garcia, C., Zuleta Montoya, F., Avila Forero, J.S. (2021). *La Investigación-Creación en Diseño: cuatro casos de generación de nuevo conocimiento desde la disciplina*. In: *Investigación + Creación a través del territorio*. pp 74-105 ISBN 978-958-5123-83-0

Defining the DIY-Materials approach – 2020

Rognoli, V., & Ayala-Garcia, C. (2020). Defining the DIY-Materials approach. *Materials Experience* 2, 227-258.

Materiales-DIY. Un enfoque tecnológico de los materiales para el diseño – 2020

Rognoli, V., & Ayala, C. (2020). Materiales-DIY. Un enfoque tecnológico de los materiales para el diseño. *A3manos*, 7(13), 26–31.

Émotions à la carte: Exploring emotional paradoxes through edible DIY-Materials for product design –

2020

de Francisco Vela Santiago, Ayala-Garcia Camilo. (2020) *Émotions à la carte: Exploring emotional paradoxes through edible DIY-Materials for product design*. *International Journal of Food Design*, 4 (2), 139

The Materials Generation – 2019

Ayala-Garcia, C., Rognoli, V. (2019). *The Materials Generation*. In L. Rampino, I. Mariani, (Eds). *Advancements in Design Research*. Milano. Franco Angeli. ISBN: 978-88-917-7229-9

Material activism. New hybrid scenarios between design and technology – 2019

Rognoli, V., & Ayala Garcia, C. (2019). Material activism. New hybrid scenarios between design and technology. *Cuadernos Del Centro De Estudios De Diseño Y Comunicación*, (70), 105 a 115.

Mapping ICS Materials: Interactive, Connected, and Smart Materials – 2018

Parisi, S. *et al.* (2018). *Mapping ICS Materials: Interactive, Connected, and Smart Materials*. In: Karwowski, W., Ahram, T. (eds) *Intelligent Human Systems Integration. IHSI 2018. Advances in Intelligent Systems and Computing*, vol 722. Springer, Cham.

Materia emocional. Los materiales en nuestra relación emocional con los objetos – 2018

Rognoli, V., & Ayala García, C. (2018). *Materia emocional. Los materiales en nuestra relación emocional con los objetos*. *RChD: Creación Y Pensamiento*, 3(4).

Educating designers through Materials Club – 2018

Zhou, Z., Rognoli, V., Ayala-Garcia, C. (2018). *Educating designers through Materials Club*. In: *Proceedings of the 4th International Conference on Higher Education Advances (HEAd'18)*. Valencia, Spain, June 2018 - p. 1367- 1375. ISBN: 978-84-9048-690-0

The New Aesthetic of DIY-Materials – 2017

Camilo Ayala-Garcia & Valentina Rognoli (2017) *The New Aesthetic of DIY-Materials*, *The Design Journal*, 20:sup1,S375-S389

Five Kingdoms of DIY Materials for Design – 2017

Ayala-Garcia, C., Rognoli, V., Karana, E. (2017). *Five Kingdoms of DIY Materials for Design*. In *Alive. Active. Adaptive: Proceedings of International Conference on Experiential Knowledge and Emerging Materials (EKSIG 2017)*, June 19-20, Delft, the Netherlands, pp. 222-234.

DIY-Materials as enabling agents of innovative social practices and future social business – 2017

DIY-Materials as enabling agents of innovative social practices and future social business Rognoli, V., Ayala-Garcia, C., Bengo, I. (2017) *DIY-Materials as enabling agents of innovative social practices and future social business*. In: *Proceedings of International Congress of Design FORMA 2017, Cuba*.

Designing materials experiences through passing of time – Material driven design method applied to mycelium-based composites

– 2016

Parisi, S., Rognoli, V., Ayala-Garcia, C. (2016). *Designing materials experiences through passing of time – Material driven design method applied to mycelium-based composites*. In: *Celebration & Contemplation. Proceedings of the 10th International Conference on Design and Emotion 2016* (pp. 239-255). ISBN/EAN: 978-94-6186-725-4

The emotional value of Do-It-Yourself materials – 2016

Rognoli, V., Ayala-Garcia, C., Parisi, S. (2016). *The emotional value of Do-It-Yourself materials*. In: *Celebration & Contemplation. Proceedings of the 10th International Conference on Design and Emotion 2016* (pp. 633-641). ISBN/EAN: 978-94-6186-725-4

The Basis of Processes - Experimenting with Food to Re-Shape the Industry Language – 2015

Ayala-Garcia, C (2015) *The Basis of Processes - Experimenting with Food to Re-Shape the Industry Language*. In: *Cumulus Milan-The Virtuous Circle Proceedings* (pp.84) .ISBN: 978-88-386-7485-3

The material experiences as DIY-Materials: self production of wool filled starch based composite (NeWool)

– 2015

Rognoli, V., Ayala-Garcia, C., Parisi, S. (2015). *The material experiences as DIY-Materials: self production of wool filled starch based composite (NeWool)* In: *Making Futures Journal Vol IV*, Plymouth College of Art. ISSN: 2042-1664

Estrategias para mejorar las prácticas de la enseñanza y el aprendizaje de los materiales y los procesos para el diseño de productos en colombia

– 2014

Ayala, C. Patiño, L. (2014) *Estrategias para mejorar las prácticas de la enseñanza y el aprendizaje de los materiales y los procesos para el diseño de productos en colombia*. In: *Revista MasD N°14, Vol. 8* ISSN: 2027-095X

Experimenting With Materials – A Source For Designers To Give Meaning To New Applications – 2014

Ayala, C. (2014). *Experimenting With Materials – A Source For Designers To Give Meaning To New Applications*. In: Salamanca, J. (Ed.), Desmet, P., Burbano, A. (Ed.), Ludden, G. D. S. (Ed.), & Maya, J. (Ed.) (2014). *The Colors of Care: Design & Emotion 2014, 9th International Conference, Colombia*. Universidad de los Andes. (pp. 408-417). ISBN: 978-958-774-070-7

Los materiales como medio para estimular procesos de creación – 2011

Ayala, C., Quijano, A., & Ruge, C. M. (2011). *Los materiales como medio para estimular procesos de creación*. *Dearq*, 1(8), 44–53.

CONFERENCES AND SEMINARS

09/10/2023 – 13/10/2023 – Milan, Italy

IASDR 2023 Life-Changing Design Changing Ecosystems

Track Chairs

Camilo Ayala García, Libera Università di Bolzano

Cindy Kohtala, Umeå Institute of Design, Umeå University

Valentina Rognoli, Politecnico di Milano

Carlo Vezzoli, Politecnico di Milano

- Design for sustainability
- Circular Design
- Materials for transition

Link <https://www.iasdr2023.polimi.it/theme-and-tracks/>

01/11/2022 – 04/11/2022 – Detroit, USA

Cumulus Detroit. Design for Adaptation Walter, AO., Campuzano Correa, P., Ayala-Garcia, C (2023) *Boihissaata: a material proposal for the technological democratization of microbial fuel cells in the colombian context*. In: *Cumulus Detroit- Design for Adaptation Proceedings* (pp. 657). ISBN: 79-8-218-07901-7

Link <https://cumulusdetroit2022.org/>

07/07/2022 – 10/07/2022 – Porto, Portugal

ECADE 2022. The European Conference on Arts, Design & Education Ayala-Monje C., Ayala-García C. (2022) *Generative Design: Co-Creation Process Between Designer and Computational Thinking* ISSN: 2758-0989 – The European Conference on Arts, Design & Education 2022 Official Conference Proceedings <https://doi.org/10.22492/issn.2758-0989.2022.9>

Link <https://ecade.iafor.org>

20/06/2018 – 22/06/2018 – Valencia, Spain

HEAd'18. International Conference on Higher Education Advances Zhou, Z., Rognoli, V., Ayala-Garcia, C. (2018). *Educating designers through Materials Club*. In: *Proceedings of the 4th International Conference on Higher Education Advances (HEAd'18)*. Valencia, Spain, June 2018 - ISBN:978-84-9048-690-0

Link <http://archive.headconf.org/head18/index.html>

07/01/2018 – 09/01/2018 – Dubai, UAE

IHSI 2018. International Conference on Intelligent Human Systems Integration Parisi, S., Spallazzo, D., Ferraro, V., Ferrara, M., Ceconello, M., Ayala-Garcia, C., Rognoli, V. (2018). *Mapping ICS Materials: Interactive, Connected, and Smart Materials*. In: Karwowski, Waldemar, Ahram, Tareq (Eds.). *Intelligent Human Systems Integration, Proceedings of the 1st International Conference on Intelligent Human Systems Integration (IHSI 2018): Integrating People and Intelligent Systems, January 7-9, 2018, Dubai, United Arab Emirates, Volume 722 of the Advances in Intelligent Systems and Computing series, ISBN 978-3-319-73888-8. pp.1-7 DOI: 10.1007/978-3-319-73888-8_114*

Link <https://link.springer.com/book/10.1007/978-3-319-73888-8>

19/06/2017 – 20/06/2017 – Rotterdam, The Netherlands

EKSIG 2017. International Conference on Experiential Knowledge and Emerging Materials Ayala-Garcia, C., Rognol, V., Karana, E. (2017). *Five Kingdoms of DIY Materials for Design*. In *Alive. Active. Adaptive: Proceedings of International Conference on Experiential Knowledge and Emerging Materials (EKSIG 2017)*, June 19-20, Delft, the Netherlands, pp. 222-234.

Link <https://eksig.org/EKSIG2017.html>

07/06/2017 – 09/06/2017 – La habana, Cuba

FORMA 2017. International Congress of Design Rognoli, V., Ayala-Garcia, C., Bengo, I. (2017) *DIY-Materials as enabling agents of innovative social practices and future social business*. In: *Proceedings of International Congress of Design FORMA 2017, Cuba*.

Link <https://disur.edu.ar/encuentro-internacional-de-diseno-forma-2017-la-habana-cuba/>

12/04/2017 – 14/04/2017 – Rome, Italy

EAD: Design for the Next. 12th European Academy of Design Conference Ayala-Garcia, C., Rognoli V. (2017). *The new materials aesthetics. DIY Materials as triggers of new sensorial experiences*.

Link <https://eadresearch.org/conferences/>

06/04/2017 – 07/04/2017 – Cambridge, UK

9th International Materials Education Symposium. University of Cambridge Dr. Valentina Rognoli and Camilo Ayala Garcia, Politecnico di Milano, Italy
Getting Inspired by Materials - Materials Selection from a Designer's Perspective

Camilo Ayala Garcia and Dr. Valentina Rognoli, Politecnico di Milano, Italy
DIY materials approach for materials education in product design

Link <https://www.materialseducation.com/2017/cambridge/program.htm>

26/09/2016 – 29/09/2016 – Amsterdam, The Netherlands

D&E Celebration & Contemplation. 10th International Conference on Design and Emotion Parisi, S., Rognoli, V., Ayala-Garcia, C. (2016). *Designing materials experiences through passing of time – Material driven design*

method applied to mycelium-based composites. In: Celebration & Contemplation. Proceedings of the 10th International Conference on Design and Emotion 2016 (pp. 239-255). ISBN/EAN: 978-94-6186-725-4

Rognoli, V., Ayala-Garcia, C., Parisi, S. (2016). *The emotional value of Do-It-Yourself materials. In: Celebration & Contemplation. Proceedings of the 10th International Conference on Design and Emotion 2016 (pp. 633-641). ISBN/EAN: 978-94-6186-725-4*

03/06/2015 – 07/06/2015 – Milan, Italy

Cumulus Milan. The Virtuous Circle Ayala-Garcia, C (2015) *The Basis of Processes - Experimenting with Food to Re-Shape the Industry Language. In: Cumulus Milan-The Virtuous Circle Proceedings (pp.84).ISBN: 978-88-386-7485-3*

06/10/2014 – 10/10/2014 – Bogotá, Colombia

D&E The Colors of Care. 9th International Conference on Design and Emotion Ayala, C. (2014). *Experimenting With Materials – A Source For Designers To Give Meaning To New Applications. In: The colors of care: Proceedings of the 9th International Conference on Design and Emotion 2014 (pp. 408-417). ISBN: 978-958-774-070-7*

04/04/2013 – 05/04/2013 – Cambridge, UK

5th International Materials Education Symposium. University of Cambridge Prof. Camilo Ayala – Design, Universidad de Los Andes, Colombia
Hybrid Methodologies to Improve Materials Education for Design Students in a Local Context

Link <https://www.materialseducation.com/2013/cambridge/program.htm>

PATENTS

Sistema Modular de Cerramiento Compuesto con Uniones Integradas.

Utility Patent: Sistema Modular de Cerramiento Compuesto con Uniones Integradas.

Deposited: 25/07/2017

File: NC2017/0007359 - Sector: Architecture

Status: Granted

Link <https://patentscope.wipo.int/search/de/detail.jsf?docId=CO323464505>

Sistema Modular de Cubierta Autoportante Multifuncional

Utility Patent: Sistema Modular de Cubierta Autoportante Multifuncional.

Deposited: 20/06/2017

File: NC2017/0006075 - Sector: Architecture

Status: Granted

Link <https://patentscope.wipo.int/search/de/detail.jsf?docId=CO323464497>

Botas Antiminas De Horma Especial

Botas Antiminas De Horma Especial.

Deposited: 28/12/2012

File: 12235686 - Sector: Mechanical Engineering

Status: Granted

Link <https://patentscope.wipo.int/search/de/detail.jsf?docId=CO130599243>

Sistema Modular Flexible Multi Talla Para Casco De Protección Balística

Utility Patent: Sistema Modular Flexible Multi Talla Para Casco De Protección Balística.

Deposited: 04/03/2013

Patent Number: 13043301 - Sector: Mechanical Engineering

Status: Granted

Link <https://patentscope.wipo.int/search/de/detail.jsf?docId=CO130599316>

Hebilla Para chaleco Antibalas

Utility Patent: Hebilla Para Chaleco Antibalas.

Deposited: 26/04/2011

Patent Number: 11050690 - Sector: Mechanical Engineering

Status: Granted

Placa De Protección Balística Para chalecos Antibalas Personales En Material Compuesto

Utility Patent: Placa De Protección Balística Para Chalecos Antibalas Personales En Material Compuesto.

Deposited: 26/04/2011

Patent Number: 11050701 - Sector: Chemical Engineering

Status: Granted

Chaleco Balístico Ajustable Portamuniciones

Utility Patent: Chaleco Balístico Ajustable Portamuniciones.

Deposited: 28/12/2012

Patent Number: 12235979 - Sector: Mechanical Engineering

Status: Granted

SKILLS

Technical skills and competences

Capable of representing graphically with fast sketches in perspective, ideas of projects; also capable of modeling and working with wood, textiles, metals, polymers & ceramics, with their corresponding transformation machines; fair knowledge about manufacturing processes involved.

Social skills and competences

Team spirit, good communication skills, good ability to adapt to multicultural environments, gained through studying & living abroad.

Organisational skills and competences

Creative, with fast response capability, able to multi-task and show results with a high efficiency in the complete design process.

Computer skills and competences

CAD Software

- McNeel-Rhinoceros™ + Plug-Ins (Advanced Level)
- Autodesk™ - Alias Studio™ (Advanced Level)
- Autodesk™ - 3D StudioMax™ (Intermediate Level)
- Autodesk™ - Fusion 360™ (Intermediate Level)

Graphic Software

- Autodesk™ - Sketchbook Pro™ (Advanced Level)
- Adobe™ - Illustrator™ (Advanced Level)
- Adobe™ - Photoshop™ (Intermediate Level)
- Adobe™ - InDesign™ (Intermediate Level)

Other Software

- Ansys Granta™ Edupack™ (Advanced Level)
 - Mindjet™ - Mind Manager™
 - Microsoft Office™ tools (Word™, excel™, Power Point™)
-