

# LAURA CORTÉS-RICO

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## RESEARCH INTERESTS

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**Human-Centered Design and Engineering:** Social Computing, Digital Technology and Social Justice, Participatory Design, Research through Design; **Human Computer-Interaction:** Embodied, Tangible, Textile, Physical Interactions.

## EDUCATION

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**MSc in Systems and Computing Engineering [Cum Laude]** GPA: 4.65/5.00

*Pontificia Universidad Javeriana, Bogotá-COL*

*Oct. 2015*

Dissertation Project: ApTUI-Framework for the participatory design of tangible interactions  
[Honor Mention]

**BSc in Electronics Engineer**

GPA: 4.5/5.0

*Universidad Nacional de Colombia, Bogotá-COL*

*Jul. 2010*

Final Project: Design, implementation and evaluation of a multipurpose, open-source, development platform with an educational focus.

## TEACHING EXPERIENCE

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**Assistant Professor**

*Universidad Militar Nueva Granada - Cajicá-COL*

*2017 - Present*

Courses Taught at Multimedia Engineering undergraduate program (Average Student Evaluations of Teaching 98/100):

Physical Computing (2021-2022)

Artificial Intelligence (2017-2019, 2022)

Digital Signal Processing (2017-2019)

Computer Programming (2017)

Computer Graphics Introduction (2020)

Internet of Things (2019-2020)

Interactive Objects and Environments (2020)

Multimedia Engineering Academic Director (*Jul. 2021 - Present*)

Coordinating Multimedia Engineering undergraduate program, with 459 active students and 23 professors.

Research Center Academic Director (*Jan. 2020 - Jul. 2021*)

Supported the administrative and academic execution of research and innovation projects at the Faculty of Engineering *Campus Cajicá*. Achieved the recognition and categorization of 3 new research groups by the Ministry of Science, Technology and Innovation of Colombia.

**Part-time Lecturer**

*Politécnico Grancolombiano - Bogotá-COL*

*2012 - 2021*

Pattern Recognition - MSc in Systems Engineering - (2016, 2018, 2019, 2021)  
Computers Architecture - BSc in Systems Engineering -(2014-2017)  
Electrical Circuits - BSc in Telecommunications Engineering -(2014-2016)  
Logical Circuits - BSc in Telecommunications Engineering -(2012-2015)

*Universidad Distrital Francisco José de Caldas - Bogotá-COL* 2016 - 2017

Technological Systems and Technical Processes - MEd in Technological Education -

*Pontificia Universidad Javeriana - Bogotá-COL* 2012 - 2017

Algorithmic Thinking - BSc programs at the Engineering Faculty -

## PUBLICATIONS

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### *Journal*

- **Cortés-Rico, L.**, & Pérez-Bustos, T. (2021). Objeciones textiles: Interferencias y activismo textil-digital. *Cadernos Pagú*, 59, 1–34.  
<http://dx.doi.org/10.1590/18094449202000590007>  
[Textile Objections: Digital-Textile Interferences and Activism]
- **Cortés-Rico, L.**, & Piedrahita-Solórzano, G. (2019). Interacciones basadas en gestos: Revisión crítica. *TecnoLógicas*, 22, 119–132.  
<https://doi.org/10.22430/22565337.1512>  
[Gestural Based Interactions: Critical Review]
- Ortíz-Acosta, M., **Cortés-Rico, L.**, & Pérez-Bustos, T. (2019). Making sense of reconciliation through digital corporeal narratology. *Revista Innovación y Ciencia*, XXVI(2), Ciencia, paz e inclusión social.  
[https://innovacionyciencia.com/articulos\\_cientificos/ciencia-paz-e-inclusion-social](https://innovacionyciencia.com/articulos_cientificos/ciencia-paz-e-inclusion-social).
- González Rivera, R. A., **Cortés-Rico, L.**, Pérez-Bustos, T., & Franco-Avellaneda, M. (2016). Embroidering engineering: A case of embodied learning and design of a tangible user interface. *Engineering Studies*, 8(1), 48–65.  
<https://doi.org/10.1080/19378629.2016.1170839>

### *Magazine Articles*

- **Cortés-Rico, L.** (2021). Hand in hand: A situated reflection about knowledge mobilization between textile and digital. *Interactions*, 28(2), 42–47.  
<https://doi.org/10.1145/3449784>
- **Cortés-Rico, L.** (2020). Hacia una sociedad superinteligente. *Revista SISTEMAS*, 154, 8–12.  
<https://doi.org/10.29236/sistemas.n154a2>  
[Towards a superintelligent society]
- **Cortés-Rico, L.**, & Pérez-Bustos, T. (2019). The art of fieldworking together. *Interactions*, 26(6), 80–82.  
<https://doi.org/10.1145/3365534>

### *Conference Papers*

- Strohmayr, A., **Cortés-Rico, L.**, Pérez-Bustos, T., Psarra, A., Rosner, D., Subasi, Ö., Posch, I., Nabil, S., & Sherman, J. (2022). Justice-oriented Participatory Electronic Textile Making: Fostering shared spaces of knowledge dialogues through the process of making, un-making, and re-making justice-oriented participatory praxis. *Proceedings of the Participatory Design Conference 2022 - Volume 2*, 259–262.  
<https://doi.org/10.1145/3537797.3537880>

- Latorre-Rojas, C. J., Rozo-Torres, A., **Cortés-Rico, L.**, & Sarmiento, W. J. (2022). Heart-In-Hand, swapping point of view for immersive navigation in medical cardiology. 2022 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), 908–909. <https://doi.org/10.1109/VRW55335.2022.00305>
- **Cortes-Rico, L.**, & Rodriguez Almanza, J. (2021). SensorMov, mobile devices as/for tangible user interfaces. X Latin American Conference on Human Computer Interaction, 1–3. <https://doi.org/10.1145/3488392.3488409>
- Cabezas, H., Casanova, N., **Cortés-Rico, L.**, & Sarmiento, W. J. (2021). Homemade XR: Enriching conversations and shortening social distancing. 2021 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), 679–680. <https://doi.org/10.1109/VRW52623.2021.00222>
- Melo Betancurt, M. J., Rincón-Saavedra, Y., **Cortés-Rico, L.**, & Rozo-Torres, A. (2021). Soft2Soft: Toolkit for the Digital Recognition of Textile Gestures. In C. Stephanidis, M. Antona, & S. Ntoa (Eds.), HCI International 2021—Posters (pp. 30–36). Springer International Publishing. [https://doi.org/10.1007/978-3-030-78642-7\\_5](https://doi.org/10.1007/978-3-030-78642-7_5)
- **Cortés Rico, L.**, Patarroyo, J., Pérez-Bustos, T., & Sánchez-Aldana, E. (2020). How can digital textiles embody testimonies of reconciliation? Proceedings of the 16th Participatory Design Conference 2020 - Participation(s) Otherwise - Volume 2, 109–113. <https://doi.org/10.1145/3384772.3385137>
- Casanova, N., Cabezas, H., Céspedes, A., Araque, D., Ospina, D., Garzón-Morales, E., **Cortés-Rico, L.**, & Sarmiento, W. J. (2020). Touch Live. An immersive experience for acting in others' bodies. 2020 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), 507–508. <https://doi.org/10.1109/VRW50115.2020.00105>
- Rincón-Saavedra, Y., Garzón-Morales, E., & **Cortés-Rico, L.** (2019). Learning through designing, designing through doing. Proceedings of the IX Latin American Conference on Human Computer Interaction, 1–6. <https://doi.org/10.1145/3358961.3358983>
- Patarroyo, J., **Cortés-Rico, L.**, Sánchez-Aldana, E., Pérez-Bustos, T., & Rincón, N. (2019). Testimonial digital textiles: Material metaphors to think with care about reconciliation with four memory sewing circles in Colombia. NORDES 2019, Finlandia. <https://archive.nordes.org/index.php/n13/article/view/487>
- **Cortés-Rico, L.**, & Flórez-Valencia, L. (2015). Notation proposal for modeling tangible user interfaces. 2015 10th Computing Colombian Conference (10CCC), 200–205. <https://doi.org/10.1109/ColumbianCC.2015.7333432>
- **Cortés-Rico, L.**, & Piedrahita-Solórzano, G. (2015). Participatory design in practice: The case of an embroidered technology. 9298. [https://doi.org/10.1007/978-3-319-22698-9\\_35](https://doi.org/10.1007/978-3-319-22698-9_35)

### *Book Chapters*

- **Cortés-Rico, L.**, & Becerra, L. (2012). Educación en tecnología con robótica cooperativa. En Robótica Cooperativa. Experiencias de Sistemas Multiagente [SMA] (pp. 185-206) - ed. Enrique González-Guerrero. Pontificia Universidad Javeriana. [Technology education with cooperative robotics. In Cooperative Robotics. Experiences of Multi-agent Systems]

### **Google Scholar Profile:**

<https://scholar.google.es/citations?user=EyHRKZEAAAAJ&hl>

## WORK EXPERIENCE

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**CTO & Co-Founder at *Picolab - Bogotá-COL*** *2012 - Present*

Engineering interactive experiences for science museums, experiential marketing, non-formal educational contexts, among others.

Leading proposals and projects in the area of information and communication technologies.

Developing mobile, web and standalone applications.

**External research consultant at *Mending the New - Bogotá-COL*** *2019-2020*

Codesigned the web application *Archivo Digital de Textiles Testimoniales*.

Co-wrote academic papers for the conferences CLIHC 2019, NORDES 2019 and PDC 2020.

Participated in participatory design workshops and research through design activities, in the conception of “Time(s) to Listen”

**Research Assistant at *Bordando el Conocimiento Propio - Bogotá-COL*** *2014*

Built CalaITU, a digital-textile platform to design embroidery patterns.

Co-wrote academic papers for the journal “Engineering Studies”, and the conference Interact 2015.

Interviewed stakeholders and systematized fieldwork information to propose technical requirements to CalaITU.

**Digital Coordinator at *e-motion Digital - Bogotá-COL*** *2012 - 2013*

Organized digital and experiential marketing projects.

Directed the programming of the video game “Kuika”.

**Developer & Tutor at *Maloka - Bogotá-COL*** *2008 - 2012*

Designed and developed hardware and software for the interactive experiences in the museum.

Projected, instructed and systematized activities for the social appropriation of technology with children and young, through Robotics Club.

## GRANTS AND AWARDS

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### Scholarships and academic awards

- *2022*. Fulbright-MinCiencias Scholarship, Doctoral Studies 2023
- *2015*. Cum Laude Master’s degree.
- *2014-2015*. Juan Pablo Gutiérrez Cáceres Scholarship for master students.

### Grants

- *2021-2022*. CI. “Definition of a model to support medical communication in the surgical planning of discharge cases complexity, supported by collaboration tools and 3D immersion”. Code IMP-ING-3407 Funded by *Universidad Militar Nueva Granada* and *Clínica Shaio* - \$88.837.
- *2021*. CI. “Virtual assistants as a strategy to mitigate mental health risks of the student population in the post- pandemic, case study: Multimedia Engineering UMNG”. Code INV-ING-3498 Funded by *Universidad Militar Nueva Granada* - \$24.460.
- *2020*. PI “Digital repertoires: computational representations of textile practices and processes around conflict and peace; case study: Sonsón, Antioquia”, Code INV-ING-3192 Funded by *Universidad Militar Nueva Granada* - \$35.300.

- 2020. CI “Wearables as a channel in affective communication, a step towards emotional telepresence”, Code INV-ING-3191 Funded by *Universidad Militar Nueva Granada* - \$38.900.
- 2019-2020. CI “Nanoscale functionalized fine bubble diffusers: Study of their useful life and oxygen transfer in activated sludge processes”, Code IMP-ING-2930 Funded by *Universidad Militar Nueva Granada* - \$162.740.
- 2019. PI “Knowledge dialogue in the creation of crafted interfaces for the interaction with mobile devices”, Code INV-ING-2981 Funded by *Universidad Militar Nueva Granada* - \$39.590.
- 2015-2016. Technical Director - Picolab. “GPStories, Gamification in museums”, Code 6155-680-47725. Funded by COLCIENCIAS and MinTIC, for the call 680-2014 - \$69.800.

#### Other awards

- 2020. Honor Mention “**Artful Integrators Award - Participatory Design Conference 2020**” with the project “Mending the New: A Framework for Reconciliation Through Testimonial Digital Textiles in the Transition to Post-Conflict Rural Colombia.”
- 2012. First place “*Premios Incluir*” in the category “Software and Applications”, from the Foundation *Saldarriaga Concha*, *MinTIC* and *Colnodo*. Proposal “*Audiocity*. An audio-game for people in the situation of visual disability.” Award: \$5.300

#### OUTREACH ACTIVITIES

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- 2022 Academic Event at Multimedia Engineering. *Imaginatio XIV*. Co-organizer. Cajicá, COL. November 11, 2022.
- 2020 Talk at Festival Real Mix IDARTES *Realidades mixtas más allá de la luz, inmersión en múltiples sentidos*. Virtual Talk. November 30, 2020.  
[Mixed realities beyond light, immersion in multiple senses ]
- 2019 Speculative Design Space - *La Minga Digital*, within the project “*Mending the New*”. Co-organizer. Bogotá, COL. March 26-April 01, 2019; Nottingham, UK. June 06-10, 2019.
- 2016 Hackathon *Costuras Digitales*, within the project “*Costurero Viajero*”. Co-organizer. Bogotá, COL. October 22, 2016.  
[Hackathon “Digital Stitches”]

#### ADDED QUALIFICATIONS

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- Certificate **English** TOELF 94 - (R 25, L 24, S 24, W 21) Oct 2022. IELTS 7.0 - (R 8.0, L 7.0, S 6.5, W 6.0) Dec 2021.
- **Italian**. Low-Intermediate level.
- **Software**: PROGRAMMING LANGUAGES Java, C++, C#, JavaScript, Python, Matlab, LabVIEW, Basic. DESIGN SOFTWARE: Photoshop, Illustrator. OTHERS:  $\text{\LaTeX}$ , Proteus, HTML5, CSS, Unity3D.

#### EXTRACURRICULAR & VOLUNTEER

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Co-founder of: *Artesanal Tecnológica*. Member of *Amatas Huarmis*.

Volunteer at Science Clubs International in the evaluation committee (2022). Volunteer at “*Chicas STEAM*” as a mentor (2021). Volunteer at Science Clubs Colombia as a tutor (2017).

**Crafting and sports** Embroidery and crochet. Rock climber novice. PADI Diver - Advanced Open Water Diver.