

VALERIA MARIN

Biomedical Engineer (BS)

Product Development Engineering (MS)

(US Citizen)

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ABOUT

Experience in the design of custom devices for reconstructive surgery, digital fabrication techniques, and implantable biomaterials. Research and implementation of low-cost manufacturing processes for implants in PEEK and PMMA for hard tissue replacement.

Experience in innovation and systems acceleration in technology and engineering departments. Certified in innovation by the "Global Innovation Management Institute" and the "IXL-Center" Institute of Boston.

SKILLS

Personal

Autonomy, Practicality, Creativity, Ingenuity, Positivism, Perception, Teamwork, Empathy, Capacity for synergy, Dynamism, Leadership, Adaptability, Agility of response.

Software

CAD: Solidworks, Fusion360, Meshmixer. **Medical Implants:** Rhino3dMedical (Rhinoceros 7), Materialise - Medical Suite. **Programming:** Matlab
Material Selection: Granta EDUPACK. 2D-Design, DXF: Inkscape, 123d-make. **Biomechanics:** Motive - Optitrack. **Dental Applications:** NemoFAB / NemoCAST, 3Shape - Appliance Designer (3D Oral Scanning), BluSkyBio (Dental).

Strategic.

Product design and development, rapid prototyping, innovation in business models, selection of materials and processes, 3d surgical planning, clinical trials, demonstrations of specialized commercial products.


Languages: English, Spanish (mother tongue).

WORK EXPERIENCE (LAST 5)

HUMANBX S.A.S STARTUP - CALI, COLOMBIA

CO-FOUNDER - Development Engineer - Technical Dir.

February 2020 - Actual | www.humanbx.com

- Developer of customized 3d guided surgery and dentistry products and associated devices. 
- Create techniques. Development of biomedical 3d visualization techniques.
- lead the department of innovation and technology of biomedical solutions.
- Marketing Strategies, technical demonstrations.
- Research on facial asymmetries and periodontal problems.

UNIVERSIDAD DEL VALLE - CALI, COLOMBIA

PROFESSOR | DIGITAL DENTISTRY

Graduate School of Dentistry | August 2019 - Present 

- 3d printing, 3d scanning, 3d modeling for dentistry students.

UNIVERSIDAD JAVERIANA - CALI, COLOMBIA

SIMULATION ENGINEER

PROFESSOR - BIOCHEMISTRY & INNOVATION IN HEALTH

Department of health sciences | Jul 2015 - Feb 2016

(Simulation) | (Professor) August 2015 - August 2019

- Pre-medical students.
- Lectures (Courses): Biochemistry and Innovation in health.
- Create strategies for the visualization and use of Simulated Hospital services.
- Simulations and creation of scenarios for situations in medicine.

FEYA - CALI, COLOMBIA

PRODUCT DEVELOPMENT ENGINEERING COORDINATOR



Aug 2019 - Feb 2020 | www.rpfeya.com

- Co-Creator of the BIONYK line of implant solutions and surgery. (Advice and accompaniment to all the dependencies of the company).
- Accompaniment and advice to neurosurgeons, maxillofacial surgeons, thoracic surgeons, plastic surgeons, and otolaryngologists.
- Implant design and virtual surgical planning through CAD / CAM / CAE technology.
- Support for the development of the production of implants for manufacturing in PEEK.

CONALMEDICAS - CALI, COLOMBIA

BIOMEDICAL ENGINEER PRODUCT DEVELOPER

May 2016 - Aug 2019 | www.conalmedicas.com

- Co-Creator and coordinator of the 'FIXOSS' personalized implant line. 
- Responsible for the intellectual and industrial property processes of the company.
- Implant design and virtual surgical planning through CAD / CAM / CAE technology.
- Product demonstrations.
- Assembly and acceleration of the Innovation and development unit of the company.
- Creation of PMMA process for custom implants.
- Creation of an invention patent for sternum replacement prosthesis. 

EDUCATION

Universidad Autónoma de Occidente | Cali, Colombia
Master in Product Development Engineering
Enero 2020 - Dec 2021 (In Progress).



Universidad Autónoma de Occidente | Cali, Colombia
Biomedical Engineering | 2009 - 2014.

Rochester Institute of Technology | Rochester, NY
Exchange student Product Development (MS)
Aug 2021 - Dec 2021 (In Progress).

International Federation of Red Cross and Red Crescent
(Online) Switzerland - **Future Fellows 2021**
May 2020 - Nov 2021 (In Progress).
Leadership and innovation strategies



SEMINARS AND TRAININGS: (LAST)

- **Tissue banks and bone substitutes.**
April 2021 | Escuela de Ingeniería de Antioquia EIA, Tissue Bank. Colombia
- **Biomedical Visualisation.**
April 2021 | Glassgow University, UK.
- **GrantaEdupack ANSYS - Processes and materials selection.**
Jul - Dic/2020 Cali, Colombia | Universidad autónoma de Occidente
- **3d orthognathic surgery in orthodontics and maxillofacial surgery.**
Oct/2019 | Bogotá, Colombia | De: « Universidad el Bosque »
- **International workshop on 3D printing and regenerative medicine.**
May/2019 | Cali, Colombia De: « Universidad del Valle Cali » & « REGEMAT »
- **Business round for investment in medical technologies.**
Nov/2018 | Bogotá, Colombia | De: «SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO | CÁMARA DE COMERCIO DE BOGOTÁ», Modality: Pitcher
- **Commercialization of Patents and Intellectual Property.**
Oct/2018 | Bogotá, Colombia - De: «SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO | CÁMARA DE COMERCIO DE BOGOTÁ», Modality: Assistant.
- **Business Model Innovation.**
Oct/2017 | Boston, Colombia (Massachusetts, USA). De «IXL CENTER-HARVARD-M.I.T»,
www.epicexecutiveeducation.com | Modality: Course Scholarship
- **Innovation systems.**
Feb-Sept/2017 | Cali, Colombia. «CÁMARA DE COMERCIO DE CALI | COLCIENCIAS».
www.colciencias.gov.co/innovacion/empresarial/pactos/sistemas | Modalidad: Partial Scholarship for Business Group.

RECOGNITION

- Sept/2020: International Climate Change Summit. **Project Speaker.** International Federation of Red Cross and Red Crescent Societies (IFRC).
- Mar/2020: **Youth Delegate** Norwegian Red Cross. International Delegate, SDG 2020 Strategy.
- Oct/2017: Colombian Red Cross - Voluntary work award and recognition for 13 years.
Humanitarian Award. 13 years of recognition of the voluntary work carried out in international humanitarian law in vulnerable communities.
- Aug/2017: Cali Chamber of Commerce - IXL Center.
Innovation award. The first line of development of surgical implants in the region. (project leader). Competition with 72 large, medium, and small companies from Valle del Cauca, Colombia.
- Aug/2017: Colciencias. CONALMEDICAS
Innovation Award. Recognition for 23,000,000 million pesos (7,768.92 USD) to finance research and development activities.

PUBLICATIONS Y PATENTS

- Book: "Manual de gestión del mantenimiento del equipo biomédico" 2016.
(Manual of maintenance management for biomedical equipment.)
UNIVERSIDAD AUTÓNOMA DE OCCIDENTE. *Rol: Contributions to the edition of the book.*
- Patent of:  "Prosthesis device for reconstruction of sternum, ribs, and clavicles". 2017
Invention US20200315675A1.
Rol: Inventor.
- Publications  Fernández-Trujillo, L., Sangiovanni, S., Morales, E.I. et al. **Sternal cavernous hemangioma and reconstruction of the anterior chest wall: a case report.** BMC Surg 20, 288 (2020).
<https://doi.org/10.1186/s12893-020-00961-y>
- Web: Clinical case. **SURGICAL RECONSTRUCTION OF MANUBRIUM STERNUM THROUGH CUSTOMIZED PROSTHESIS.** <https://www.materialise.com/es/cases/reconstruccion-quirurgica-de-manubrio-esternal-mediante-protesis-personalizada>
- Copyright: **"Mobile application that optimizes the diagnosis time of head-brain trauma with glasgow scale protocol"**. 2011 Book-Tomo-Partida: 13-29-316 interior ministry, National Copyright directorate.

Valeria Marin Montealegre **Biomedical Engineer.**

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3D Portfolio: <https://www.behance.net/valeriamarinm>

