CURRICULUM VITAE

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I. EDUCATION, EXPERIENCE AND AWARDS

Education

- University of Miami, Coral Gables, FL, Ph.D., Civil Engineering, 2014
- Florida Atlantic University, Boca Raton, FL, MS, Civil Engineering, 2010
- Palm Beach State College, Lake Worth, FL, Florida Transition to Teaching Certificate, 2007
- University of Miami, Coral Gables, FL, BS, Computer Engineering, 1988

Academic Experience

- University of Delaware, Civil, Construction, and Environmental Engineering, Assistant Professor, Newark, DE. (2024 – Present)
- University of Miami, Civil and Architectural Engineering, Senior Lecturer, Coral Gables, FL. (2021-2024)
- University of Miami, College of Engineering, Director, Robotics in Education, Coral Gables. (2019 - 2021)
- University of Miami, Civil, Architectural Engineering, Lecturer, Coral Gables, FL. (2015 - 2021)
- University of Miami, Civil, Architectural Engineering, Research and Teaching Assistant, Coral Gables, FL. (2011 - 2014)

Industry Experience

- Motorola, Principal Staff Engineer, Boynton Beach, FL. (2003 - 2007)
  - Case and regression test manager. Working closely with feature teams, system test teams, integration teams, and Motorola Japan team for successful delivery of prototypes and commercial products.
  - Technical lead for inter processor communication protocol and implementation, device layer coding changes, and interface with HW team.
  - Involved in several special projects such as IM and email for our devices, feature feasibility, and patent infringement analysis.
  - Submitted several patents with two achieving pursuit status. Developed defensive patent positions.
- Motorola, Senior Staff Engineer, Boynton Beach, FL. (2000 - 2003)

  - Software development team coordination, leadership, and management for two commercial cell phone products and one prototype.
  - Developed layer 3 Fax software, including AT command set protocol and HDLC frame encoding/decoding.
  - Technical lead for GSM HSC layer changes for Synergy UIS.
- Motorola, Staff Software Technical Leader, Boynton Beach, FL. (1998 - 2000)
  - Interface with the Cellular System Division to coordinate development efforts of a startup design group responsible for developing several modules added to next generation cell phones.
- Motorola, Engineering Group Leader, Boynton Beach, FL. (1995 - 1998)
  - Responsible for on-time development of embedded software for new pagers with a staff of up to 15 engineers. From concept to release and to production support. Create and negotiate schedules, track project, resolve technical and managerial issues, improve group's standard process.
  - Mentor new engineers, training plans and career path development, feedback discussions and performance rating.
  - College recruiter. Screen, interview and select candidates for positions in all levels within our department.
  - Worked with Corporate R&D to pilot an embedded SW automatic code generator.
- Motorola, Senior Software Engineer, Boynton Beach, FL. (1993 - 1995)
  - Responsible for leading a team of engineers in the development of paging software from planning to release to pilot support for ship acceptance.
  - Involved in the development and implementation of a software development process that was rated at an SEI level 3.
- Motorola, Software Engineer I, Boynton Beach, FL. (1991 - 1993)
  - Designed and developed pager auto test systems including hardware, software, and pager interfaces.
  - Developed microprocessor software for GSC and POCSAG paging protocols.
  - Standardized problem report process and test logs, formalized product test plans.
- Motorola, Software Engineer II, Boynton Beach, FL. (1989 - 1991)
  - Developed a protocol encoder and user interface for a binary tone encoder in C. This product was used throughout the division.
  - Developed software to prove falsing algorithms.

Awards and Honors

- Faculty Advisor of the Year, University of Miami, Engineering Student Council 2024
- Alexander Orr Jr. Excellence in Teaching Award, College of Engineering 2021
- Chi Epsilon James M. Robbins Excellence in Teaching, Southeastern District 2020
- Faculty Advisor of the Year, Florida Southeast Division, American Society of Civil Engineers 2020
- Chi Epsilon – National Civil Engineering Honor Society, initiated 2012
- Tau Beta Pi – National Engineering Honor Society, initiated in 1987
- Eta Kappa Nu – National Electrical and Computer Engineering Honor Society, initiated 1987

Licensure

Professional Engineer, PE License No. PE93123, Florida

II. RESEARCH

Publications

Peer-reviewed Journal Articles

1. Giancaspro, J. W., **Arboleda, D.,** Kim, N.J., Chin, S. J., Britton, J., Secada, W. J., (2023). An Active Learning Approach to Teach Distributed Forces using Augmented Reality with Guided Inquiry. *Computer Applications in Engineering Education*. e22703.
2. Carozzi, F. G., **Arboleda, D.**, Poggi, C., Nanni, A. (2020). Direct Shear Bond Tests of Fabric Reinforced Cementitious Matrix (FRCM) Materials. *Journal of Composites for Construction*, 24(1), 04019061.
3. Pino, V., Nanni, A., **Arboleda, D.**, Roberts-Wollmann, C., Cousins, T. (2017). Repair of Damage Prestressed Concrete Girders with FRP and FRCM Composites. *Journal of Composites for Construction,* 21(3), 04016111.
4. **Arboleda, D.**, Carozzi, F. G., Nanni, A., Poggi, C. (2016). Testing Procedures for the Uniaxial Tensile Characterization of Fabric Reinforced Cementitious Matrix (FRCM) Composites. *Journal of Composites for Construction, 20*(3), 04015063.
5. Loreto, G., Leardini, L., **Arboleda, D.**, & Nanni, A. (2014). Performance of RC Slab-type Elements Strengthened with Fabric-reinforced Cementitious-matrix Composites. *Journal of Composites for Construction*, 18(3), A4013003.
6. Babaeiderabad, S., Loreto, G., **Arboleda, D.**, Nanni, A. (2014). FRCM-Strengthened CMU Masonry Walls Subjected to Out-of-Plane Load, *Mason Soc J*, 32(1), 69-84
7. Babaeiderabad, S., **Arboleda, D.**, Loreto, G., Nanni, A. (2014). Shear Strengthening of Concrete Masonry with Fabric-reinforced-cementitious-matrix. *Construction and Building Materials, 65*, 243-253.

Peer-reviewed Articles in Conference Proceeding

1. Giancaspro, J. W., **Arboleda, D.,** Chin, S. J., Yang, L., Secada, W. G. (2024). Multidimensional Aspects of Vector Mechanics Education Using Augmented Reality. 2024 ASEE Annual Conference and Exposition, Portland, Oregon, June 23rd. DOI 10.18260/1-2--47785
2. **Arboleda, D**., Giancaspro, J. W., Cacchione, M., Okyay, M. (2023). In-Situ Bending Moment Visualization of a Structure Using Augmented Reality and Real-Time Object Detection. *2023 ASEE Annual Conference and Exposition.* Baltimore, Maryland, June 25th.
3. Giancaspro, J. W., **Arboleda, D.,** Ghahremaninezhad, A., Heller, A, (2023). A Pathway to Initiate Engineering Education Research: A First-Year Reflection on Faculty Development. *2023 ASEE Annual Conference and Exposition.* Baltimore, Maryland, June 25th. Received 2nd best paper and 2nd best diversity paper awards.
4. Giancaspro, J. W., **Arboleda, D.** (2019). Just a Moment - Classroom Demonstrations for Statics

and Solid Mechanics. *2019 ASEE Annual Conference and Exposition*.

4. **Arboleda, D.**, De Caso y Basalo, F. J., Nanni, A. (2016). Historic Infrastructure Rehabilitation with Fabric Reinforced Cementitious Matrix (FRCM). *Association for the Study of the Cuban Economy*.
5. **Arboleda, D.**, De Caso y Basalo, F. J., Nanni, A. (2016). Mechanical Behavior of Multiple Ply FRCM. *In Construction Pathology, Rehabilitation Technology and Heritage Management*. REHABEND-16. Burgos (Spain), May 24-27.
6. **Arboleda, D.**, Babaeiderabad, S., Hays, C., Nanni, A. (2014). Durability of Fabric Reinforced Cementitious Matrix (FRCM) Composites. *In Proceedings 7th international conference on FRP composites in civil engineering,*
7. Babaeidarabad, S., Loreto, G., **Arboleda, D.,** Nanni, A. (2014). Flexural Behavior of RC Beams Strengthened with Fabric-Reinforced Cementitious Matrix (FRCM) Composite. *In The 7th International Conference on FRP Composites in Civil Engineering*.
8. **Arboleda, D**., Babaeidarabad, S., de Caso, F. J., & Nanni, A. (2014). Caracterización de la tecnología de refuerzo de materiales compuestos a base de matriz cementicia reforzada con tejido (FRCM). *In Congreso Latinoamericano sobre patología de la construcción, tecnología de la rehabilitación y gestión del patrimonio: REHABEND 2014. Santander (España*), 1-4 de abril de 2014 (pp. 1496-1503). Universidad de Cantabria.
9. Babaeidarabad, S., **Arboleda, D.**, de Caso, F. J., & Nanni, A. (2014). FRCM: Tecnología novedosa de refuerzo para muros de mampostería no reforzada (URM) sometidas a cargas fuera del plano. *In Congreso Latinoamericano sobre patología de la construcción, tecnología de la rehabilitación y gestión del patrimonio: REHABEND 2014. Santander (España*), 1-4 de abril de 2014 (pp. 1145-1155). Universidad de Cantabria.
10. Bianchi, G., **Arboleda, D.**, Carozzi, F. G., Poggi, C., & Nanni, A. (2013). Fabric Reinforced Cementitious Matrix (FRCM) Materials for Structural Rehabilitation. *In Proceedings of the 39th IAHS World Congress*, Milan, Italy (pp. 17-20).
11. **Arboleda, D**., Yuan, S., Giancaspro, J., & Nanni, A. (2013). Comparison of Strain Measurement Techniques for the Characterization of Brittle, Cementitious Matrix Composites. *In Research and Applications in Structural Engineering, Mechanics, and Computation* (pp. 593-594). CRC Press.
12. **Arboleda, D**., Loreto, G., & De Luca, A. (2012). Material Characterization of Fiber Reinforced Cementitious Matrix (FRCM) Composite Laminates. *Proceedings of International Symposium on Ferrocement and Thin Reinforced Cement Composites*. FERRO 10, Havana, Cuba, Oct 12-17

Magazine Article

1. Giancaspro, J. W., **Arboleda, D.** (2018). Incorporating Film and Lightboard Technology into Statics Instruction. *Florida Engineering Society Journal*. (pp. 6-7).

Newsletter

1. **Arboleda, D.** (2015). *A fascinating afternoon with the Women in Concrete Alliance* (vol. V2-3). RE-CAST.

Ph.D. Dissertation

1. **Arboleda, D.** (2014). *Fabric Reinforced Cementitious Matrix (FRCM) Composites for Infrastructure Strengthening and Rehabilitation: Characterization Methods*. Florida: Department of Civil, Architectural, and Environmental Engineering, University of Miami.

Software

1. **Arboleda, D**., Giancaspro, J. W. (2020). Vectors in Space. *Magic Leap Augmented Reality app.*
2. Giancaspro, J. W., **Arboleda, D.** (2021). Distributed Loads*. Magic Leap Augmented Reality app*.

Paper Presentations

1. Giancaspro, J. W. (Presenter), **Arboleda, D. (Presenter)**. Multidimensional Aspects of Vector Mechanics Education Using Augmented Reality. 131st ASEE Annual Conference and Exposition, Portland, Oregon. (June 23, 2024).
2. **Arboleda, D. (Presenter)**, Giancaspro, J. W. (Presenter), 130th ASEE Annual Conference & Exposition, "In-Situ Bending Moment Visualization of a Structure Using Augmented Reality and Real-Time Object Detection," American Society of Engineering Education, Baltimore, Maryland. (June 25, 2023).
3. Giancaspro, J. W. (Presenter), **Arboleda, D. M. (Presenter)**, 130th ASEE Annual Conference & Exposition, " A Pathway to Initiate Engineering Education Research: A First-Year Reflection on Faculty Development," American Society of Engineering Education, Baltimore, Maryland. (June 25, 2023). Received second place best paper award and second place best diversity paper award.
4. Giancaspro, J. W. (Presenter), **Arboleda, D. M. (Presenter)**, 126th ASEE Annual Conference & Exposition, "Just a Moment – Classroom Demonstrations for Statics and Solid Mechanics," American Society of Engineering Education, Tampa, Florida. (June 18, 2019). Received third place best presentation award.

Poster Presentations

5. Giancaspro, J. W. (Presenter), **Arboleda, D. (Presenter)**. Work in Progress: Real-Time Ecological Momentary Assessment of Students' Emotional State in Statics. 131st ASEE Annual Conference and Exposition, Portland, Oregon. (June 23, 2024).

Funding

1. Giancaspro, J. W. (Principal Investigator), **Arboleda, D. (Co-Investigator)**, Heller, A. (Co-Investigator), Ghahremaninezhad, A. (Co-Investigator), "Research Initiation: Predicting Student Success and Persistence in Early Engineering Coursework Using Real-Time Changes in Emotion," Sponsored by National Science Foundation (NSF), $199,999.00. (June 1, 2022 - 2024).
2. Giancaspro, J. W. (Principal Investigator), **Arboleda, D. (Co-Investigator)**, Secada, W. (Co-Investigator), Kim, N.J. (Co-Investigator), "Improving Student Learning Using a Three-Dimensional Immersive Learning Environment for Foundational Engineering Concepts," Sponsored by National Science Foundation (NSF), $300,000.00. (January 1, 2022 - 2025).
3. Giancaspro, J. W. (Principal Investigator), **Arboleda, D. (Co-Investigator)**, Gonzalez, A. (Collaborator), "UM XR Initiative: Newton's Experience," Sponsored by University of Miami, $10,000.00. (January 1, 2021 - June 1, 2021).
4. **Arboleda, D. (Principal Investigator)**, Travis, M. L. (Student Artist), "Machines of Loving Grace –

A Magic Leap Trans-Experiential Art Installation," Sponsored by University of Miami Office of the Provost, $10,000.00. (January 2020 - April 2020).

5. Giancaspro, J. W., **Arboleda, D. (Co-Investigator)**, Alsafrjalani, H. M. (Co-Investigator), Kim, N. J. (Co-Investigator), Secada, W. G. (Co-Investigator), "Revealing the Anatomy of Engineering Structures Using Augmented Reality," Sponsored by University of Miami, $10,000.00. (January 1, 2020 - April 30, 2020).

Journal Referee

- ASEE – Mechanics Division (2022 – present)
- ASEE – New Engineering Educators Division (2022 – present)
- Elsevier – Journal of Composites Part B: Engineering, (2016 - 2019)
- ASCE - Journal of Materials in Civil Engineering, (2015 - 2019)
- ASCE - Journal of Composites for Construction, (2014 - 2019)

III. TEACHING

Course list

- CIEG211: Statics
- CAE 210: Mechanics of Solids I (Statics)
- CAE 212: Structural Laboratory
- CAE 213: Behavior of Structural Systems I
- CAE 313: Behavior of Structural Systems II
- CAE 371: Geotechnical Laboratory
- ARC 632: Building Structures I

Faculty Development

- Keep Calm and Teach On: Winter 2025
- NSF RIEF VCoP panel session: "Tips & Tricks to Navigating the IRB Process"
- CTAL Elevate & Support: Teaching, Accessibility & Faculty Resources workshop
- AI for Teaching and Learning Working Group's "Does Generative AI Enhance or Subvert Learning?"
- UD Research Orientation
- Conference Attendance, American Concrete Institute (ACI), multiple cities. (2016 - Present)
- Conference Attendance, American Society of Engineering Education (ASEE), multiple cities. (2019 - Present)
- Faculty Fellowship, 2019 Faculty Learning Community, University of Miami, Coral Gables, Florida, developing teaching content using virtual or augmented reality.

- Workshop, Summer Writing Institute, University of Miami, Coral Gables, Florida. (Summer 2017)
- Faculty Fellowship, 2016 Faculty Learning Community, University of Miami, Coral Gables, Florida, developing hands-on active learning projects.

Faculty Presentations

- Faculty Showcase Learning Circles "Developing Augmented Reality for the classroom, making the invisible visible" October 2022
- Teaching and Learning Innovation in S.T.E.M (TALIS) Seminars
  - From FLC to NSF: Transforming Engineering Education Using Mixed Reality. March 2022
  - Teaching Distributed Forces to Engineers using Augmented Reality and Teaching Across Borders - Hemispheric Collaboration. March 2021
  - The use of video/lightboard in enhancing the teaching experience. January 2019

IV. SERVICE

Professional Memberships

- American Concrete Institute (ACI) – Chair Education Activities Committee (EAC 2022 -2024)
- American Society of Civil Engineers (ASCE)
- American Society for Engineering Education (ASEE)

University of Delaware (UD) Service

- Faculty Advisor, ASCE Student Organization, (2024 - Present). Oversee student conference activities and professional networking.
- Member ABET accreditation committee
- CCEE Open House

University of Miami (UM) Service

- Faculty Advisor, UMaker (Robotics, 3D) Student Organization. (2017 - 2024). Encourage and assist students interested in tinkering with robotics and 3D printing.
- Faculty Advisor, ASCE Student Organization, (2016 - 2024). Oversee student conference activities and professional networking.
- Faculty Advisor, Engineering Student Council, Coral Gables, Florida. Oversee College of Engineering student orgs (2021 - Present).
- Chair, Robotics Program Task force. (2019 - 2021). Develop a certificate program for Robotics specialization.
- English for Engineers Program. (2016 - 2019). Collaboration with the Department of English composition to improve the writing and presentations skills of students in the CAE department.
- Chair, Dean's Culture of Belonging working committee. (2018). Develop interdisciplinary perspectives and deliver recommendations/plans on how to contribute to an environment of inclusion on campus i.e. culture of belonging to complement the strategic plans of the five departments.

- Member, Dean's working group 6 - Culture of Belonging. (2016 - 2017). Develop interdisciplinary perspectives and deliver recommendations/plans on how to contribute to an environment of inclusion on campus i.e. culture of belonging to complement the strategic plans of the five departments.
- E-week event coordinator, College of Engineering, University of Miami. (2014, 2016).

Community Service

- FIRST Robotics mentor – ASPIRA Highschool, Newark, DE
- Presentation at Carrollton all-girl High School, Coral Gables, FL, “Careers in Engineering” – 2/17/2023
- Faculty Advisor, UMaker (2018 - 2024). Outreach to community through family/kid friendly interactive projects showcased at the Frost Museum of Science.
- Host/mentor Summer High School students who volunteer to do research in the laboratory. (2013 - 2019)
- Liaison, Women in Concrete Alliance (WICA) mentorship resources. (2015 - 2019)
- Coordinator, Community Outreach Programs. (2013 - 2016)