Ashley Del Valle

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EDUCATION

University of California, Santa Barbara
Ph.D. in Media Arts and Technology | Expressive Computation Lab | ***Expected graduation: 2025**

University of California, Santa Barbara
Master's in Media Arts and Technology | 2020-2023

University of Puerto Rico, Mayaguez
B.S. in Electrical Engineering | 2013-2020
Concentration: Power electronics, Minor in business entrepreneurship

Antonio Lucchetti Vocational High School in Arecibo
Industrial Electronics Workshop | 2010-2013

PUBLICATIONS

- Ashley Del Valle, Jennifer Jacobs, and Emilie Yu. 2025. TexTile: Making and Re-making Crochet Granny Square Garments Through Computational Design and 3D-printed Connectors. In Proceedings of the 2025 ACM Designing Interactive Systems Conference (DIS '25). Association for Computing Machinery, New York, NY, USA, 2445–2464. https://doi.org/10.1145/3715336.3735819
- Ashley Del Valle, Jennifer Jacobs, and Emilie Yu. 2025. Demonstrating texTile: Making and Re-making Crochet Granny Square Garments Through Computational Design and 3D-printed Connectors. Companion Publication of the 2025 ACM Designing Interactive Systems Conference. Association for Computing Machinery, New York, NY, USA, 207–211. https://doi.org/10.1145/3715668.3735610
- Ashley Del Valle, Mert Toka, and Jennifer Jacobs. 2024. Engaging Young People in the Expressive Opportunities of Digital Fabrication Through Craft-Oriented CAM-Based Design. In Proceedings of the 2024 ACM Designing Interactive Systems Conference (DIS '24). Association for Computing Machinery, New York, NY, USA, 1162–1176. https://doi.org/10.1145/3643834.3660693
- Ashley Del Valle, Mert Toka, Alejandro Aponte, Jennifer Jacobs. 2023. PunchPrint: Creating Composite Fiber-Filament Craft Artifacts by Integrating Punch Needle Embroidery and 3D Printing. In Hamburg '23: ACM CHI Conference on Human Factors in Computing Systems, April 23–28, 2023, Hamburg, Germany. ACM, New York, NY, USA, 15 pages. https://doi.org/10.1145/ 3544548.3581298
- A. Del Valle-Morales, A. Aponte-Lugo, J. Torres-Rodríguez and E. I. Ortiz-Rivera, "Use of Emerging Conductive Materials for K-12 STEAM Outreach Activities and the Impact on Community Education Resilience," 2020 Resilience Week (RWS), Salt Lake City, ID, USA, 2020, pp. 140-146, doi: 10.1109/RWS50334.2020.9241277.
- A. Aponte-Lugo, F. Matos-Ortiz, A. del Valle, E. González-Figueroa and E. I. Ortiz-Rivera, "A solar simulation research with an academic learning experience," 2016 IEEE ANDESCON, Arequipa, 2016, pp. 1-4, doi: 10.1109/ANDESCON.2016.7836261.
- Delgado Vázquez, Lorena, et al. "Integrated educational research and technical experiences to draw female students into the energy systems area: The UPRM experience." Frontiers in Education Conference (FIE), IEEE, 2014, doi:10.1109/FIE.2014.7044068.

GRADUATE RESEARCH

texTile: Making and Re-making Crochet Granny Square Garments Through Computational Design and 3D-printed Connectors *Jul. 2025*

- Developed a modular assembly and disassembly technique using 3D-printed connectors, enabling crochet granny square garments to be physically reconfigured.
- Designed and implemented a system that supports guided transitions between modular crochet patterns, including tools for pattern search, fit guidance, and motif arrangement.
- Authored and presented a paper at DIS 2025, demonstrating how computational tools can extend the creative and functional lifespan of handmade garments.

Engaging Young People in the Expressive Opportunities of Digital Fabrication Through Craft-Oriented CAM-Based Design *Jul. 2024*

- Developed computational design tools that integrate 3D printing with traditional craft techniques, enabling hybrid workflows for creative expression.
- Collaborated on designing and conducting a user study to evaluate both the curriculum and the technology used to engage youth in computational craft.
- Authored and presented a paper at DIS 2024, highlighting youth engagement opportunities at the intersection of digital fabrication and traditional craftsmanship.

PunchPrint: Creating Composite Fiber-Filament Craft Artifacts by Integrating Punch Needle Embroidery and 3D Printing *Apr. 2023*

- Developed a parametric design tool using Rhino and Grasshopper to generate 3D-printable TPU foundation fabric that is compatible with punch needle embroidery.
- Collaborated with textile crafters to conduct a two-day workshop.
- Co-authored a research paper on the development and evaluation of a tool, presenting findings at CHI 2023.

EXHIBITIONS AND INSTALLATIONS

Creative Designer, Fabric Peacing, Multimedia Quilt Installation *2025*

- Designed and developed an interactive installation using projection mapping and textile art to explore themes of memory, loss, and peace.
- Created paper cranes from felt fabric, incorporating free-motion embroidery and conductive fabric under the wings to enable touch-responsive animations for each crane.
- Employed MadMapper for projecting animations created in Adobe After Effects.

Designer and Curator, WondeRUM: Interactive Art & Technology Exhibition *2013*

University Innovation Fellow Project, UPRM Art Museum

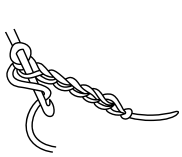
- Designed and curated UPRM's first interactive art and technology exhibition with immersive installations for visitor engagement.
- Organized workshops for schools, introducing youth to basic circuitry with materials like copper tape and dough.

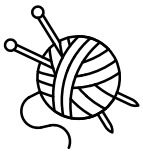
ARTIST RESIDENCY

Electronic Textile Camp (ECT) *Sept. 2023*

- Prototyped and fabricated soft sensors using advanced conductive materials, exploring innovative applications in smart textiles and wearable technology.
- Designed and developed machine-knitted textile swatches to explore implicit interactions based on 3D textile structures and conductivity, exploring the boundaries of interactive fabric design.

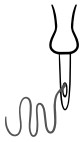
CRAFTS AND MAKING


Crochet

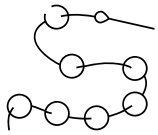

Knitting

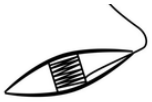

Sewing

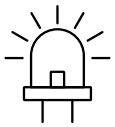

Embroidery


Punch Needle

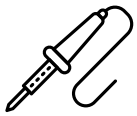

Patchwork


Bead weaving


Tatting


Soft circuits


Jewelry


Soldering


Stained glass


3D printing

TEACHING EXPERIENCE

Summer Institute in Mathematics and Science (SIMS) *Jul. 2024*

Educational Content Developer and Evaluator

- Developed and implemented a curriculum for undergraduate students, introducing them to computational design and CAM-based fabrication techniques.
- Led hands-on workshops and experiments that explored material behavior in 3D printing by adjusting key parameters like layer height, extrusion rate, and speed using p5.fab.

Exploring Computational Design *Apr. 2022*

Educational Content Developer and Evaluator

- Organized and facilitated a one-day workshop for elementary students, introducing the fundamentals of creative coding and its connection to physical making.
- Designed interactive lessons that encouraged students to experiment with coding concepts through tangible projects, fostering engagement and learning through play.

Family Ultimate Science Exploration *Feb. 2022*

Educational Content Developer and Evaluator

- Developed a curriculum that combined hands-on activities with theory, focusing on the fundamentals of digital fabrication techniques.
- Programmed interactive examples in p5.js to design and facilitate the creation of pen-plotted art, allowing students to experience computational design in action.

B.creative Academy *2021*

Technology Teacher, Intermediate level

- Created a curriculum on foundational technology concepts, covering computing history, basic programming, and computational tools. Designed engaging lessons linking math, coding, and digital literacy to real-world STEAM career applications, promoting curiosity and problem-solving skills.

ENTREPRENEURSHIP

Co-founder of Immersive Learning LLC *2019-2021*

- Co-founded an educational startup focused on developing hands-on STEAM experiences for children and families through interactive tools and creative content.
- Participated in entrepreneurship programs, including I-Corps UPRM, Startup.PR Pre-acceleration, and the EnterPRize Guayacán Competition, gaining experience in product-market fit, business modeling, and user-centered design.
- Led research and outreach efforts to align educational offerings with the needs of parents, educators, and young learners.

AWARDS

- 2020 | National Science Foundation Graduate Research Fellowship Program (NSF GRFP)
- 2018 | University Innovation Fellow Program
- 2016-2019 | IEEE PES Scholarship Plus Initiative
- 2017 | UPRM Pathway to Innovation Grant

RESEARCH EXPERIENCE FOR UNDERGRADUATE (REU)

- **Summer 2019** | Cornell Center for Material Research (CCMR)
- **Summer 2018** | Consortium for Integrating Energy Systems in Engineering and Science Education (CIESESE) at the University of New Mexico
- **Summer 2017** | Advanced Self-Powered Systems of Integrated Sensors and Technologies (ASSIST) at the University of North Carolina
- **Summer 2016** | Center for Materials Science and Engineering (CMSE) at the Massachusetts Institute of Technology (MIT)
- **Summer 2015** | The Louis Stokes Alliances for Minority Participation (LSAMP) Program at the University of Maryland