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: 2026**

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

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

RESEARCH PUBLICATIONS

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 CHI 2023 (ACM conference), highlighting 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*

- Programmed a parametric design tool in Rhino and Grasshopper to produce a punch needle-compatible 3D-printed TPU foundation fabric.
- Conducted user research and usability testing with artists and designers to assess the tool's impact on creative workflows, refining features based on participant feedback.
- Co-authored the research paper detailing the development, testing, and implications of the tool, presenting insights at the ACM conference on its potential for enhancing creative 3D printing practices.

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.

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

- Coordinated and managed a two-day workshop for middle school students, introducing them to the concepts of computational fabrication.
- 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.

LEADERSHIP EXPERIENCE

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

- Developed educational content, tools and experiences for kids and parents to acquire hands-on experience with STEAM concepts.
- Coordinated and completed projects on time within budget and within scope.

ACADEMIC AWARDS

- NSF: Graduate Research Fellowship Program
- IEEE: Power & Energy Society Scholarship Plus Initiative

PUBLICATIONS

- 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, UT, USA, 2020, pp. 140-146, doi: 10.1109/RWS50334.2020.9241277.