

Ashley Del Valle

PHD. STUDENT

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Objective

Seeking an internship in human-computer interaction with a focus on research and development in computational design and creativity support tools to contribute innovative solutions and further my professional growth.

Education

University of California, Santa Barbara (UCSB) 2023~2027*

PhD. in Media Arts and Technology Program | Expressive Computation Lab

University of Puerto Rico, Mayagüez 2013-2020

Major: Electrical Engineering | Minor: Business Entrepreneurship

Published Research

PunchPrint: Creating Composite Fiber-Filament Craft Artifacts by Integrating 2022-2023

Punch Needle Embroidery and 3D Printing

- Produced a parametric design tool in Grasshopper, generating custom G-code to fabricate TPU-based 3D-printed fabrics, capable of simulating traditional woven fabric behavior.
- Conceptualized and crafted a series of physical artifacts, demonstrating the expansion of craft through computational design, notably in punch needle embroidery.

Residency

Electronic Textile Camp (ECT) Sept. 2023

- Conducted non-structure experimentation in fabricating soft sensors, employing diverse conductive materials to explore their responsiveness and functionality.
- Designed machine-knitted swatches to investigate the potential of gesture-based interactions, focusing on both soft sensors and actuators for intuitive human-device engagement.

Projects

Harmonizing Crochet and 3D-Printing 2022

- Produced a parametric design tool in Grasshopper to swiftly iterate designs, ensuring compatibility for both 3D printing and crochet techniques.
- Designed and crafted crochet artifacts, leveraging the unique characteristics of filament materials.

3D-Printing Lace Motifs 2022

- Employed Rhino and Grasshopper to generate lace-like parametric 3D-printable designs.

Educational Technology-based Startup

Immersive Learning LLC.

2019-2021

- Formed Immersive Learning, a startup dedicated to crafting interactive STEAM-based content and tools designed and implemented engaging educational resources for children and parents.
- Selected for EnterPRize, a competitive business-building program in Puerto Rico which provides start-ups with access to workshops, mentoring and equity-free seed capital.
- Secured a partnership contract with the PR Science, Technology, and Research Trust to deliver specialized workshops for pop-up schools in direct response to seismic events in the island.

Teaching and Outreach Experience

School for Scientific Thought Program (SST) | UCSB

Jan. 2023

- Facilitated a three-day workshop tailored for high school students.
- Design a curriculum that delved into the core concepts of CAM-toolpath fundamentals within computational fabrication and artisanal crafts.
- Leveraged HumanUI within Grasshopper to create an intuitive user interface, enabling the design creation process for 3D-printed clay artifacts and textile structures.

Exploring Computational Design | Puerto Rico

Apr. 2022

- Developed an interactive and engaging Spanish-based curriculum in creative coding, utilizing P5.js to introduce basic programming concepts to primary students.

Family Ultimate Science Exploration (FUSE) | Santa Barbara Middle School

Feb. 2022

- Utilized p5.js to program design examples and facilitate the creation of pen-plotted art, empowering students to engage in the fabrication process.

Awards

- NSF: Graduate Research Fellowship Program | 2020-2023
- IEEE: Power & Energy Society Scholarship Plus Initiative | 2016-2019
- University Innovation Fellow | 2019- Present

Publications

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.