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EDUCATION

Pennsylvania State University Aug. 2019
Ph.D. in Architecture with concentration in Design Computing
Dissertation: *A Framework for Repairing Craft: A Case Study on Wire-Bending in Trinidad & Tobago*

Massachusetts Institute of Technology, Cambridge, MA. 2013
Master of Science in Architecture Studies (SMArchS) in Design and Computation
Thesis: *Trinidad Carnival: Improving design through Computation and Digital Technology.* [PDF]

Howard University, Washington, DC. 2007
Bachelor of Architecture (B. Arch)
Thesis: *New Parliament Complex: The Architecture of Carnival and Calypso Culture.*

John S. Donaldson Technical Institute, Port of Spain, Trinidad. 1999
Associate Degree in Civil Engineering

PROFESSIONAL WORK

VAAN Design Lab 2015 – present
Head Designer & Director

Artist
Commissioned to produce 14 illustrations for 50th anniversary commemorative book by Emile Elias Group of Companies. June – Aug. 2015

IAAA, Innovative Architectural Artists & Associates Jan. 2010 – Aug. 2011
Independent Design Consultant
Designed residential and institutional projects including a conference center and a large residential development.

Burt Hill Inc. (now Stantec), Ahmedabad, India July 2008 – Dec. 2009
Building Information Modeling Manager and Project Architect
Project Architect on commercial, sporting, residential, and institutional projects. Trained staff of 50 architects & draftspersons in Autodesk Revit and BIM practices for an international design firm of over 1000 employees

<p>Burt Hill Inc., Washington, DC. <i>Graduate Architect</i> Designed and prepared construction documents for several institutional projects.</p>	Jun. 2007 – July 2008
<p>IAAA, Innovative Architectural Artists & Associates <i>Architectural Designer</i> Conducted as-built surveys and produced existing conditions drawings, carried out zoning research, permit application and approval for the rehabilitation and construction of 15 Residential, 8 Commercial, and 7 historic preservation residential projects.</p>	Oct. 2005 – Feb. 2007
<p>R. McGhee & Associates <i>Intern Architect</i> Produced construction documents for residential projects, procured zoning & permit application approvals, conducted as-built surveys for projects.</p>	May 2004 – Dec. 2005
<p>Bynoe Rowe Wiltshire Partnership <i>Architectural Technician</i> Designed and produced construction documents for residential, institutional, and commercial projects.</p>	1999 - 2001
<p>Colin Laird Associate Architects <i>Architectural Technician</i></p>	1996 - 1997

TEACHING

[Graduate of the Teaching Certificate Program, Teaching and Learning Laboratory, MIT]	2013
<p>Georgia Institute of Technology (GIT) <i>Visiting Assistant Professor. School of Architecture in the College of Design</i></p> <ul style="list-style-type: none"> - Computational Making: Wire-Bending [Link] Sp. 2019 + 2020 - Architecture Design Studio (Sophomores) Sp. 2019 + 2020 - Architecture Design Studio (Freshmen) Fall 2018 + 2019 - Introduction to Design Fall 2018 + 2019 	

The Pennsylvania State University

Instructor. Department of Architecture (w/ Cathy Braasch & James Kalsbeek)

- Design I & II (Freshman Studio)
Design, instruction, and coordination of studio-wide design projects, general studio coordination, desk crits, pin-ups, and reviews. Fall 2016 – Sp. 2018
 - o Movies to Making: Bodies to Buildings [\[Link\]](#).
- Inquiry into Design Computing (Module 4 – Worldmaking) Sept 2016

Singapore University of Technology & Design (SUTD), Singapore

Visiting Fellow & Co-Instructor (ASD)

- Digital Design & Fabrication (w/ Bige Tuncer, Stylianos Dritsas) [\[Link\]](#) Spring 2014
- Computational Construction (w/ Skylar Tibbits) Dec. 2014
- Introduction to Design Computation (w/ Sawako Kaijima) [\[Link\]](#) Fall 2013

Massachusetts Institute of Technology, Cambridge, MA

MIT Summer Research Program (MSRP) Program Assistant

June – Aug. 2013

- Provided mentorship and worked closely with 50 talented undergraduate interns - particularly those who are underrepresented - in research aspects of STEM. This included close working on abstracts, Statements of Purpose, scientific posters, and presentations.

Department of Architecture, MIT, Cambridge, MA

Graduate Teaching Assistant

Spring 2013

- Introduction to Visual Arts (Instructor: Gediminas Urbonas)

WORKSHOPS + SEMINARS

Georgia Institute of Technology, School of Architecture, GA.

- 2D to 3D design charrette Mar. 2019

Bishops Anstey Trinity College East (BATCE), Trincity, Trinidad & Tobago.

- Bend It! - Introduction to Wire-Bending and 3D Forms Dec. 2017
Two whole day intense workshops to design and fabricate artifacts using computational wire-bending techniques (Bailey-Derek Grammar) for design, fabrication, and communication. [\[Link\]](#)

Department of Architecture, Penn State, PA.

- Light It Up! (w/ Benay Gursoy Toykoc, Julio Diarte) Jan. 2017
4-day workshop to design and build large-scale lanterns based on polyhedral geometry, digital modeling, and digital fabrication techniques and processes. [\[Link\]](#)

Department of Architecture, Penn State, PA.

Fall 2014

- From Dark Knight to Design Computation: Tools to Technologies
In this seminar themes - often found in Science Fiction, Fantasy and Animation - were tied together with speculative and critical thinking as a means to encourage exploratory thoughts in terms of design computation [[Link](#)].

Architecture and Sustainable Design (ASD) Pillar, SUTD, Singapore.

- Parametric modelling in Grasshopper 3D, SUTD, Singapore.
- 3D Modeling with Rhino 3D, SUTD, Singapore.

Jan. 2014
Sept. 2013

RESEARCH

Department of Materials Science and Engineering, Penn State, PA.

Apr. 2017 – Dec.
2018

Co-PI w/ R. Allen Kimel

"Material Matters: A model for the design and construction of low-cost, high performance energy-efficient shelters in Burkina Faso, West Africa."

- Fieldwork in Burkina Faso – direct observations and interviews;
- Laboratory experiments.

Department of Architecture, Penn State, PA.

Summer 2016

Co-Researcher w/ Felecia A. Davis

"Quantified Walk: Design of a Prototype for Parkinson's Gait Monitoring"

- Design, Programming in Arduino, and Processing, Electronics production

Principal Researcher

Jan. – Dec. 2015

"(Re)conceptualizing Wire-bending in Design"

- Design, Digital Design & Fabrication, Wire-bending, Visual programming

Principal Researcher

2015 - 2016

"Dancing Sculptures: Preservation and Development of Design in Trinidad Carnival"

- Parametric Design, Programming, Augmented Reality, Computer Interaction

Department of Architecture, MIT, Cambridge, MA

Graduate Research Assistant

- Digital Fabrication & Prototyping (PI: Larry Sass)
- Very Large-Scale Prototyping (PI: Larry Sass)

Spring 2012
Summer 2012

PUBLICATIONS

Book

Noel, Vernelle et. al, "Exploring Algorithmic Tectonics: A course on creative computing in architecture and design." (University Park: SCDC Press, 2015). [[Link](#)]

Peer-reviewed journals

Noel, A. A. Vernelle (2017). "Digitally Displaying and Interacting with Historic Artifacts of Spatial, Temporal, Corporeal, and Kinetic dimensions." *Studies in Digital Heritage*. [[Link](#)]

Noel, A. A. Vernelle (2015). "The Bailey-Derek Grammar: Recording the Craft of Wire-Bending in the Trinidad Carnival." *Leonardo* 48 (4): 357–65. [[Link](#)]

Refereed conference proceedings

Noel, Vernelle A. A. (2019). "Design Computation and Restoring Craftsmanship: The Bailey-Derek Grammar in Wire-Bending." CAADFutures 2019 Proceedings. [[Link](#)]

Noel, Vernelle A. A. (2017). "From Costuming and Dancing Sculptures to Architecture: The Corporeal and Computational in Design and Fabrication of Lightweight Mobile Structures." CAADFutures 2017 Proceedings. [[Link](#)]

Noel, Vernelle A. A. (2016). "Crafting as Inquiry into Computation: Exploring wire-bending in traditional practice and design education." Proceedings of eCAADe 2016. [[Link](#)]

Noel, Vernelle A. A. (2016). "H(EC)I – Human Ethno-Computational Interaction: (Re)Conceptualizing Wire-Bending and Design in the Trinidad Carnival." Digital Craftsmanship Workshop, DIS 2016. [[Link](#)]

Lujie Chen; Lawrence Sass; Woong Ki Sung and Vernelle Noel "Surface skeleton generation based on 360-degree profile scan", Proc. SPIE 8790, Optics for Arts, Architecture, and Archaeology IV, 87901M (May 30, 2013). [[Link](#)]

Non-refereed publications (selected)

Noel, Vernelle A. A., "The Adalaj Vav in Ahmedabad" *Architecture Caribbean*, 2010.

Noel, Vernelle A. A., "Caribbean architecture without Caribbean architects," *Architecture Caribbean*, 2010.

Noel, Vernelle A. A., "Interview with Trinidadian artist Jackie Hinkson – Pt. 1," *Architecture Caribbean*, 2010.

Noel, Vernelle A. A., "Interview with Andres Parada - Sweden," *Architecture Caribbean*, 2010.

Noel, Vernelle A. A., "Interview with Vasco Correia & Patricia Sousa (Camarim)," *Architecture Caribbean*, 2010.

Invited Talks (selected)

- "Design Computation + Craft + Carnival." Invited by Andrew Chin. Florida Agricultural and Mechanical University (FAMU), School of Architecture & Engineering Technology. February 20, 2019.
- "Wire-bending & Design in the Trinidad Carnival." Invited by Scott Marble, Julie Kim, Athanassios Economou. Georgia Tech Institute (GATECH) FOCUS Fellow, School of Architecture. January 12, 2018.
- "Art and Life: The Power of Craft." Invited by Christopher Parks Staley. Penn State, School of Visual Arts. October 12, 2017.
- "Material Matters: A model for the design and construction of low-cost, high performance energy-efficient dwellings in Burkina Faso, West Africa. 2iE West African Speakers Series, Penn State. October 2, 2017.
- "Computational Design + Craft + Culture." Howard University, Department of Architecture. April 5, 2017.
- "Reinterpreting Cultural Design Practices through Technology: Wire-bending and Design in the Trinidad Carnival." Africana Research Center, Penn State University. January 23, 2017.
- "Worldmaking and Craft": Inquiry into Design Computing course. Invited by Jose Pinto Duarte, Department of Architecture, Penn State University (PSU). September 2016.
- "Computation, Wire-Bending, and Craft": Made in the Machine course. Invited by Arlene Ducao. New York University (NYU), April, 2016.
- **2015 NSF Maker Summit**, Washington, DC. 2015
Invited participant at two-day Summit hosted by the American Society for Engineering Education (ASEE), and the National Science Foundation (NSF) to explore and advance the Maker Movement.
- **TEDxPortofSpain**, "The Power of Making: Craft, Computation, and Carnival", October 2015.
- **Co-rd Limited**, "Design, Research, Architecture & Carnival", Trinidad, 2014.
- **Trinity College East**, "Today's Architect", Trinidad, 2014.

CONFERENCE & SYMPOSIUM PRESENTATIONS

Noel, Vernelle A. A. "Here's Looking at you Craft" - Respondent (Apr. 2019), **Humanistic Perspectives at Technological Universities: A Symposium**. Georgia Institute of Technology, GA.

Noel, Vernelle A. A. et. al. "Sense-ation Making Mashup" (Feb. 2018), **a2ru Emerging Creatives Summit**. Baton Rouge, LA.

Noel, Vernelle A. A. and Oprean, Danielle. "Digital Design and Spatial Comprehension: The visual, corporeal, and tactile in embodied interaction" (Dec. 2017), **Thinking Within Symposium**. Penn State, PA.

Noel, Vernelle A. A. "Craft, Computation, and Technology: The Practice of Wire-Bending in Trinidad & Tobago" (Aug. 2017), **4S 2017**. Boston, MA.

Noel, Vernelle A. A. "From Costuming and Dancing Sculptures to Architecture: The Corporeal and Computational in Design and Fabrication of Lightweight Mobile Structures." (Jul. 2017), **CAAD Futures 2017**. Istanbul, Turkey.

Noel, Vernelle A. A. "A Multiple-Making approach to inquiry in traditional craft practices: Wire-bending in Trinidad & Tobago." (Apr. 2017), **AERA 2017**. San Antonio, Texas.

Noel, Vernelle A. A. "Crafting as Inquiry into Computation: Exploring wire-bending in traditional practice and design education." (Aug. 2016), **eCAADe 2016**. Oulu, Finland.

Noel, Vernelle A. A. "Human Ethno-Computational Interaction: (Re)conceptualizing Wire-Bending and Design in the Trinidad Carnival." *Digital Craftsmanship Workshop*, **DIS 2016**. Brisbane, Australia – Unable to Attend.

TEDxPortofSpain

"The Power of Making: Craft, Computation, and Carnival", Trinidad. October 2015

<http://tedxportofspain.com/portfolio/vernelle-noel/>

Noel, Vernelle A. A. (Aug. 2015). "The Bailey-Derek Grammar: Recording the Craft of Wire-Bending in the Trinidad Carnival", **ACM SIGGRAPH**, Los Angeles, CA.

Poster Presentations

Noel, Vernelle A. A. "The Role of Computation in Reinterpreting the Traditional craft practice of Wire-Bending: Evaluating the Bailey-Derek Grammar" (Mar. 2018), SCDC Flash Symposium, Penn State, State College, PA.

Noel, Vernelle A. A., and Kimel, R. Allen. "Material Matters: A model for the design and construction of low-cost, high performance energy-efficient dwellings in Burkina Faso, West Africa." (17-18 Oct. 2017), Materials Day 2017, Penn State, State College, PA.

Noel, Vernelle A. A. "Immersive Reality, Preservation, and Development: Traditional Dancing Sculptures in the Trinidad Carnival" (Nov. 2016), Immersive Reality Symposium, Penn State, State College, PA.

Noel, Vernelle A. A. and Motalebi, Nasim. "Quantified Walk: Design of a Stretch Knit Legging Prototype for Parkinson's Gait Monitoring" (Sept. 2016), Penn State Center for Health Organization Transformation (CHOT), Penn State, State College, PA.

Noel, Vernelle A. A. "(Re)conceptualizing craft and technology for Design" (Apr. 2016), SCDC Flash Symposium, Penn State, State College, PA.

HONORS, AWARDS, FELLOWSHIPS

Honors + Awards

- Georgia Institute of Technology, *Ventullet NEXT Generation Visiting Fellow* 2018 – 2020
College of Design: School of Architecture
- Penn State, SCDC Fellowship for Ph.D. in Design Computing 2014 - 2017
- MIT, Graduate Fellowship Award for SMArchS in Design and Computation 2011 - 2013
- MIT, Graduate Community Fellow 2012
- Howard University, School of Architecture & Planning Award 2007
- Howard University, Building Technology Award 2005
- Howard University, Capstone Scholarship 2003 – 2007

Grants

- Global Programs Graduate Student Travel Grant. \$750. 2018
- 2018 Graduate Women In Science Fellowship. "Evaluating the role of computational approaches to craft in reviving knowledge in the dying craft of wire-bending, and spurring interest in STEM." \$8,020 (not awarded). 2017
- Graduate Student International Research Award Application. "Computational Crafting: The Bailey-Derek Grammar and wire-bending in Trinidad & Tobago" \$5,000 (not awarded). 2017
- Center for Craft Materials-Based Research Grant. "Crafting Materials through Science: Architecture at the Intersection of Design Computation and Materials Science." Role: PI. Collaborators: R. Allen Kimel, and Benay Gursoy Toykoc. \$14,445 (not awarded). 2017
- "Material Matters: A model for the design and construction of low-cost, high performance energy-efficient shelters in Burkina Faso, West Africa" w/ Robert A. Kimel. *MRI Humanitarian Materials Initiative Award*. \$10,000. 2016
- "Dancing Sculptures: Exploring the Synthesis of Craft, Computation & Technology in Design and Fabrication." *NIHERST Trinidad & Tobago, Prime Minister's Awards for Scientific Ingenuity*. \$1,150. 2015
- "Architecture [FOR] + [OF/ FROM] + [BY] the Body: A Photojournalism project on design and dancing sculptures in the Trinidad Carnival." *Penn. State University, Pohland Graduate Student Fellowship Award*. \$2,500. 2015

- "TraDigital Craft: Exploring the integration of computation and digital in traditional craft practices." *Penn. State University, SCDC Student Research Grant Award.* \$572. 2015
- "Cultural Design Practices, Computation and Design Education: Wire Bending in Trinidad & Tobago." *Africana Research Center Award.* \$2,000. 2014
- "Trinidad Carnival: Improving Design through Computation and Digital Technology." *Government of the Republic of Trinidad & Tobago, Ideas2Innovation Award (i2i).* \$15,000. 2014
- "Dancing Sculptures: Design and engineering practices in Trinidadian wire bending." *Rosalía Ennis Research Award. MIT Department of Architecture.* \$1,250. 2012

SERVICE

Disciplinary Service

- SimAUD 2019 – Performative Structures Session Chair [[Link](#)]. Apr. 2019
- Equity in Architecture Forum Panelist [[Link](#)]. Feb. 2019
- 2019 MOOG Hackathon Judge – Georgia Tech. [[Link](#)]. Feb. 2019
- MIT Alumni Angels of New York. Volunteer. 2017
- Leonardo. Reviewer, 2017.
- Occasional Paper Series 2017. Reviewer.
- IEEE VIS Arts Program. Primary Reviewer, 2016
- SIGGRAPH 2016. Art Papers, Primary reviewer.
- National Science Foundation (NSF). Primary Reviewer, 2016
- NSF and ASEE 2016 Maker Summit. Invited Participant.

University Service

- 2-Year M.Arch. Admissions Committee - Georgia Institute of Technology. 2019
- "Multidisciplinary Research and Design Thinking" GRID Symposium. April 2018
- "What is Architectural Research?" GRID Symposium. April 2017
- Moderator for presentations by Justine Holzman and Zachary Kaiser at SCDC Open House 2016.
- Graduate Researchers & Innovative Designers (GRID), Officer, 2016 – present.
- Faculty Search Committee, 2015.

Invited Critic/ Juror

- Clemson University, School of Architecture, invited by Joseph Choma as guest juror for Sophomore Final Reviews. Spring, 2019.
- Carnegie Mellon University, School of Architecture, invited by Daniel Cardoso Llach as guest juror for Masters in Design Computation Final Reviews. Spring, 2018.
- New York University, Tandon School of Engineering, invited by Arlene Ducao as guest reviewer for Final Reviews. Ideation & Prototyping. Spring 2018.
- Georgia Institute of Technology, School of Architecture, invited by Scott Marble and Julie Kim as a guest critic for Final Reviews. Sophomore and M.Arch Studios. Spring 2018.
- Carnegie Mellon University, School of Architecture, invited by Daniel Cardoso Llach as guest presenter. December 3, 2015.
- The Pennsylvania State University, Department of Architecture, invited by Rebecca Henn as a guest critic for concept review and final presentation of professional M.Arch studio. Fall 2015.
- The Pennsylvania State University, Department of Architecture, invited by Ute Poerschke as a guest critic for concept reviews of professional M.Arch studio. Spring 2015.
- The Pennsylvania State University, Department of Architecture, invited by Nida Rehman as a guest critic for the final review of first year studio. Fall 2014.
- The Pennsylvania State University, Department of Architecture, invited by Rebecca Henn as a guest critic for the design development reviews of professional M.Arch studio. Fall 2014.
- The Pennsylvania State University, Department of Architecture, invited by Cathy Braasch as a guest critic for final review of first year studio. Fall 2014.
- Singapore University of Technology & Design, invited by Thomas Schroepfer as guest critic for final review for second year studio. Spring 2014, Fall 2013.

TECHNICAL SKILLS

Programming/ scripting languages and software applications:

Processing, Rhino 3D, C#, RhinoPython, AutoCAD, Arduino, Unity3D, RobotStudio, HAL, Autodesk Revit, Adobe Creative Suite, Java, Grasshopper, Firefly, NVIVO.

CAD/CAM Technologies & Fabrication:

CNC wire-bending, 3D printing, CNC Milling & Routing, Laser Cutting, Traditional Wire-Bending, Electronics production, Robotics, Water-jet cutting, 3D scanning.

Podcast Production:

Audio editing and mixing (Audacity); audio production – recording, editing, publishing; sound editing; guest research and interviews; and distribution.

PROFESSIONAL AFFILIATIONS

- American Anthropological Association (AAA) 2018 – present
- The Design Research Society (DRS) 2018 - present
- Graduate Women In Science (GWIS) 2017 – present
- Caribbean Studies Association (CSA) 2017 – present
- The Latin American Studies Association (LASA) 2016 – present
- The American Educational Research Association (AERA) 2016 – present
- The Society for Social Studies of Science (4S) 2016 – present
- The American Craft Council 2016 – present
- Association for Computing Machinery (ACM) 2015 – present
- The International Association for Shell and Spatial Structures (IASS) 2015 – present
- Association for Computer Aided Design in Architecture (ACADIA) 2013 – present
- The Design Society 2013 – present
- Trinidad & Tobago Institute of Architects (TTIA) 2011 – 2015
- American Institute of Architects (AIA) 2007 – 2012
- Trinidad & Tobago Society of Planners (TTSP) 2010 – 2012

Other Skills/ Certificates

- Podcast Fellowship: Podcast Creation and Production (Aug 2018)
- Art & Illustrations;
- Martial Arts – Taekwondo (Black belt), Jujitsu, Judo, Kali, and Aikido;
- Writing; Travel and photography;
- Culinary enthusiast.