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EDUCATION

Pennsylvania State University Present
 Ph.D. Candidate in Architecture – Design Computation
 Research: *Computational Craft, Wire-bending, Digital Technology, and the Trinidad Carnival*

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 for Trinidad & Tobago: The Architecture of Carnival and Calypso Culture.*

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

PROFESSIONAL EXPERIENCE

VAAN Design Lab 2015 – present
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

Burt Hill Inc., Washington, DC. <i>Graduate Architect</i> Designed and prepared construction documents for several institutional projects.	Jun. 2007 – July 2008
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.	Oct. 2005 – Feb. 2007
R. McGhee & Associates <i>Intern Architect</i> Produced construction documents for residential projects, procured zoning & permit application approvals, conducted as-built surveys for projects.	May 2004 – Dec. 2005
Bynoe Rowe Wiltshire Partnership <i>Architectural Technician</i> Designed and produced construction documents for residential, institutional, and commercial projects.	1999 - 2001
Colin Laird Associate Architects <i>Architectural Technician</i>	1996 - 1997

TEACHING EXPERIENCE

[Graduate of the Teaching Certificate Program, Teaching and Learning Laboratory, MIT]	2013
The Pennsylvania State University <i>Instructor. Department of Architecture (w/ Cathy Braasch & James Kalsbeek)</i>	
- Basic Design II (First Year Studio)	Spring 2018
- Basic Design I (First Year Studio)	Fall 2017
- Basic Design I & II (First Year Studio) Design, instruction, and coordination of studio-wide exercises in design, representation, and fabrication for small-scale design projects, general studio coordination, desk crits, pin-ups, and reviews.	Fall 2016 – Spr. 2017
- Inquiry into Design Computing (Module 4 – Worldmaking)	Sept 2016
Singapore Institute of Technology & Design (SUTD), Singapore <i>Visiting Fellow & Co-Instructor (ASD)</i>	
- Digital Design & Fabrication (w/ Bige Tuncer, Stylianos Dritsas)	Spring 2014
- Computational Construction (w/ Skylar Tibbits)	Dec. 2014
- Introduction to Design Computation (w/ Sawako Kaijima)	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

- Introduction to Visual Arts (Instructor: Gediminas Urbonas)

Spring 2013

WORKSHOPS TAUGHT

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

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

Dec. 2017

Department of Architecture, Penn State, PA.

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

Jan. 2017

Department of Architecture, Penn State, PA.

- 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.

Fall 2014

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 EXPERIENCE

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

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.

Apr. 2017 -
present

Department of Architecture, Penn State, PA.

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

Summer 2016

Principal Researcher

"(Re)conceptualizing Wire-bending in Design"

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

Jan. – Dec. 2015

Principal Researcher

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

- Parametric Design, Programming, Augmented Reality, Computer Interaction

2015 - 2016

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* (accepted).

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. (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 Aron Jancso - Hungary," *Architecture Caribbean*, 2010.

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

Invited Lectures and Presentations (selected)

- "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", 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. 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., 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.

FELLOWSHIPS & AWARDS

Academic Fellowships

- 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

Grant Awards

- "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.* 2016
- "Dancing Sculptures: Exploring the Synthesis of Craft, Computation & Technology in Design and Fabrication." *NIHERST Trinidad & Tobago, Prime Minister's Awards for Scientific Ingenuity.* 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.* 2015
- "TraDigital Craft: Exploring the integration of computation and digital in traditional craft practices." *Penn. State University, SCDC Student Research Grant Award.* 2015
- "Cultural Design Practices, Computation and Design Education: Wire Bending in Trinidad & Tobago." *Africana Research Center Award.* 2014

- "Trinidad Carnival: Improving Design through Computation and Digital Technology." *Government of the Republic of Trinidad & Tobago, Ideas2Innovation Award (i2i)*. 2014
- "Dancing Sculptures: Design and engineering practices in Trinidadian wire bending." *Rosalia Ennis Research Award. MIT Department of Architecture*. 2012

SERVICE

Disciplinary Service

- 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.

Departmental Service

- 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**
Carnegie Mellon University, School of Architecture, invited by Daniel Cardoso Llach as guest presenter. December 3, 2015.
- **Design Critic**
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.

Singapore University of Technology & Design, invited by Thomas Schroepfer as guest critic for final review for second year studio. 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.

PROFESSIONAL AFFILIATIONS

- | | |
|---|----------------|
| - Graduate Women In Science | 2017 – present |
| - Caribbean Studies Association | 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 interests

Art & Illustrations; Martial Arts – Taekwondo (Black belt), Judo, Kali, and Aikido; Writing; Travel and photography; Culinary enthusiast.