

# Nina Lutz

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## Profile

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Graduate student at the MIT Media Lab. Interested in bringing interactive affordances to the physical world, especially in context of social identity. Utilizing data driven narratives to tell stories through artistic and computational mediums. Always seeking opportunities to learn and engage with academics around HCI, computation, co-design, and architectural spaces.

## Education

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*Massachusetts Institute of Technology*

Candidate for M.S in Media Arts and Sciences | Expected 2021

*Massachusetts Institute of Technology*

B.S in Computer Science and Engineering with Design | 2019

## Experience

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*Research Assistant; MIT Media Lab - Poetic Justice*

*Present*

Utilizing computational and artistic methods contributing to new forms of justice. Independent research incorporates identity and expression within Latinx and transgender communities. Group research includes software development for a variety of artistic projects.

*Research Affiliate; MIT Media Lab - Future Sketches*

*Present*

Utilizing computational and artistic methods to push the limits of code and arts. Developing new tools and processes centered around the human face, projection mapping, and color quantization. Experimenting with new frameworks and applications of programming as art.

*Research Assistant; MIT Media Lab - Object Based Media*

*2018–2020*

Working to examine the intersection between creative and display technologies. Individual research currently focusing on scattering models for alternatives to interior lighting as well as interactive, identity affirming experiences around cosmetics and technology. Group research including repairing old demonstrations and preparing an exhibition piece for the MIT Museum centered around interactive coral. Mentoring undergraduate students.

*Research Assistant, MIT Media Lab - City Science*

*2015 - 2018*

Programming software for tangible intervention systems. Formulating math models for urban simulation. Developing algorithms to make complex systems more realistic and efficient for real time changes and interaction. Processing, analyzing, and visualizing large sets of spatial data for user intervention. Utilizing computer vision, embedded electronics, and projection mapping. Managing projects, work sessions with member companies, and off site deployments to a variety of academic and industrial institutes internationally.

*Software Engineering Intern, Apple*

*2017*

Writing software for localization studies and services across a range of Apple products. Utilizing machine learning and various data analysis techniques to understand user trends.

*Research Supervisor*

*2019 - Present*

Mentoring multiple undergraduates with their research and projects.

*Co-Instructor; MIT Department of Urban Planning*

*Spring 2019*

Developing a one month and sub sequentially semester long course with Ira Winder. Course taught computational urban science. Giving lectures on GIS data processing and computation techniques and data structures in Java and using software such as ArcGIS.

*Teaching Assistant*

*Fall 2016 - Spring 2019*

Assisted with multiple classes within the School of Architecture and Planning at MIT.

## Skills

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*Software:* Java, Python, C++, C, JavaScript, Processing, Unity, Openframeworks

*Web:* Javascript, CSS, HTML, SQL, Ruby on Rails, three.js, OpenGL, p5.js, d3.js

*Electronics:* Arduino, Eagle, PID, general electronics and controllers, circuit design

*Fabrication:* CAD (Rhinoceros and Grasshopper), Photoshop, Illustrator, Lightroom, InDesign, Drafting, Laser cutter, 3D Printer, CNC, Woodworking, Hand tools, Water Jet

*Misc:* Tableau, QGIS, ArcGIS, Madmapper, projection mapping, optics

## Publications

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*Towards Multimedia Mixed Reality Systems for Cultural Celebrations.* ACM MultiMedia 2020. **N. Lutz.** [In Review]

*Remembrance Desk: Interactive Drawing Desk for Remembrance.* ACM UIST 2020. **N. Lutz,** Z. Lieberman. [In Review]

*Colorchives: Interactive Color Palette Generation for Archival Works.* ACM UIST 2020. **N. Lutz,** Z. Lieberman, O. Atekha. [In Review]

*A Methodology For Digitally Augmented Physical Shrines.* ACM CHI 2020, Workshop Paper in HCI at End of Life. April 2020 **N. Lutz.** [Accepted, conference canceled]

*Colloidal Luminaries for Architectural Lighting.* ACM BuildSys 2019, Demonstration Abstract. November 2019 **N. Lutz,** V. M. Bove.

"Making Up the Unreal." Journal of Design and Science, MIT Press, 23 Oct. 2019, <https://jods.mitpress.mit.edu/pub/ristj7wg>. **Lutz, N.**

*Routing Optimizing Algorithm for Electric Vehicles Applied in North Italy*  
IEEE Industrial and Commercial Power Systems Europe (2018) M Longo, P Maffezzoni, **NM Lutz,** L Daniel, X Lu.

A predictive model to support the widespread diffusion of electric mobility.  
IEEE International Conference on Models and Technologies for Intelligent Transportation Systems (2017). M Longo, P Maffezzoni, D Zaninelli, **NM Lutz,** L Daniel

*Towards an impact study of electric vehicles on the Italian electric power system using simulation techniques.* IEEE 3rd International Forum on Research and Technologies for Society and Industry. M Longo, **NM Lutz,** L Daniel, D Zaninelli, M Pruckner

*Analysis of Tourism Dynamics and Special Events Through Mobile Phone Data .* Bloomberg Data for Good Conference (2016). Y Leng, A Noriega, AS Pentland, I Winder, **N Lutz,** L Alonso.

## Teaching

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*Teaching Assistant, MIT Department of Urban Studies and Planning* January 2020

Course: 11.S187: Hack the City

Instructor: Yuan Lai, PhD

*Co-Instructor, MIT Department of Urban Studies and Planning* Spring 2019

Course: 11.S195: Computational Urban Science Workshop

Co-Instructor: Ira Winder

*Teaching Assistant, MIT Department of Architecture* Spring 2019

Course: 4.043: Advanced Interaction Design

Instructor: Marcelo Cohelo, PhD

*Teaching Assistant, MIT Department of Media Arts and Sciences* Fall 2016, Fall 2017

Course: MAS.A19: Designing Consumer Electronics

Prof: V. Michael Bove, PhD

## **Exhibits and Demonstrations**

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### Exhibits:

Infinity Tunnel; Instruments of Vision; MIT Museum Gallery Dec 2019 - March 2020  
Turning Light; Council Arts MIT Arts on the Radar Sept 6 2019  
Connected Coral; MIT Museum Nov 2018 - Apr 2019

### Demonstrations:

Colloidal Luminaries; BuildSys 2019 (Accepted) Nov 2019 — New York, NY  
Bits and Bricks; IEEE FTC with Ira Winder Nov 2017 — Vancouver, BC, CA  
MIT Media Lab Members Week (Semesterly) Spring 2016 - Present

## **Research Deployments**

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GSK Places Project | Upper Providence, PA | MIT Media Lab City Science Spring 2018  
Senior software developer for an internal tool for architectural site planning at GSK.  
Built physical interface on site and led workshops.  
GSK UK Manufacturing | Stevenage, UK | MIT Media Lab City Science Summer 2017  
Assisted with deploying, documenting technology and front end development.  
Singapore Pedestrian Accessibility | Singapore and Cambridge, MA Summer 2016  
Assisted with developing interface that was deployed in Singapore and workshopped in Cambridge. Lead design part of workshop. Built backend and data processing portion of final software.

## **Invited Talks, Presentations, Lectures, and Critique**

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### Guest Lectures:

11.S187: Hack the City Spring 2020  
11.526: Land Use and Transportation Planning Spring 2020

### Talk:

Luxembourg Fashion Week October 2019

### Invited Critic:

11.S187: Hack the City Spring 2020  
11.205 Introduction to Spatial Analysis Fall 2019  
4.043: Advanced Interaction Design Studio Spring 2019  
11.S195: Computational Urban Science Workshop Spring 2019

## **Awards and Grants**

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Graduate Community Fellow for Institute Community Equity Office Fall 2019  
SIGMOBILE Travel Grant Nov 2019  
Best Demonstration Runner Up at ACM BuildSys Nov 2019  
MIT Media Lab Members Week Front Page Feature Fall 2017, Fall 2018, Spring 2019  
CAMIT Director's Grant Spring 2019  
Best Demonstration at IEEE FTC with Ira Winder Nov 2017

## **Undergraduate Students Advised**

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Spring 2020: Jennifer Zhang, Omoruyi E Atekha  
Fall 2019: Omoruyi E Atekha, Sam Seaman, Jessica Wang  
Summer 2019: Sam Seaman, Jessica Wang, Mikayla Bufford (MSRP Intern)  
Spring 2019: Sam Seaman  
Spring 2018: Max Raven

## **Committees, Community, and Outreach**

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Media Arts and Sciences Student Committee | *Large Events Chair* Fall 2019 - Present  
Urban Science Steering Committee | *Student Member* Spring 2019 - Present  
Clubes de Ciencia | *Instructor* Summer 2019  
Institute Community Equity Office Graduate Community Fellow Fall 2019 - Present