Nina Lutz

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Profile

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 computational, architectural, simulation, and design spaces.

Education

Massachusetts Institute of Technology
Candidate for M.S in Media Arts and Sciences

Massachusetts Institute of Technology
B.S in Computer Science and Engineering with Design

Experience

Research Assistant; MIT Media Lab - Object Based Media 2018–Present
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; Cambridge, MA 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. See CV for details.

Skills

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: Tableu, QGIS, ArcGIS, Madmapper, projection mapping, optics

Publications

A Methodology For Digitally Augmented Physical Shrines.
ACM CHI 2020. April 2020 **N. Lutz**

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

Lutz, Nina. “Making Up the Unreal.” Journal of Design and Science, MIT Press, 23 Oct. 2019, https://jods.mitpress.mit.edu/pub/ristj7wg.

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

Teaching Assistant, MIT Department of Urban Studies and Planning
Course: 11.S195: Hack the City
IAP 2020
Instructor: Yuan Lai, PhD

Co-Instructor, MIT Department of Urban Studies and Planning
Course: Computational Urban Science Workshop
Spring 2019
Co-Instructor: Ira Winder

Teaching Assistant, MIT Department of Architecture
Course: 4.043: Advanced Interaction Design
Spring 2019
Instructor: Marcelo Cohelo, PhD

Teaching Assistant, MIT Department of Media Arts and Sciences
Course: Designing Consumer Electronics (MAS.A19)
Fall 2016, Fall 2017
Prof: V. Michael Bove

Exhibits and Demonstrations

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

GSK Places Project — Upper Providence, PA — Spring 2018
- MIT Media Lab City Science project deployment
- 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 — Summer 2017
- MIT Media Lab City Science project deployment
- 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

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

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

Jennifer Zhang — Spring 2020
Omoruyi E Atekha — Fall 2019, Spring 2020
Mikayla Bufford — Summer 2019 MSRP Program
Jessica Wang — Summer 2019, Fall 2019
Samantha Seaman — Summer 2018, Summer 2019, Fall 2019
Max Raven — Spring 2018

Committees, Community, and Outreach

Media Arts and Sciences Student Committee | *Large Events Chair* — Fall 2019 - Present
Planning and coordinating large events for my department's student population

Urban Science Steering Committee | *Student Member* — Spring 2019 - Present
Steering committee for a new undergraduate major (11-6) at MIT

Clubes de Ciencia | *Instructor* — Summer 2019
Taught creative programming and fundamentals of computer science

Institute Community Equity Office Graduate Community Fellow — Fall 2019 - Present
Creating marketing materials for ICEO Office at MIT