ELENA SABINSON

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EDUCATION

Ph.D. | Human Behavior & Design, Cornell University, 2023
Dissertation: Biophilic Soft Robotic Surfaces for Emotional Wellbeing: Supporting inhabitants of small physical spaces in urban environments with limited access to nature.

Human Centered Design Committee Chair: Dr. Keith E. Green
Minor in Electrical & Computer Engineering, Committee Member: Dr. Kirstin H. Petersen
Minor in Human Development, Committee Member: Dr. Gary W. Evans

M.S. | Interior Architecture & Design, Drexel University, 2015
Thesis: Nurturing Emergent Synthetic Life (NESL): a computational ecology that explores poetic potentials of a novel robotic species through gestural programming and bio-informed aesthetics.

B.A. | Binghamton University, Magna Cum Laude, 2008
Majors: English Literature & Creative Writing; Philosophy

PORTFOLIO

elenasabinson.com

TEACHING PORTFOLIO

elenasabinson.com/teaching

ACADEMIC APPOINTMENTS

Assistant Professor, Environmental Design, University of Colorado Boulder, 2023 -
Assistant Teaching Professor, Department of Architecture, Design & Urbanism, Drexel University, 2017- 2018

RESEARCH EXPERIENCE

Lab Member: Architectural Robotics Lab, Cornell University, 2018 - 2023

My dissertation is on soft robotic surfaces for emotion regulation. Our bio-informed surface can be used to lead guided breathing exercises, visualize sound into a tangible experience, simulate soothing ocean wave movement, and provide biofeedback from plant and human biosignals.

Senior Research Assistant: Design Futures Lab, Drexel University, 2014 - 2018

I worked with Professor Nicole Koltick director of the trans-disciplinary lab, creating objects, experiences, and environments that speculate on the near future. My research focused on poetic robots, fabricated with computational design tools and material exploration to produce evocative visual narratives and full-scale, interactive environments.

Research & Design: Biorealize, University of Pennsylvania, 2015 - 2016

I researched and designed custom parts for an automated biolab used for synthetic biology. I created a custom cuvette carousel used for electroporation and made drawings used for patent applications. The project resulted in a microbial design tool for citizen scientists and creatives founded by Dr. Orkan Telhan and Dr. Karen Hogan.

COURSES TAUGHT at Cornell University

Introduction to Environmental Psychology	Human-Environment Relationships for Wellbeing

COURSES TAUGHT at Drexel University

Structure Studio	Fundamentals of Structure: Furniture & Product Design
Graduate Studio B	Conceptual Interior Spatial Volumes and Form-making
Graduate Seminar B	Diagramming and Advanced Surface Modeling
Digital Fabrication	CNC milling, 3D Printing, Laser Cutting & Casting
Visualization I	Introduction to Graphic Representation for Design
Visualization II	Orthographic Drafting for Design Communication
Visualization III	AutoCAD, SketchUp, Adobe, and Digital Rendering
Visualization V	Creative Representation & Hybrid Visualization Tools

TEACHING ASSISTANT at Cornell University

Human Centered Design Methods	Design Evaluation of Objects & Interfaces
Positive Design Studio	Supports wellbeing by evoking meaningful experiences
Designing Age Friendly Environments	Children and older adults in everyday environments
Problem-Seeking through Programming	Social Science Research Informed Design Guidelines
Magnifying Small Spaces Studio	Design for Human Behavior in Micro-Environments
Disruptive Design Studio	Cultural, Spatial & Material Disruption through Design
Design Generation(s)	Sketching, Prototyping, Graphics & Exhibition
Visual Literacy and Design Studio	2D and 3D Design Issues in Theory and Practice
Design Graphics and Visualization	Using Digital Media to Visualize 3D Space.
Design Portfolio and Communication	Communicate Ideas Through Text, Image & Video
Lighting Design: Light InForming Space	Principles of Playful and Functional Lighting Design

EMPLOYMENT

Designer: Touch Design Studio, 2016 - 2017
• Worked on the design of environmental graphics, construction documents, custom furniture design, and large-scale installation pieces for projects with Johnson & Johnson and Audible.

Adjunct Professor: Department of Architecture, Design & Urbanism, Drexel University, 2015 - 2017
• Taught visualization and studio courses on the undergraduate and graduate level

Graduate Teaching Assistant: Drexel University, 2013 - 2014
• Assisted with Visualization courses for AutoCAD, Rhino, and digital fabrication/CAM tools

Lab Assistant: Hybrid Making Lab, Drexel University, 2012 - 2014
• Operated the equipment and assisted students with all aspects of design and fabrication. Primarily responsible for overseeing CNC milling machines and programming the run files. Experience with ShopBot, Stratasys, Makerbot, Robo3D, FormLabs, Universal Laser and Donek Drag Knifes

SOFTWARE + PROGRAMMING

Rhinoceros 3d/RhinoCAM	QGIS/ArcGIS	
Grasshopper	Stata	
Autodesk	R/Markdown	
Adobe Suite	Python	
3ds Max	Arduino	
SketchUp	TouchDesigner	
Meshmixer/Netfabb	IFTTT	

PROTOTYPING

CNC milling
3D printing
Laser/Die cutting
Molding/Casting
Soft Robotics
Bio-Sensors
Biomaterials

PUBLICATIONS & PRESENTATIONS

Sabinson, E., & Green, K. E. (2023). A Walk in Nature: Exploring the Creative Potentials of a Generative Design Tool for Soft Robotic Surfaces that Foster a Connection with Nature. Proceedings of the 15th Conference on Creativity and Cognition, 185–199. https://doi.org/10.1145/3591196.3593367

Steelman, A., **Sabinson, E.,** Pradhan, I., Ghatak, A. & Green, K. E. (2021) Simulating Ocean Wave Movement in a Soft Pneumatic Surface. 2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) https://doi.org/10.1109/IROS51168.2021.9636056

Sabinson, E., & Green, K. E. (2021). How do we feel? User perceptions of a soft robot surface for regulating human emotion in confined living spaces. *2021 30th IEEE International Conference on Robot & Human Interactive Communication (RO-MAN),* 1153–1158. https://doi.org/10.1109/RO-MAN50785.2021.9515499

Sabinson, E., Pradhan, I., & Evan Green, K. (2021). Plant-human embodied biofeedback (Pheb): A soft robotic surface for emotion regulation in confined physical space. *Proceedings of the Fifteenth International Conference on Tangible, Embedded, and Embodied Interaction,* 1–14. https://doi.org/10.1145/3430524.3446065

Faulk, J. D., McKee, C. C., Bazille, H., Brigham, M., Daniel, J., Jaffe, J. G., JeeEun Lee, **Sabinson, E.,** Zhou, Y., Zhu, Y., Chung, Y. & Hedge, A. (2019). Performance, Movement, Posture, and Perceived Discomfort in Active vs. Static Seating. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 63*(1), 1154–1158. https://doi.org/10.1177/1071181319631505

Koltick, N., & **Sabinson, E.** (2018). Allomimetic Behavior & Gestural Programming: Co-developed Movement between Robots and Designers. Poster session presented at the meeting of *Design Communication Association Conference*, Ithaca, NY.

(Principal Design & Fabrication): Koltick, N., Phenomenal Machines, Haus der Kulturen der Welt (HKW)'s *Technosphere Magazine, Human Dossier.*

(Principal Design & Fabrication): Koltick, N., & The Design Futures Lab. (2016). NESL, nurturing emergent synthetic life. Coax, Computation Communication Aesthetics & X.

(Principal Design & Fabrication): Koltick, N. (2015*). Autonomous Botanist: The Poetic Potentials of New Robotic Species. ACADIA, Computational Ecologies.*

ACADEMIC SERVICE

Associate Chair for the Pictorial track, ACM conference on Tangible Embedded and Embodied Interaction, 2023, "Tangible Revolutions – being together without screens."

Associate Chair for the Work in Progress track, ACM conference on Tangible Embedded and Embodied Interaction, 2022, "Making. Things. Think."

Reviewer for full paper submissions, ACM conference on Design for Interactive Systems, 2021, "More than Human Centered Design"

AWARDS

ROS Film Festival, First Place, Real Robots: Design Futures Lab, "NESL, nurturing emergent synthetic life", 2017

Drexel University Research Day Award, Creative Arts & Design: Jay Hardman & Elena Sabinson, Advisor: Nicole Koltick, "A Creative Approach to Artificial Intelligence; Engaging Ethics, Empathy and Speculative Design", 2015

Collab Student Competition Finalist, "The Doppler Table." Design featured in the Philadelphia Museum of Art, 2013

GRANTS & FELLOWSHIPS

Graduate Fellowship, College of Human Ecology, Cornell University
Dissertation Research Grant Recipient, Cornell University
Swift Fund Grant Recipient, Drexel University