



# Andrew Schoen

## PhD Candidate Computer Science Design for Autonomous Systems

Imagine a complete autonomous system. It might be a *collaborative robot*, an *AI*, or even a *home automation*. Think about all the things that you may want it to do. Does it interact with people? What events trigger certain behaviors? How does it recover from errors?

*So how do you specify those things?  
How might someone else?*

*I build systems that allow us to do just that.*

## CONTACT

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- Keshena, WI

## EDUCATION

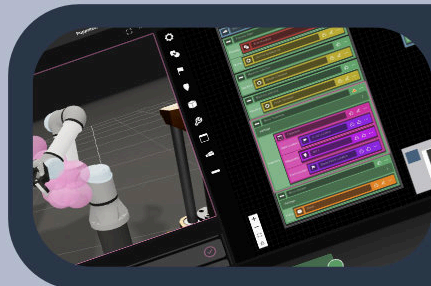
- '23** **PhD - Computer Science**  
University of Wisconsin - Madison
- '18** **MD - Computer Science**  
University of Wisconsin - Madison
- '13** **BS - Biology / Psychology**  
University of Wisconsin - Madison

## SKILLS

- Interaction / Interface Design
- User Experience Research
- Robotics and Automation
- Frontend / Full-Stack Tools
- Mentorship / Supervision

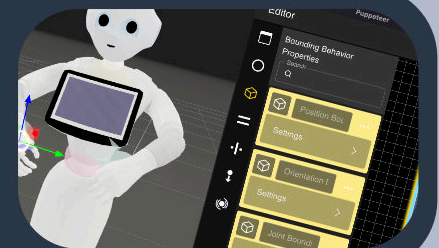
## WORK EXPERIENCE

### Graduate Research '16-'23

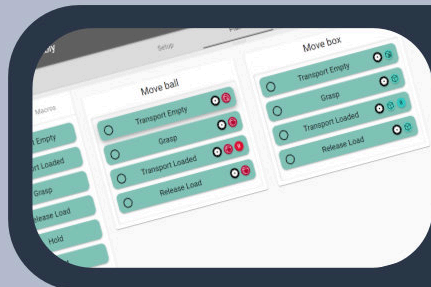


Supported novice collaborative robot programmers in creating safe, effective, and high-quality robot programs by designing a new graphical user interface, **CoFrame**, based on an empirical model of collaborative robot expertise.

Improved robot motion creation and control in both programmatic and graphical interfaces through the design of a new open-source library **Lively** and accompanying design interface **LivelyStudio**.



Assisted collaborative robot programs in producing cost/time-efficient schedules of activities by incorporating verification and optimization into a novel graphical user interface, **Authr**.



Developed design recommendations for user interfaces and tools by performing qualitative and quantitative research, and executing site visits.

Improved lab productivity and knowledge retention for development and research tasks by cultivating a set of open-source tools shared amongst projects, and spearheading personal development and knowledge-base tools.

Educated multiple undergraduate researchers and developers in robotics and usability through mentorship.

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## WORK EXPERIENCE

### Lead Teaching Assistant **Fall '19**

- Supported the design of a highly successful new class, Designing User Interfaces by assisting in creation of homework, exam, and lecture materials, and by coordinating other graders and teaching assistants.
- Facilitated the development of fully functional student projects through the creation of a documented RESTful class API.
- Guided students by producing high-quality example solutions for desktop, mobile, and voice interfaces.

### Research Assistant **'11-'16**

- Improved reliability and consistency of experimental procedures by developing a new iPad application to perform data acquisition and facilitate session functionality.
- Vastly improved speed of structural brain image processing through the development of a new pipeline leveraging high-throughput computing.
- Reduced time spent in manual data-focused tasks by developing automated python-based tools for data cleaning.

## REFERENCES



**Bilge Mutlu**, Professor of Computer Science,  
University of Wisconsin-Madison, [bilge@cs.wisc.edu](mailto:bilge@cs.wisc.edu)



**Emmanuel Senft**, Research Scientist,  
Idiap Research Institute, [esenft@idiap.ch](mailto:esenft@idiap.ch)



**Robert Radwin**, Professor of Engineering,  
University of Wisconsin-Madison, [rradwin@wisc.edu](mailto:rradwin@wisc.edu)



**Allison Sauppé**, Professor of Computer Science,  
University of Wisconsin-La Crosse, [asauppe@uwlax.edu](mailto:asauppe@uwlax.edu)



**David Perlman**, Research Engineer,  
Stanford University, [dperlman@stanford.edu](mailto:dperlman@stanford.edu)

## AWARDS



INTEGRATE Fellow, University of Wisconsin-Madison, Spring 2023



Best Paper Awardee, ACM / IEEE HRI 2023, Systems Track



Teaching Award, University of Wisconsin-Madison, Spring 2020



Comprehensive Honors, University of Wisconsin-Madison

## DETAILS

### Front-End Development

React Angular Bootstrap Astro  
Framer Motion MUI Design Ant Design  
Three.js React-Three/Fiber ReactFlow  
Storybook Vite Webpack Tauri  
Zustand Jotai Redux

### Management, Supervision, Outreach

Peer Mentorship Supervisory Mentorship  
Teaching Resource Development  
Science Outreach

### Perspectives

Human-Computer Interaction Psychology  
Human-Robot Interaction Biology  
Computer Science Design

### Design

UI UX UXR Interaction Design  
Testing Wireframing Agile  
Prototyping Adobe Affinity

### Methods

Planning Optimization Verification  
Synthesis Learning

### Programming

Python Javascript Rust  
Typescript Julia HTML/CSS  
Robot Operating System (ROS) [1+2] R  
Java C# Swift Obj-C

### Hobbies

Stone Sculpture Painting Pottery  
Reading Orchid-Growing