Sidney Grabosky

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Professional Objective

HCI graduate student and software engineer with skills spanning UX research, full-stack development, and emerging technologies (AI/ML, AR, wearables). Combines industry experience building scalable systems with advanced research skills in accessibility and human-centered design. Proven ability to lead projects, conduct user research, and deliver quality code and prototypes.

Target Roles: UX Researcher | Software Engineer | Mobile App Developer | Full Stack Developer | Research Engineer | Design Technologist | Product Manager

Education

Rochester Institute of Technology | MS in Human-Computer Interaction Aug 2024 – May 2026

GPA: 4.0 / 4.0

Thesis (in progress): *Beyond the SmartWatch: A Design Space Exploration of Near-Wrist Bioacoustic On-Skin Interactions*

Explores a novel interaction input modality where users utilize mid-air and on-skin gestures applied to their hand, wrist, digits, and forearm. A custom ML neural network classifier interprets these gestures via bioacoustic waveform propagation. Multi-phase participatory design process and gesture elicitation study to develop and validate gestures and applied Apple Watch wearable prototype.

Specialization: HCI Research, Wearable and Ubiquitous / IoT Computing, Accessibility

Study Abroad: Digital Storytelling and Creative AI Computing, University of Paris 8, Paris, France

Coursework:

Usability Testing	Future Interactions	Information and Interaction Design
Research Methods	Current Topics in HCI	User-Centered Design Methods
Foundation of IoT	Foundation of HCI	Prototyping Wearable IoT Devices

Clubs: User Experience (UX) Club member | Reporter Magazine Freelance Photojournalist (paid position)

Rochester Institute of Technology | BS in Information Technology May 2014

Select Coursework: HCI 1 & 2 | Foundations of Mobile Design | Web II | App Development Practices | Mobile App Development 2 | Introduction to Networks | Data Communications and Networking

Experience

Graduate Research Assistant, AIR Lab (Accessible and Immersive Realities) Aug 2025 – present
Rochester Institute of Technology Rochester, New York

- Project Lead: AI machine vision system to facilitate coaching blind users in exercise. Leading a team of 3 people, training a custom ML model paired with a VLM system and mobile app prototype.
- Development Research Assistant: AI-Powered AR Assistant: Empowering Inclusive Customer Service. LLM vocational coaching system to assist neurodivergent users with realtime feedback in Augmented Reality.

Graduate Research Assistant, CAIR Lab (Center for Accessibility and Inclusion Research) July 2025 – present
Rochester Institute of Technology Rochester, New York

- Rich Caption RPG Project
  - Built a research platform to explore affective 'rich captions' which aim to encode non-speech information into closed captions, improving the ability to communicate emotional nuance and intensity.
  - Uses many forms of AI: LLM for dialogue generation, TTS audio rendering, sentiment analysis pipeline, and synthetic video NPC generation.

Graduate Research Assistant: Generative Storytelling May 2025 – June 2025
Rochester Institute of Technology and Université Paris 8 Paris, Île de France, France

- Digital Creation "Beyond the Screen" transnational workshop on-site at Université Paris 8. Collaborated with international graduate students to build an interactive, generative storytelling and visualization application using AI LLM and semantic modeling/ontology tools. We created a mythological prophet who divines your fate.
  - Ontology semantic model enabled a universe of prophecy plot components, recursively queried with SPARQL for coherent cause-and-effect story-arc generation.
  - Retrieval augmented generation (RAG) on a corpus of mythological texts for prophecy prose.

UX Graduate Student Researcher (Volunteer) Feb 2025 – May 2025
St. Jude Children's Research Hospital Remote

- Team leader for a UX Researcher group doing usability testing for a production app used by St. Jude.
- Conducted heuristic evaluations, usability studies, and produced actionable reports.

Full Stack Web Developer 2019 – 2022
Xelic, Inc. Pittsford, New York

- Built new website backend based on the Laravel framework and Eloquent ORM.
- Performed functions such as updating content, implementing reCAPTCHA, tweaking site design and navigation.

Backend Software Engineer June 2014 – July 2016
SmugMug / Flickr Mountain View, California

- Backend software engineer role developing core SaaS product at web scale for millions of users.
- Lead backend developer for "Private Sharing" privacy/social feature.
- Built infrastructure using AWS to continuously sync data to 3rd-party ESP, enabling delivery of millions of dynamic, context-appropriate emails.
- Collaborated with data science team to cover backend lifecycle with analytics hooks.
- Built image upload de-duplication infrastructure.
- Revamped or built many internal tools for customer support, analytics A/B tests, image searches, photo recovery tools.
- Developed and maintained numerous REST API endpoints.

Software Engineering Intern June 2013 – Aug 2013
SmugMug / Flickr Mountain View, California

- Worked with the backend team on the core product during an exciting period of time leading up to a major v2 "New SmugMug" launch. Worked with cascading complex privacy settings through hierarchies, caching behaviors, and bug investigation and patching. Internship was extended into a full-time position.

Skills

Design & UX Skills: User-Centered Design, Usability Testing, Heuristic Evaluation, Storyboarding, Ethnographic Studies, Information Architecture, Wireframing, Prototyping

Design Tools: Figma, Miro, Adobe Suite

Programming Languages: Swift, PHP, SQL, JavaScript, Python, HTML, CSS, Java, some C

Dev Tools and Frameworks: SwiftUI, Git, Core Data, Swift Data, Laravel, Vue, React, Redux, Tailwind

Skills: Building Machine Learning / AI models, Applied Use of LLM APIs and RAG, Networking, UML Diagrams, Technical Writing, Amazon AWS, Building REST APIs, Unit Testing

Research Presentations

Fram Signature Exhibition: Critical Thinking in the Age of GenAI, Rochester Institute of Technology Sept 2025

AI-Powered AR Assistant: Empowering Inclusive Customer Service. LLM coaching system to help neurodivergent users navigate vocational scenarios with realtime feedback in Augmented Reality.

- Poster presentation and interactive Augmented Reality prototype demo.
- Selected through competitive application.
- Related to research at RIT AIR Lab.

Whispers in the Cave: A Generative AI Divinatory Engine June 2025

Invited Presentation to CAIR Lab, Rochester Institute of Technology.

- Presented 40 slide presentation on methods and results.
- Covered semantic modeling / ontology methods, AI LLM and RAG methods, and visualization, lipsync, and TTS methods.
- Led to subsequent research at CAIR with the "Rich Caption RPG" project.

Projects

Private Sharing (Access Control) Feature, SmugMug

Privacy feature allowing users to granularly share photo galleries and folders with others.

- Lead backend developer.
- Made design and UX decisions in collaboration with design and product teams, balancing usability with security.
- Company blog post: https://tinyurl.com/sm-private-share

ProxyBridge: Improving Remote Engagement in Small-Group Hybrid Meetings Apr 2025

An interactive prototype that aims to resolve social asymmetry that emerged in co-located hybrid meeting situations. A physical proxy device represents remote participants in meetings, indicating their desire to speak using different colors and animations of LEDs, and more aggressively, with haptic vibrations if necessary. A spatial proxemics system allows natural peer to peer "whisper" interactions between in-person and remote participants, and passive social cue / attention monitoring systems allow presenters and supervisors to be confident of remote user engagement without resorting to privacy-intruding measures like compelled video camera use.

- 10 page research paper and literature review
- Physical prototype implemented with an Arduino and haptic motor
- Functioning iPhone app prototype
- Figma Prototypes
- Research into proxemics, spatial relationships, social asymmetry, and accessibility.

BirdBox: Multimodal AI Bird Monitoring System

A multimodal AI / IoT bird monitoring system; which records, counts, and classifies bird species from video and audio bird calls. Supports citizen science, enjoyment of nature, and delights grandmas.

- Custom built outdoor camera unit with Raspberry Pi, AI ReCamera, Lavalier microphone, and sensors,
- Indoor monitoring unit with capacitative touch screen and realtime bird alerts
- BirdNet audio classifier, YOLO11 video classifier
- NodeRED workflow
- MQTT server, RTSP server and proxy
- Custom Vue framework based web app

Route Planning App for People with Limited Mobility Dec 2024

Highly customizable mobile map and navigation app to help people with limited mobility navigate while avoiding dynamic obstacles with a "Waze-like" realtime reporting system.

- Team Leader.
- App designed over course of a semester with extensive contextual inquiries, surveys, and community / interest group outreach with mobility-limited users.
- Statistical analysis of survey results, thematic analysis and qualitative coding of contextual inquiry findings.
- User personas, affinity diagrams, and journey maps.
- Card sorting and information architecture using UXTweak to produce dendograms and similarity matrices.
- Developed lo-fi and hi-fi interactive prototypes using Figma.
- Figma: Created extensive, flexible internal component library using properties and auto layout tools.
- Project website link: https://montreal-design.netlify.app

In Development: Pinyon (MacOS / iOS App)

Advanced link, bookmark, and knowledge management archival / productivity tool.

- Native MacOS/iOS App built using Swift and SwiftUI.
- AI-backed search functionality.

Novel Python Research Tool and GUI to test Voice Transcription

Built a custom tool and GUI to automate the procedure for an HCI research study, testing the accuracy of voice assistant transcription when subjected to varying degrees of ambient noise.

- Multi-threaded program and GUI that presents transcripts for participants to read aloud in pseudo-random order, while automatically playing ambient noise clips.
- Automatically capture voice recording, using Google APIs to transcribe.
- Calculate WER (word error rate) using a transformation pipeline.
- Measure WPM (words per minute).
- Logs all trial data as CSV for further analysis.

BrainWave Classroom VR Experience App

Functioning proof-of-concept app that allows educators to manage VR experiences and settings for classroom activities.

- Native iOS (iPad) app built using Swift and SwiftUI.
- Proof of concept app built for Foundations of HCI course project
- Built after months of interviews with educators and stakeholders, research into VR in education.

Coursework Papers

- Comparing UI Feedback Methods to Promote "Eco-Driving" Habits in Users of Electric Vehicles
- Exploring Usability Challenges and User Reluctance in Interactions with Virtual Assistant Systems
- Exploring Usability Challenges and Task Use Cases with Virtual Assistant Systems
- Examining the impact of ambient background noise and rate of speech on transcription accuracy
- ProxyBridge: Improving Remote Engagement in Small-Group Hybrid Meetings

Coursework Literature Reviews

- Epidermal Interfaces and Interactions
- Novel Interactions Enabled with Flexible Touch Displays
- "AI-Slop" Dystopia or Golden Age for Creativity? The Impacts of Generative AI Co-Writing
- Stress-Adaptive User Interfaces and Cognitive Load Sensing through Wearable GSR Biometric Devices