MOHAR KALRA

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EDUCATION

05/2021	**Columbia University in the City of New York**	**New York, NY**

Bachelor of Science in Electrical Engineering
GPA: 3.99; Magna Cum Laude

08/2017 – 05/2018	**Georgia Institute of Technology**	**Atlanta, GA**

Bachelor of Science in Electrical Engineering
GPA: 4.00; Dean's List every semester

RESEARCH

08/2021 – Present	**MORTIMER HAYS-BRANDEIS TRAVELLING FELLOWSHIP**	**Tartu, Estonia**

Creative Fellow

- Performing ethnographic and archival research into Estonian digital, environmental and folk cultures through a semiotic lens to reimagine interaction paradigms for encounters with digital and natural space
- Developing a series of interactive electronic artworks that adapt my research to imagine more transparent, expressive and ethical relationships between people, technology and nature

09/2019 – 04/2021	**BARNARD MOVEMENT LAB**	**New York, NY**

Student Artist-in-Residence under Guy Delancey

- Design AR iOS experience in Unity using C# and Python scripts to explore how users interact with their physical world
- Built light belt controlled by ATTiny, FM radio receiver and custom VLF radio receiver to interrogate wearers' sense of presence in nature
- Built pair of goggles by reprogramming transparent OLEDs using Arduino and C to create novel visual experiences
- Built kinetic sculpture that serially receives bitmap images from python script communicating with js chrome extension
- Built electronic comic book using ATTiny that mechanically locks open until every page is read in order

05/2020 – 08/2020	**COMPUTER ENABLED ABILITIES LAB**	**New York, NY**

Student Researcher under Dr. Brian Smith

- Redesign Unity game environment and Parse backend to improve experimental design for novel blind navigation tools
- Facilitate 10 user studies with blind users and analyze quantitative and qualitative results for paper submission to UIST 2021

01/2018 – 05/2018	**ADAPTIVE DIGITAL MEDIA LAB**	**Atlanta, GA**

Student Researcher under Dr. Brian Magerko

- Developed wifi-enabled tangible interfaces for Tunetable platform to teach children programming principles through music
- Used Arduino and Python servers to send and receive data over OSC protocol from tangibles to Tunetable

WORK EXPERIENCE

09/2018 – Present	**MORPHOLIO APPS**	**New York, NY**

Independent Contractor

- Designed Swift tool and UI to provide support for 33 new 3D model filetypes to be imported into Morpholio Trace app
- Designed Swift tool and UI for users to view 3D models using custom orbital and POV camera schemes
- Wrote Python scripts to automate the modification of 100+ 3D model .obj files in Blender for use in AR iOS apps
- Reduced processing time for .obj files from 40 min/model to 5-10 min/model

05/2019 – 08/2019	**KONRAD GROUP**	**New York, NY**

Associate Consultant Intern

- Designed and strategized product roadmaps for 2 Fortune 100 clients' digital portals, websites and mobile apps
- Performed and analyzed 70+ user interviews to develop 5 prototypes and product requirements for clients

05/2018 – 08/2018	**JABIL, INC** *Electrical Design Engineering Intern*	St. Petersburg, FL

- Analyzed, tested and troubleshot 4 PCBs to meet client requirements of power and voltage output for consumer appliances
- Designed, documented and constructed 20+ electrical harnesses for high fidelity prototype of home appliance for client
- Designed and executed tests of Alexa-enabled assembly's ability to recognize voice commands in various situations

LEADERSHIP

09/2019 – 04/2021	**COLUMBIA UNIVERSITY RESIDENTIAL LIFE** *Residential Advisor*	New York, NY

- Counseled and nurtured floor community of 32 Columbia students to help them better adjust to college life

11/2018 – 04/2021	**DOUBLE EXPOSURE JOURNAL** *Editor-in-Chief / Columbia University Undergraduate Film Criticism Journal*	New York, NY

- Manage publication of long-form student works of film criticism for online blog and annual print journal

11/2018 – 08/2020	**RATROCK MAGAZINE** *Webmaster / Columbia University Undergraduate Arts Magazine*	New York, NY

- Designed and managed Ratrock's Squarespace website in order to provide a platform for student artists

01/2018 – 03/2018	**ARTHACKS** *Budget Manager / Georgia Tech's First 24-hour Art Hackathon*	Atlanta, GA

- Managed $2,300 budget to supply meals and complimentary art supplies for attendees
- Procured 240 free and discounted meals from 7 Atlanta restaurants to provide meals for the 40 attendees

PUBLICATIONS

ACADEMIC

2021   **NavStick: Making Video Games Blind-Accessible via the Ability to Look Around**. *UIST '21, October 10–14, 2021, Virtual Event, USA. ACM, New York, NY, USA, 14 pages. https: //doi.org/10.1145/3472749.3474768*

2019   **"Minimalist Dreams: On the Surrealist Films of Marie Losier",** *Double Exposure Journal, New York*

LONG-FORM SEQUENTIAL ART

2020   **"Close Up",** *Self-published*

2019   **"Novelty",** *Good Comics, London*

2019   **"Boxes",** *Self-published*

2018   **"Dolores O'Riordan",** *Dead Singer's Society, Vol. 4, Good Comics, London*

CONVENTIONS

2019   **Massachusetts Independent Comics Expo 2019,** *Cambridge, MA*

2019   **Small Press Expo 2019,** *Baltimore, MD*

GROUP EXHIBITIONS

2019   **"Small Things",** Postcrypt Art Gallery**,** *New York, NY*

2018   **"Fantasy",** Postcrypt Art Gallery**,** *New York, NY*

SKILLS

Engineering: IoT, SolidWorks, digital system design, analog circuit design, motion-capture, PCB debugging, Raspberry Pi, PCB design, electronics testing, Cadence, PCB assembly, Altium Designer, digital image processing, oscilloscope, Spice
Programming: open frameworks, C, C++, Swift, ARKit, data structures, CSS, HTML, Python, Java, Matlab, Javascript, UNIX, C#, Unity scripting, Blender scripting, computer networking, Arduino, HTTP, TCP/IP, javascript
Languages: English (Native), Spanish (Intermediate), Estonian (Novice)