

ARYAN SAINI

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EDUCATION

Monash University, Melbourne, Australia

February 2022 -

Doctor of Philosophy (PhD) (Human-Centred Computing)

Thesis: **Building**

IIIT-Delhi, New Delhi, India

August 2015 - May 2019

Bachelor of Technology (Electronics and Communications Engineering)

Undergraduate Thesis: **Designing Wearable Trinkets and Toolkits**

RESEARCH INTERESTS

Human-Computer Interaction (Construction Toolkits, Fabrication, Virtual Reality, and Storytelling)

WORK EXPERIENCE

Weave Lab, IIIT-Delhi, New Delhi

Jan 2020 - Sept 2020

Research Assistant

Advisor: Prof. Aman Parnami

- Worked on creating a wearable interface for capturing facial gestures. Designed the interface, and was responsible for data collection and user studies for evaluating accuracy as well as the social acceptability.
- Worked on creating storytelling experiences in Augmented Reality (AR). Contributed in adapting a story to support multiplayer, synchronous, and co-located interactions in AR. This work was presented at a workshop at ACM IMX 2020 and was sponsored by Snap Inc.

Microsoft Research India, Bengaluru

June 2019 - Dec 2019

Research Intern

Advisor: Dr. Manohar Swaminathan

- Worked on creating accessible solutions for PVI (People with Vision Impairments) in Global South.
 - Designed an application and evaluation study for PVI to improve their physical health while immersed in an exploratory scenario incorporating Spatial Audio.
 - Worked on creating accessible games for enhancing numeracy among pre-school children with visual impairments.

Weave Lab, IIIT-Delhi, New Delhi

Jan 2018 - May 2019

Undergraduate Researcher

Advisor: Prof. Aman Parnami

- Worked on my undergraduate thesis titled "Designing Wearable Toolkits and Trinkets".
 - Designed input interactions with jewelry using Research-through-Design approach. [CHI 2019]
 - Created a construction toolkit for building controllers for Virtual Reality using LEGO Bricks. [CHI 2019]

- Designed a block-based authoring tool for creating multimedia storytelling experiences. [UIST 2019]

PUBLICATIONS

- [1] **Saini, A.**, Mathur, K., Thukral, A., Singhal, N., Parnami, A. 2019. Aesop: Authoring Engaging Digital Storytelling Experiences. Adjunct Proceedings of **UIST 2019**. doi>10.1145/3332167.3357114
- [2] Arora, J., **Saini, A.**, Mehra, N., Jain, V., Shrey, S., Parnami, A. 2019. VirtualBricks: Exploring a Scalable, Modular toolkit for Enabling Physical Manipulation in VR. Published in Proceedings of **CHI 2019**. doi>10.1145/3290605.3300286
- [3] Arora, J., Mathur, K., **Saini, A.** Parnami, A. 2019. Gehna: Exploring the Design Space of Jewelry as an Input Modality. Published in Proceedings of **CHI 2019**. doi>10.1145/3290605.3300751

TECHNICAL SKILLS

Programming Languages	C, Embedded C, Python, JavaScript and Verilog
Tools	OnShape, Blender, AutoCAD, Git, MATLAB, Wireshark, L ^A T _E X, Xilinx, LTSpice
Hardware Skills	3D Design and Printing, PCB Fabrication, Communication Protocols
Multimedia and Design	Adobe Premiere Pro, Photoshop, Illustrator, After Effects, Sketch, Audacity and Fritzing

SELECTED PROJECTS

CycloStroll: An Immersive Exploration of Neighborhood via Spatial Audio

Worked on developing an engaging cycling experience for VIPs, which centralizes enjoyment and playfulness over fitness. We incorporated spatial audio along with an augmenting a gym bicycle to build our solution. We developed an Android app based on Google Maps API, which supports a free roam experience encouraging users to explore the real world while working on their fitness.

Aesop: An Authoring Tool for Creating Multimedia Stories

Created an authoring tool for augmenting conventional storytelling practice of narration with multimedia. With our tool a storyteller can create an expressive storytelling experience for their audience by integrating sound effects, animations, actions by a robot, lighting and wind simulations. Our work lowers the threshold to create such experiences by leveraging block-based programming to map the actions to the keywords of a story.

VirtualBricks: A LEGO based Toolkit to build controllers for Virtual Reality

Designed a toolkit which leverages the modularity and scalability of LEGO to offer a set of special bricks, each having a different functionality, to create expressive match for objects in a Virtual Reality Environment. These bricks enabled day-to-day interaction performed by humans to be translated to virtual reality.

Gehna: Exploring the Design Space of Jewelry as an Input Modality

We combined perspectives from the fields of jewelry design, input techniques, and wearable computing, along with our hands-on study of a sample set of ornaments to formulate the design space of jewelry-enabled input. We prototyped our input techniques through suitable sensing methods, implemented a set of applications to demonstrate the versatility of the platform.