Gesu India

Human-Computer Interaction | Accessibility Research
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(she/her/hers)

Education

2014-2018 **Indian Institute of Technology (IIT) Patna**
Bachelor of Technology (B.Tech.), Civil Engineering

Employment

2018-Now Research Fellow, **Microsoft Research India**

Interests

Human-Computer Interaction, Accessibility & Inclusive Design, Pedagogy (STEM and CS Ed.), Game Design, Usable Security,

Software & Skills

Software	Android Studio, AUTOCAD, Adobe Photoshop, MATLAB
Programming	JAVA, Python, Web (HTML, CSS, JavaScript)
Skills	User Research & Usability Testing, Quantitative & Qualitative Research, CAD Modeling, 3D Printing

Peer-Reviewed Conference Publications

CHI 2021 **Teachers' Perceptions around Digital Games for Children in Low-resource Schools for the Blind**
India, G., Y, V., O, A., Diwakar, N., Jain, M., Vashistha, A., Swaminathan, M., 2021, May. In Proceedings of the 2021 CHI Conference on Human Factors in Computing.(forthcoming)

ICTD 2020 **Conceptual Learning through Accessible Play: Project Torino and Computational Thinking for Blind Children in India**
India, G., Ramakrishna, G., Pal, J. and Swaminathan, M., 2020, June. In Proceedings of the 2020 International Conference on Information and Communication Technologies and Development (pp. 1-11). https://bit.ly/2JfMx88

ASSETS 2019 **Computational Thinking as Play: Experiences of Children who are Blind or Low Vision in India**
India, G., Ramakrishna, G., Bisht, J. and Swaminathan, M., 2019, October. In The 21st International ACM SIGACCESS Conference on Computers and Accessibility (pp. 519-522)
Recipient of Artifact Award (Runner Up) https://bit.ly/2Vn6JY8

Conference Awards

ASSETS 2019 **Artifact Award (Runner Up)**

IndiaHCI 2016 **Best Poster Award**

Projects & Experience

Research Fellow (June 2018 - Now) | Microsoft Research India
Advised by: Manohar Swaminathan

- **Computational Thinking through Play:** Computational Thinking (CT) curriculum designed by ACM India is not accessible for the blind. Using a play-based approach, we introduced CT in three Schools for the Blind using Project Torino (Code Jumper) as the play artifact. Incorporating insights from the findings, we are designing a play-based CT curriculum accessible to the blind. **ICTD 2020, ASSETS 2019, ASSETS'19 Artifact Award*

- **Numeracy through Play:**
  - **Braille Factor Blocks (BFB):** Cuisenaire rods are inaccessible for the blind. Using Iterative Design approach, we designed a versatile set of Braille Factor Blocks that engage young blind children in a creative playful experience while teaching them numbers, counting and numeracy. **In production, and submission for IXDA'21*
  - **Number Line Estimation:** Intrigued by how blind children learn numeracy, I designed and conducted a research study to gauge the difference in numerical knowledge attained by sighted and blind children, studying in grade 2-4, using Number Line estimation tasks. **In Progress.*
  - **Junior Braille Cards:** Off-the-shelf Braille playing cards in India are not not usable by design for young blind children. We designed accessible playing cards and conducted six-month-long design evaluation study in three Schools for the Blind. **In production, and submission for IXDA'21*
- **Introducing Digital Games in Schools for the Blind in India:** To explore the role digital games can play in developing digital skills of blind children, recognizing the critical role of teachers in this process, we conducted a mixed-methods study to examine which attributes of digital games teachers find useful for children and what challenges they perceive in integrating digital games in schools for the blind. **CHI 2021*
- **Encouraging Physical Fitness among the Blind:** To gain an in-depth understanding of patterns and behaviours of blind adults around exercises, we conducted a semi-structured qualitative research. Based on the insights from the study, we are designing a smartphone application based on exergaming. **In Progress.*
- **Navigating Life with a Visual Disability:** Conducted an exploratory qualitative research to understand various challenges and socio-cultural barriers faced by blind adults (and their parents) while seeking STEM education in India. **In Progress.*

Summer Intern (May-June'17) | IRIT, France & SUTD, Singapore
Advised by: Christophe Joufrrais and Suranga Nanayakkara

- **Tangible Games for Enhancing Spatial Skills of the Blind:** Blind children lack awareness and understanding of their surroundings. To enhance their spatial skills, designed and prototyped a multi-sensory collaborative tabletop game (Steps), using a participatory design approach with O&M instructors of Singapore Association of Visually Impaired.

Research Intern (May'16-Sept'17) | IDC School of Design, IIT Bombay
Advisor: Anirudha Joshi

- **TouchPIN: Accessible Authentication System for Smartphone Users who are Blind**
  Blind smartphone users face various threats of observational attacks while entering passwords in a public place. Conducted a contextual research study, designed an accessible authentication system (TouchPIN) based on tactile cues and conducted a usability testing evaluating users' performance on TouchPIN in various case scenarios. **India HCI'16 Best Poster, INTERACT'17 Student Research Consortium, IIT Bombay's 2019 Accessibility Workshop*

Research Intern (Dec'15) | Department of Design, IIT Guwahati
Advisor: Prasad Bokil (now at IIT Bombay)

- **(Project Kanimuni) Educational Games:** Designed an educational board game based on concepts of Electricity and Magnetism, for children studying in Government schools of Guwahati, Assam.

Conference Presentations

ICTD 2020	**Paper Presentation** "Conceptual Learning through Accessible Play: Project Torino and Computational Thinking for Blind Children in India". *India, G., Ramakrishna, G., Pal, J., Swaminathan, M.* Presentation Video
ASSETS 2019	**Poster Presentation** "Computational Thinking as Play: Experiences of Children who are Blindor Low Vision in India". *India, G., Ramakrishna, G., Bisht, J. and Swaminathan, M.*
Empower 2019	**Poster + Paper Presentation** "Music, Storytelling and Play: Teaching Computational Thinking to Blind Children in India". *India, G., Swaminathan. M*
INTERACT 2017	**Paper Presentation** "TouchPIN: Numerical Passwords You Can Feel". *India, G.* Adjunct Proceedings
IndiaHCI 2016	**Poster + Paper Presentation** "Haptics for Authentication". *India, G., Joshi, A., Joshi, M., Jahav, C.* **Recipient of Best Poster Award**

Talks

- Bangalore Science & Technology Fair - EPISTEME'19 | "Ludic Design for Accessibility"
- Accessibility Workshop'19 -IIT Bombay | "Accessible Authentication for VI Smartphone Users"

Certificates

- Google Sprint (2017)
- Micro-interactions Toolkit for UX/UI Designers (2016)

Memberships

- ACM
- ACM SIGCHI

Achievements

- Winner (NGO Hacks) | TheGarage India Hackathon'20
- Finalist (Bangalore) | TheGarage India Hackathon'18
- Finalist (Best B.Tech Project in Civil Engineering'18) | IIT Patna
- Finalist (Student Design Consortium) | INTERACT'17
- Rank 4 (Innovation in Design) | Human Powered Vehicle Competition India'16
- Rank 5 (Vehicle Chassis Design) | Human Powered Vehicle Competition India'16

Outreach & Services

- Volunteer | Bangalore Mental Health Support Group
- Student Volunteer | INTERACT'17
- Student Volunteer | IndiaHCI'16
- Club Coordinator | Startup Relations, IIT Patna
- Sub-Coordinator | Sponsorship & Marketing, Cultural Fest, IIT Patna
- Sub-Coordinator | Association of Civil Engineers, IIT Patna
- Basketball | Inter-IIT Sports Meet'14

Other Interests

Sketching, Digital Art, Basketball, Dancing, Photography, Architecture & Interior Decor