# ACM ISS 2022 – Conference Program Handbook

Welcome to the 2022 **ACM Interactive Surfaces and Spaces Conference (ACM ISS 2022)** from **20-23 November 2022** in Wellington, New Zealand (Aotearoa). ACM ISS is the premier academic venue for research in the design, development, and use of new and emerging interactive surface technologies and interactive spaces.

Wellington is the capital and second-largest city in NZ. The city offers a vibrant atmosphere and an eclectic, multicultural heritage to explore. The conference will be a hybrid event. The in-person part of the event will take place on the campus of the Business School at Victoria University of Wellington. We thank our sponsors for their generous support. We hope you have a wonderful time at the conference!

**General Co-Chairs**

Craig Anslow - Victoria University of Wellington, NZ

Judy Kay - University of Sydney, Australia

**Associate Editors**

Jim Wallace – University of Waterloo, Canada

Andrés Lucero – Aalto University, Finland

Hans Christian Jetter – University of Lübeck, Germany

Silver | Bronze | Friends | Supporters

# ACM ISS 2022 Program

**Wifi:** WellingtonUniversityGuest (supply your email address) / Eduroam

**Breaks:** Morning– 10.30-11.00, Lunch - 12.30-13.30, Afternoon- 15.00-15.30

## Sunday 20 November – Day 1 (Workshops, Tutorials, Doctoral Symposium)

| | | |
|---|---|---|
| 0900-1700 | **Workshop**: Indigenous CHI | RHMZ02 |
| 0900-1700 | **Workshop**: Immersive Analytics Spaces and Surfaces | RH102 |
| 0900-1700 | **Workshop**: Rethinking Smart Objects | RH103 |
| 0900-1700 | **Workshop**: Game Design Prototyping | RH104 |
| 1100-1230 | **Tutorial 1:** Conversational Agents | RHMZ06 |
| 1330-1700 | **Tutorial 2**: Tangible Objects | RHMZ06 |
| 0900-1230 | **Doctoral Symposium** | RHMZ05 |
| 1800-2000 | **Welcome Reception** (get Cable Car ticket from registration desk) | CableTop Cafe |

## Monday 21 November – Day 2

| | |
|---|---|
| 09:00 - 09:30 | **Conference Welcome** at Rutherford House Lecture Theatre 2 (RHLT2) |
| 09:30 - 10:30 | **Keynote**: Professor Andy Cockburn (Canterbury) at RHLT2 |
| 11:00 - 12:30 | **Session 1: XR** at RHLT2 (Chair: Mark Bilinghurst)<br>• Investigating the Use of AR Glasses for Content Annotation on Mobile Devices<br>• VideoPoseVR: Authoring Virtual Reality Character Animations with Online Videos<br>• XSpace: An Augmented Reality Toolkit for Enabling Spatially-Aware Distributed Collaboration<br>• Visual Transitions around Tabletops in Mixed Reality: Study on a Visual Acquisition Task between Vertical Virtual Displays and Horizontal Tabletops |
| 13:30 - 15:00 | **Session 2**: **Touch** at RHLT2 (Chair: Hans Christian Jetter)<br>• Theoretically-Defined vs. User-Defined Squeeze Gestures<br>• Predicting Touch Accuracy for Rectangular Targets by Using One-Dimensional Task Results<br>• The Effectiveness of Path-Segmentation for Modeling Lasso Times in Width-Varying Paths<br>• Reducing the Latency of Touch Tracking on Ad-hoc Surfaces |

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|---|---|
| 15:30 - 16:30 | **Session 3: Gaze** at RHLT2 (Chair: Aluna Everitt)<br>• Design and Evaluation of a Silent Speech-Based Selection Method for Eye-Gaze Pointing<br>• HandyGaze: A Gaze Tracking Technique for Room-Scale Environments using a Single Smartphone<br>• Effects of Display Layout on Spatial Memory for Immersive Environments |
| 16:30 - 17:30 | **Minute Madness:** Posters, Demos, and Doctoral Symposium at RHLT2 |
| 17:30 - 20:00 | **Demos Evening:** Posters, Demos, Doctoral Symposium at Rutherford House Mezzanine Floor |

## Tuesday 22 November - Day 3

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|---|---|
| 09:00 - 09:30 | **Conference Welcome** at **RHLT2** |
| 09:30 - 10:30 | **Keynote:** A/Prof Stefanie Zollmann (Otago) at RHLT2 |
| 11:00 - 12:30 | **Session 4: Mobile** at RHLT2 (Chair: Ahmed Arif)<br>• Eliciting User-Defined Touch and Mid-air Gestures for Co-located Mobile Gaming<br>• Leveraging Smartwatch and Earbuds Gesture Capture to Support Wearable Interaction<br>• NoteWordy: Investigating Touch and Speech Input on Smartphones for Personal Data Capture<br>• TetraForce: A Magnetic-Based Interface Enabling Pressure Force and Shear Force Input Applied to Front and Back of a Smartphone |
| 13:30 - 15:00 | **Session 5: Collaboration 1** at RHLT2 (Chair: Joaquim Jorge)<br>• Semi-automated Analysis of Collaborative Interaction: Are We There Yet?<br>• SaferHome: Interactive Physical and Digital Smart Home Dashboards for Communicating Privacy Assessments to Owners and Bystanders<br>• Players and Performance: Opportunities for Social Interaction with Augmented Tabletop Games at Centres for Children with Autism<br>• Re-locations: Augmenting Personal and Shared Workspaces to Support Remote Collaboration in Incongruent Spaces |
| 15:30 - 16:30 | **Session 6: Collaboration 2** at RHLT2 (Chair: Danielle Lottridge)<br>• Remote Graphic-Based Teaching for Pupils with Visual Impairments: Understanding Current Practices and Co-designing an Accessible Tool with Special Education Teachers<br>• Towards Immersive Collaborative Sensemaking<br>• Push, Tap, Dwell, and Pinch: Evaluation of Four Mid-air Selection Methods Augmented with Ultrasonic Haptic Feedback |
| 18:00 - 21:00 | **Conference Banquet** at Dockside Restaurant and **Keynote:** Professor Mark Bilinghurst (Auckland / UNISA) |

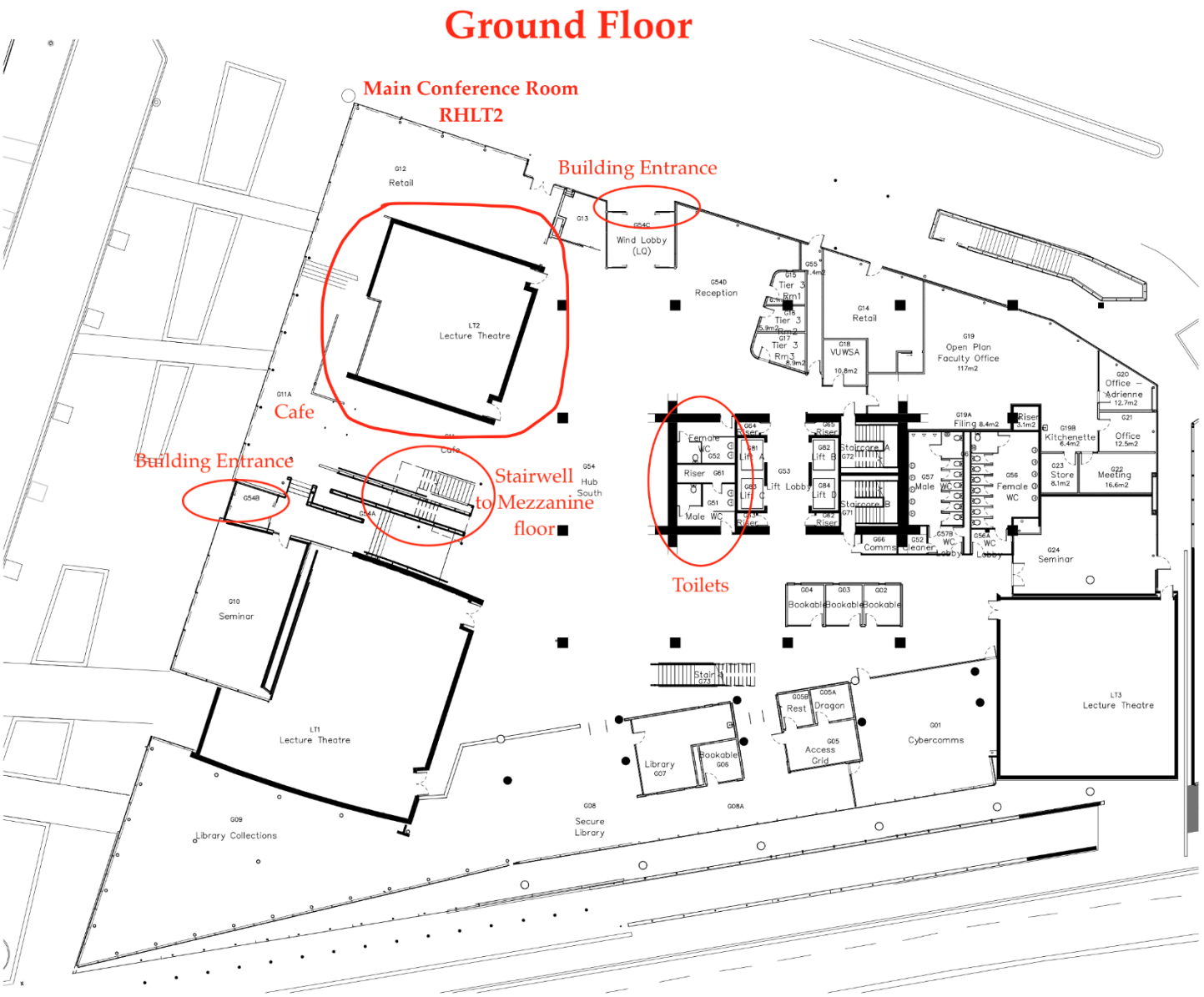
## Wednesday 23 November – Day 4

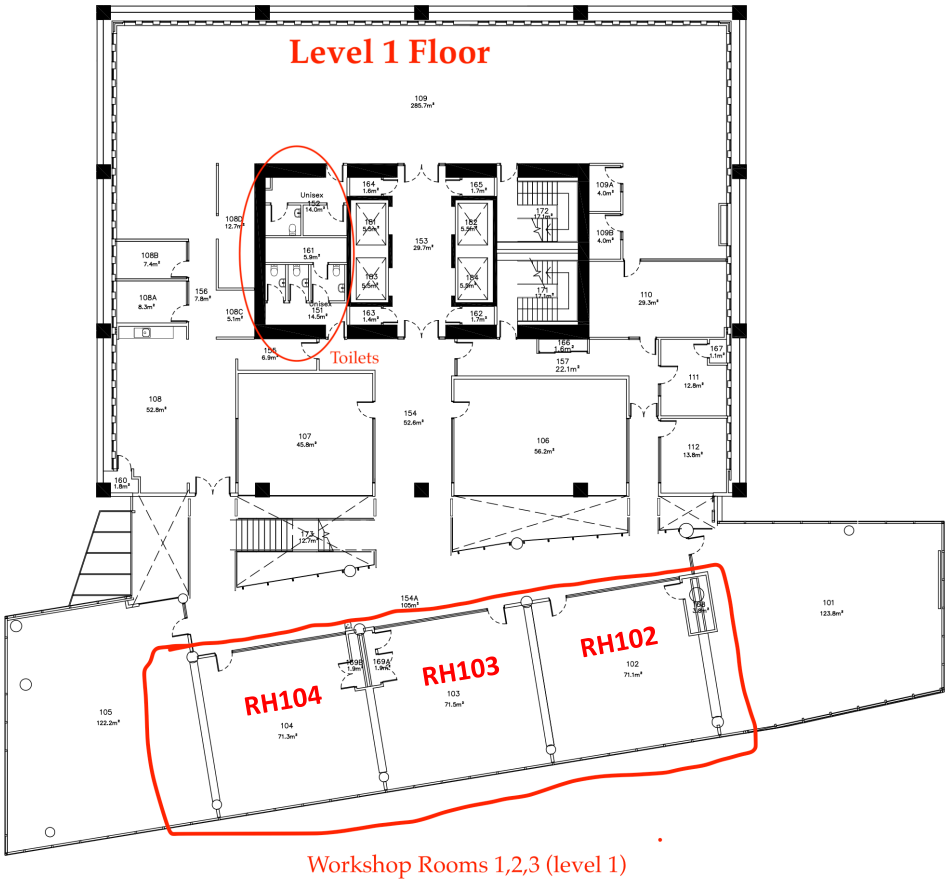
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| 09:00 - 10:30 | **ISS Townhall** and **Awards: 10 Year Impact Award, Best Paper Award, Honorable Mention Awards** at RHLT2 |
| 11:00 - 12:30 | **Session 7: XR 2** at RHLT2 (Chair: Barrett Ens)<br>• ElectronicsAR: Design and Evaluation of a Mobile and Tangible High-Fidelity Augmented Electronics Toolkit<br>• Extended Mid-air Ultrasound Haptics for Virtual Reality<br>• Conductor: Intersection-Based Bimanual Pointing in Augmented and Virtual Reality<br>• AngleCAD: Surface-Based 3D Modelling Techniques on Foldable Touchscreens |
| 13:30 - 15:00 | **Session 8: Alternative Screens** at RHLT2 (Chair: Jason Leigh)<br>• A Survey of Augmented Piano Prototypes: Has Augmentation Improved Learning Experiences?<br>• Dynamic Pinhole Paper: Interacting with Horizontal Displays through Perforated Paper<br>• LightMeUp: Back-print Illumination Paper Display with Multi-stable Visuals<br>• UbiChromics: Enabling Ubiquitously Deployable Interactive Displays with Photochromic Paint |
| 15:30 - 16:30 | **Session 9: Tangible** at RHLT2 (Chair: Judy Kay)<br>• Investigating Pointing Performance for Tangible Surfaces with Physical 3D Targets<br>• Tangible Chromatin: Tangible and Multi-surface Interactions for Exploring Datasets from High-Content Microscopy Experiments<br>• TiltWalker: Operating a Telepresence Robot with One-Hand by Tilt Controls on a Smartphone |
| 16:30 - 17:00 | **Conference Closing** at RHLT2 |
| 18:00 – 20:00 | **Conference Social** at Southern Cross Garden Bar and Restaurant |

## Thursday 24 November – Day 5 (HCI Master Class)

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|---|---|
| 09:30 - 10:30 | **Session 1:** Professor Joaquim Jorge (Lisbon) – Approaches and Challenges to AR/VR in Health Care at RHLT2 |
| 11:00 - 11:30 | **Session 2:** Judy Kay (Sydney) - HCI Education at RHLT2 |
| 11:00 - 11:30 | **Session 3:** Rita Garcia (Unity / VUW) - Using Collaborative Learning Activities and Interventions to Promote Inclusive and Equitable Student Teams at RHLT3 |
| 11:30 - 12:00 | **Session 4:** Danielle Lottridge (Auckland) - Mixed Methods Research in HCI (And a Case Example of Multitasking) at RHLT2 |
| 11:30 - 12:00 | **Session 5:** Thomas Fritz (Zurich) - Boosting Developer Productivity at RHLT3 |
| 12:00 - 12:30 | **Session 6:** Tobias Langlotz (Otago) - Doing research with optical see-through AR HMDs at RHLT2 |
| 12:00 - 12:30 | **Session 7:** Aluna Everitt (Oxford/Canterbury) - Democratising the Development of Emerging Technologies at RHLT3 |
| 13:30 - 14:30 | **Session 8:** Mark Billinghurst (Auckland/UNISA) - Empathic Computing at RHLT2 |
| 15:30 - 19:30 | **Weta Workshop Tour** and **Miramar Creative Centre (MCC )** at Miramar |

## Venue Map


Ground Floor
Main Conference Room
RHLT2
Building Entrance
Cafe
Building Entrance
Stairwell
to Mezzanine
floor
Toilets
G12
Retail
G13
G54C
Wind Lobby
(LQ)
G54D
Reception
LT2
Lecture Theatre
G11A
Cafe
G54
Hub
South
G54B
G54A
G10
Seminar
LT1
Lecture Theatre
G09
Library Collections
G08
Secure
Library
G08A
G07
Library
G06
Bookable
G05
Access
Grid
G05B
Rest
G05A
Dragon
G01
Cybercomms
LT3
Lecture Theatre
G15
Tier 3
Rm1
G16
Tier 3
Rm2
G17
Tier 3
Rm3
G14
Retail
G18
VUWSA
10.8m2
G19
Open Plan
Faculty Office
117m2
G19A
Filing 8.4m2
G19B
Kitchenette
6.4m2
G20
Office –
Adrienne
12.7m2
G21
Office
12.5m2
G22
Meeting
16.6m2
G23
Store
8.1m2
G24
Seminar
G04
Bookable
G03
Bookable
G02
Bookable
G53
Lift Lobby
G57
Male
G56
Female
WC
G66
Comms
G52
Cleaner
G57B
WC
Lobby
G56A
WC
Lobby
G51
Male WC
G52
Female
WC
G61
Riser
G64
Riser
G65
Riser
G71
Riser
G72
Stairwell A
G73
Stairwell B
G81
Lift A
G82
Lift B
G83
Lift C
G84
Lift D
Stair R




Workshop Rooms 1,2,3 (level 1)

