Roger Boldú Busquets

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I am a Research Scientist at Meta Reality Labs Research. My research focuses on designing novel sensing and tracking techniques that enable natural interactions with VR/AR environments. I like to bring my research beyond the laboratory environment and positively impact people's lives by combining my skills in Human-Computer Interaction (HCI), Machine Learning, and Electronics.

RESEARCH AND PROFESSIONAL EXPERIENCE

Oct 2021 – Present
Facebook Reality Labs Research, Redmond, WA, USA
Research Scientist, Sensing and Tracking.
Exploring new ways to interact with virtual interfaces.

Mar 2018 – Sep 2021
The Augmented Human Lab, University of Auckland, Auckland, NZ
Research Assistant (Supervisor: Suranga Nanayakkara)
Exploring wearable assistive technology to Augment Human Capabilities

Aug 2020 – Dec 2020
Facebook Reality Labs, Redmond WA, US (Remote)
Research Intern (Advisor: Eric Whitmire)
Explored wearable Input devices for Augmented Reality

June 2015 – Mar 2018
Singapore University of Technology and Design, Singapore
Research Project Manager (Supervisor: Suranga Nanayakkara)
Research in assistive wearable Tech & Lead project FingerReader

Dec 2013 – July 2014
Pal Robotics & La Salle Bonanova, Barcelona, Spain
Robotics Research Assistant (Supervisor: Jordi Albo &)
Robocup@Home with a Humanoid robot (Reem)

Sept 2013 – Jul 2014
La Salle Bonanova, Barcelona, Spain
HCI-Research Assistant (Supervisor: David Miralles)
Explore HCI modalities to intercommunicate digital and real world

Sept 2012 – Jul 2014
La Salle Bonanova, Barcelona, Spain
Teaching Assistant in (CS) Operating Systems (Linux)
Teaching Assistant in (CS) Digital Systems and Microprocessors

EDUCATION

Mar 2018 – May 2021 **The University of Auckland,** Auckland, NZ
Ph.D. student at the Auckland Bioengineering Institute
Supervisor: Suranga Nanayakkara

Sept 2011 – Jun 2015 **La Salle Bonanova - Ramon Llull University,** Barcelona, Spain
B.Sc. (Honours) in Electronic Engineering in Telecommunications

Sept 2014 – June 2015 **Fluid Interfaces MIT Media Lab,** Boston, USA
Visiting Researcher (Supervisor: Pattie Maes)

Aug 2017 – Oct 2017 **National University of Singapore - Enterprise,** Singapore
Lean Launchpad, Commercializing Technological Innovations
Entrepreneurial education program for researchers

July 2015 – Aug 2015 **Brinc.IO - Hardware Accelerator,** Shenzhen, China
MINT program (MIT & HKUST)
Design for Manufacturing program

PUBLICATIONS

2022 *Elvitigala, D. S., **Boldu, R.**, Nanayakkara, S., & Matthies, D. J. (2022). TickleFoot: Design, Development and Evaluation of a Novel Foot-Tickling Mechanism That Can Evoke Laughter. ACM Transactions on Computer-Human Interaction, 29(3), 1-23.*

2021 *Searchfield, G. D., Sanders, P. J., Doborjeh, Z., Doborjeh, M., **Boldu, R.**, Sun, K., & Barde, A. (2021). A state-of-art review of digital technologies for the next generation of tinnitus therapeutics. Frontiers in Digital Health, 3.*

2020 ***Boldu, R.**, Matthies, D. J., Zhang, H., & Nanayakkara, S. AiSee: An Assistive Wearable Device to Support Visually Impaired Grocery Shoppers. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, 4 (4), 1-25.*

***Boldu, R.**, Wijewardena, M., Zhang, H., & Nanayakkara, S. MAGHair: A Wearable System to Create Unique Tactile Feedback by Stimulating Only the Body Hair. In 22nd International Conference on Human-Computer Interaction with Mobile Devices and Services.*

2019 ***Boldu, R**., Jain, S., Forero Cortes, J. P., Zhang, H., & Nanayakkara, S. M-Hair: Creating Novel Tactile Feedback by Augmenting the Body Hair to Respond to Magnetic Field. In Proceedings of the 32nd Annual ACM Symposium on User Interface Software and Technology.*

2018 ***Boldu, R**., Dancu, A., Matthies, D. J., Cascón, P. G., Ransir, S., & Nanayakkara, S. Thumb-In-Motion: Evaluating Thumb-to-Ring Microgestures for Athletic Activity. In Proceedings of the Symposium on Spatial User Interaction.*

***Boldu, R**., Dancu, A., Matthies, D. J., Buddhika, T., Siriwardhana, S., & Nanayakkara, S. FingerReader2.0: designing and evaluating a wearable finger-worn camera to assist people with visual impairments while shopping. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, 2 (3), 1-19.*

*Shilkrot, R., Huber, J., **Boldu, R**., Maes, P., & Nanayakkara, S. (2018). FingerReader: A finger-worn assistive augmentation. In Assistive Augmentation (pp. 151-175). Springer, Singapore.*

2017 ***Boldu, R**., Zhang, H., Cortés, J. P. F., Muthukumarana, S., & Nanayakkara, S. (2017, March). Insight: a systematic approach to create dynamic human-controller-interactions. In Proceedings of the 8th Augmented Human International Conference (pp. 1-5).*

2016 *Larriba, F., Raya, C., Angulo, C., Albo-Canals, J., Díaz, M., & **Boldú, R**. (2016). Externalizing moods and psychological states in a cloud-based system to enhance a pet-robot and child's interaction. Biomedical engineering online, 15 (1), 187-196.*

2015 *Amores, J., Benavides, X., **Boldu, R**., & Maes, P. (2015, April). Exploring the design of a wearable device to turn everyday objects into playful experiences. In Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems (pp. 2145-2150).*

*Albo-Canals, J., Fernández-Baena, A.**, Boldu, R**., Barco, A., Navarro, J., Miralles, D., ... & Angulo, C. (2015, March). Enhancing long-term children to robot interaction engagement through cloud connectivity. In Proceedings of the Tenth Annual ACM/IEEE International Conference on Human-Robot Interaction Extended Abstracts (pp. 105-106).*

*Fernández-Baena, A.**, Boldú, R**., Albo-Canals, J., & Miralles, D. (2015). Interaction between Vleo and Pleo, a virtual social character and a social robot. In 2015 24th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN) (pp. 694-699). IEEE.*

POSTERS, DEMOS, WORKSHOPS & INSTALLATIONS

2020 ***Boldu, R.**, Matthies, D. J., Zhang, H., & Nanayakkara, S. (2020). AiSee: An Assistive Wearable Device to Support Visually Impaired Grocery Shoppers. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, 4(4), 1-25.*

*Rieger, U., Liu, Y., **Boldu, R.**, Zhang, H., Alwani, H., & Nanayakkara, S. (2020). LightTank. In **SIGGRAPH Asia 2020** Art Gallery (pp. 1-1).*

2019 ***Boldu, R.**, Jain, S., Cortes, J.P.F., Zhang, H. and Nanayakkara, S.C 2019. M-Hair: Extended Reality by Stimulating the Body Hair. Demos of SIGGRAPH Asia 2019 XR (Brisbane, Australia, November 17-20). SIGGRRAPHAsia, 27-28.*

***Boldu, R.**, Jain, S., Forero Cortes, J. P., Zhang, H., & Nanayakkara, S. M-Hair: Creating Novel Tactile Feedback by Augmenting the Body Hair to Respond to Magnetic Field. Demos of UIST 2019.*

2018 *Rieger, U., Liu, Y., **Boldu, R.**, Zhang, H., Alwani, H., & Nanayakkara, S. (2018). LightTank. In Ars Electronica, Linz, Austria*

***Boldu, R**, Nanayakkara, S. (2018), Demoing FingerReader at Global Grad Show, held in Dubai*

***Busquets, R.B.**, 2018 Revealing Inaccessible Information on-the-go, by Augmenting Humans. In Proceedings of the 2018 ACM International Joint Conference and 2018 International Symposium on Pervasive and Ubiquitous Computing and Wearable Computers.*

2016 *Nanayakkara, S. C., Schroepfer, T., **Boldu, R.**, Muthukumarana, S. Withana, A., Lian, A. 2016. RIBbon: Interactive light installation on Read Bridge at Clarke Quay, Singapore. Funded by Singapore River One. Dec 2015-Jan 2016.*

***Boldu, R.**, Manamperi, B., Buddhika, T., Ransiri, S., Shilkrot, R., Nanayakkara, S. C. and Maes, P. 2016. FingerReader. Demos of the of the 27th Annual CHISGI Australian Computer-Human Interaction Conference (Tasmania, Australia, Nov 29– Dec 2, 2016). OZCHI'16. ACM, New York, NY.*

ACADEMIC SERVICE

Reviewer: CHI 2023, 2022, 2021, 2019, UIST 2022, 2021, 2020, ISWC 2020, 2018
Student Volunteer: UbiComp 2018.

INVITED TALKS, LECTURES & PRESENTATIONS

2020 *"Designing Assistive Technology For People With Visual Impairments". Guest lecturer (DES243) 2020, Auckland, New Zealand.*

MAGHair: A Wearable System to Create Unique Tactile Feedback by Stimulating Only the Body Hair, Conference, MobileHCI, 2020, Virtual

2019 *M-Hair: Extended Reality by Stimulating the Body Hair. Conference SIGGRAPH Asia 2019 XR, Brisbane, Australia.*

M-Hair: Creating Novel Tactile Feedback by Augmenting the Body Hair to Respond to Magnetic Field. Conference UIST 2019, New Orleans, LA, USA.

2018 *FingerReader2.0: designing and evaluating a wearable finger-worn camera to assist people with visual impairments while shopping. Conference UbiComp 2018, Singapore.*

FingerReader: Modern Aging, Talk as part of Lean LaunchPad program 2018 Singapore

2017 *Insight: a systematic approach to create dynamic human controller interactions. Conference AH 2017, Silicon Valley, CA, USA.*

PRESS COVERAGE

- ***The Straits Times 2016****: Ring helps people 'see', thanks to grant*
- ***Straits Times 2017:*** *Innovation to help Ageing population receive seed funding,*
- ***El Mundo****: Un anillo que transforma el braille en voz con sólo señalar*
- ***Antena3.com*** *Spanish TV Antenna3-> El lector de libros artificial*
- ***NUS Enterprise:*** *BLOCK71 Singapore Entrepreneurs Feature — FingerReader*
- ***ARS.NZ*** *arc/sec LightSeries at Ars Electronica*
- ***Hackester,io*** *MAGHair Creates Tactile Feedback by Augmenting Body Hair,*
- ***DesignBoom****: the fingerreader helps blind people read without braille*
- ***Arab News****: The Six: Innovations at the Global Grad Show in Dubai. November 2018.*
- ***GULF News****: Futuristic solutions revealed at Global Grad Show at Dubai Design Week: Finger Reader. November 2018.*
- ***Channel NewsAsia****: Finger Reader. 2018.*
- ***TVNZ****: The Finger Reader. July 2018.*

- ***Modern Aging Sg****: FingerReader: Winner of Accelerator Program. December 2017. ·*
- ***CCTV.com*** *Technology enables people with disabilities. February 2016.*
- ***Channel NewsAsia:*** *Read Bridge lights up for the festive season. December 2015. Shivaanan Selvasevaran.*
- ***The Straits Times****: Let it glow, let it glow, let it glow.*

HONORS & AWARDS

- *Light Tank| Best Design Awards | Installation & Exhibition: Gold. 2020. . 2020. Designers Institute of New Zealand*
- *Honorable Mention (Best World Changing Idea APAC Category), World Changing Ideas Awards by FastCompany 2020 In recognition of the research project M-Hair.*
- *Honorable Mention (Experimental Category), World Changing Ideas Awards by FastCompany 2020 In recognition of the research project M-Hair.*
- *Finalist (Student Category), World Changing Ideas Awards by FastCompany 2020 In recognition of the research project M-Hair*
- *$100K Challenge Qualifiers, Velocitiy, The University of Auckland, 2019, Innovation Challenge. In recognition of LinkedHorizons*
- *2019, Peoples choice award of Discovery video competition by Royal Society Te Aprangi In recognition of the video of FingerReader.*
- *Peoples choice award of Discovery video competition by Royal Society Te Aprangi 2018 In recognition of the video of FingerReader.*
- *Finalist, World Changing Ideas Award by FastCompany 2018 In recognition of the research project FingerReader.*
- *Winner, Social Category, Velocitiy, The University of Auckland, 2018, Innovation Challenge. In recognition of project FingerReader*
- *Finalist, D&AD Impact Awards by D&AD 2017 In recognition of the research project FingerReader.*
- *Finalist, Golden Pin Design Awards by Taiwan Design Center 2017 In recognition of the research project FingerReader*
- *Best Short Paper Award, AH'17 2017 In recognition of the research paper 'InSight: A Systematic Approach to Create Dynamic Human-Controller-Interactions' presented at the 8th Annual Augmented Human International Conference.*
- *Winner - The Modern Aging Singapore business accelerator, focused on developing innovative solutions for the aging population. In recognition of Project FingerReader 2017*

- *Singapore Design Award (Product - Gold Category) 2016 Awarded for the Project FingerReader by Design Business Chamber Singapore.The Singapore Design Awards (SDA) honours outstanding designers, design students and design practices from across the world and it remains the leading design award in Southeast Asia.*
- *Best Paper Award -Interaction between Vleo and Pleo, a virtual social character and a social robot. In 2015 24th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN) (pp. 694-699). IEEE.*

SKILLS

Hardware	Altium, LTSpice, PCB Layout, PCB Assembly
Fabrication	Low-Volume Manufacturing, 3D Printing, Laser Cutting, CNC
Programming	Python, C, Matlab
Design Tools	Sketch, Photoshop, Illustrator, Final CuT
Platforms	ROS, Unity, Embedded Systems (PIC, PSoC, Nordic)
Modeling	Machine Learning (Scikit-Learn), DeepLearning (Keras, TensorFlow, PyTorch)
Languages	English (Fluent), Spanish (Native), Catalan (Native)