

Roger Boldu

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I am a Ph.D. student at the Augmented Human Lab (AHLAB), advised by Prof. Suranga Nanayakkara. My research focuses on designing novel input-output wearable devices that enable users to interact with the environment naturally. I like to bring my research beyond the laboratory environment and positively impact people's lives by combining my skills in HCI, Robotics, Machine Learning, and Electronics. I am now looking for full-time positions to start from May 2021.

EDUCATION

- 2018 - Present **The University of Auckland**, Auckland, NZ
Ph.D. student at the Auckland Bioengineering Institute
Supervisor: Suranga Nanayakkara
- 2011 - 2015 **La Salle Bonanova - Ramon Llull University**, Barcelona, Spain
B.Sc. (Honours) in Electronic Engineering in Telecommunications
- Fall - 2017 **National University of Singapore - Enterprise**, Singapore
Lean Launchpad, Commercializing Technological Innovations
Entrepreneurial education program for researchers
- Summer-2015 **Brinc.IO - Hardware Accelerator**, Shenzhen, China
MINT program (MIT & HKUST)
Design for Manufacturing program

RESEARCH AND PROFESSIONAL EXPERIENCE

- 2018 - Present **The Augmented Human Lab**, University of Auckland, Auckland, NZ
Research Assistant (Supervisor: Suranga Nanayakkara)
Exploring wearable assistive technology to Augment Human Capabilities
- Fall - 2020 **Facebook Reality Labs**, Redmond WA, US (Remote)
Research intern (Advisor: Eric Whitmire)
Explored wearable Input devices for Augmented Reality

- 2016 - 2018 **Singapore University of Technology and Design**, Singapore
Project Manager (Supervisor: Suranga Nanayakkara)
Research in assistive wearable Tech & Lead project FingerReader
- 2015 - 2016 **Singapore University of Technology and Design**, Singapore
Research Assistant (Supervisor: Suranga Nanayakkara)
Explore new assistive wearable Technology
- 2014 - 2015 **Fluid Interfaces MIT Media Lab**, Boston, USA
Visiting Researcher (Supervisor: Pattie Maes)
Developed an RFID based wristband to enable world touch interactions
- 2013 - 2014 **Pal Robotics & La Salle Bonanova**, Barcelona, Spain
Robotics Research Assistant (Supervisor: Jordi Albo)
Robocup@Home with a Humanoid robot (Reem)
- 2013 - 2014 **La Salle Bonanova**, Barcelona, Spain
HCI-Research Assistant (Supervisor: David Miralles)
Explore HCI modalities to intercommunicate digital and real world
- 2012 - 2015 **La Salle Bonanova**, Barcelona, Spain
Teaching Assistant in (CS) Operating Systems (Linux)
Teaching Assistant in (CS) Digital Systems and Microprocessors

PUBLICATIONS

- 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.

2018 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 and INSTALLATIONS

2020 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). SIGRRAPHAsia, 27-28.

- 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
- 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.

HONORS & AWARDS

Gold, Project LightTank, Best Design Awards New Zealand 2020
 Honorable Mention, Project M-Hair, FastCompany 2020 Best World Changing Ideas APAC
 Finalist, Project FingerReader, FastCompany 2018 World-Changing Ideas Award
 Winner - Modern Aging Singapore Project FingerReader 2017
 Best Short Paper Award - AH'17 project InSight
 Finalist, Golden Pin Design Award 2017, Project FingerReader, Taiwan Design Center
 Gold - Singapore Design Award 2016 project FingerReader Product Category
 Best Paper Award - Ro-Man'15 project Vleo&Pleo

SKILLS

Hardware Altium, LTSpice, PCB Layout, PCB Assembly

Fabrication Low-Volume Manufacturing, 3D Printing, Laser Cutting, CNC

Programming Python, C, C++, Java, Matlab

Platforms Linux/Devian, ROS, Unity, Embedded Systems (PIC, PSoC, Nordic)

Modeling Machine Learning (Scikit-Learn), DeepLearning (Keras, TensorFlow)

Languages English (Fluent), Spanish (Native), Catalan (Native)