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 Human-Computer Interaction, 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). SIGGRRAPHAsia, 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 Aseembly
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)