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Shalaleh Rismani

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Education

· Ph.D Electrical and Computer Engineering   Jan 2020 – Present
  McGill University

· M.A.Sc Biomedical Engineering   May 2017
  University of British Columbia, Vancouver, BC, Canada

· B.A.Sc Mechanical Engineering with Mechatronics Specialization   Nov 2013
  University of British Columbia, Vancouver, BC, Canada

Notable Awards

NSERC PGS-D Scholarship	2020
We Robot 2020 Best Poster Award	2020
Les Vadasz Engineering Fellowship	2020
International Top 20 Project James Dyson Award Competition	2015
Engineers-in-Scrubs Graduate Student Award	2014
NSERC Canadian Graduate Scholarship Masters	2013
Engineers-in-Scrubs Undergraduate Student Research Award	2013
Faculty of Applied Science Graduate Award	2013
Diamond Jubilee II Medal of Canada	2013
UBC Mechanical Engineering Department Leadership Award	2013
Research In Science and Engineering (RISE) Award (Germany)	2012
Go Global International Learning Programs Award	2010
NSERC Undergraduate Student Research Award	2010

Highlighted research skills

- **Qualitative research:** design, conduct and analyze interviews, focus groups and co-creation sessions for design research and science and technology studies (STS). Have used Atlas.ti, NVivo Lexalytics Semantria for content analysis.
- **Quantitative research:** design public opinion surveys, use SPSS and R to perform basic statistical analysis (t-test, ANOVA)
- **Programming:** developed Python scripts for machine learning applications (as part of 500 level intro to machine learning course), used MATLAB for controller design and data analysis
- **Communication and facilitation:** have facilitated many workshops and presented frequently on topic of AI and robot ethics. Have published academic and white papers.

Presentations and posters

S. Rismani, A. Moon (2021) "How do AI systems fail socially?: an engineering risk analysis approach," *2021 IEEE International Symposium on Technology and Society* , Waterloo, Canada, 2021.

S. Rismani, A. Moon (2021) "How do AI systems fail socially? Social Failure Mode and Effect Analysis (FMEA) for artificial intelligence systems," *2021 We Robot*, Miami, Florida, 2021.

S. Rismani, A. Moon (2020) "Can we measure ethics of an AI system? If yes, what do we measure? How do we measure?," *2020 We Robot*, Ottawa, Canada, 2020. *** Won best poster award**

S. Rismani, A. Moon (2020) "Measuring the Ethics of an AI System" ,*Montreal AI Symposium,* Montreal, Canada, 2020.

Rismani, S, (2019) Industry Forum Speaker, International Symposium of Industrial Electronics (ISIE) 2019, How can we design ethical AI systems? Practitioner's Perspective, Vancouver, BC.

Rismani, S, Moon, A (2019) Canada NextAI workshop: ORI AI Ethics Assessment Toolkit, Toronto, ON.

Rismani, S, Moon, A (2019) ORI AI Ethics Assessment Toolkit, Vector Research Institute, Toronto, ON.

Rismani, S, (2019) Women in Data Science in Stanford Conference: How can we design ethical AI systems?, Vancouver, BC.

Rismani, S (2019) Debated in two Women in Communication and Technology (BC Chapter) Women in Debate series. The topics:

- Can we trust AI?
- Can privacy exist in the 21st century?

Rismani, S, (2018) How can we design ethical AI and robotic systems? Presented at:

- BC Privacy Professionals Keynote
- IEEE WiE Conference Keynote
- ASQ Vancouver Speaker
- Norton Rose Fullbright AI Summit presenter
- FVCPAA (Fraser Valley Chartered Professional Accountant Association) Featured Speaker

Rismani, S. (2018) Peter Wall Scholar's Lunch Talk: Ethical Implications of Autonomous Cars, Vancouver, BC

Rismani, S. (2017), Playing in the Wilderness: Lessons from Creating Generation R, TECH Vancouver, BC

Rismani, S. (2017), Stories of Open Roboethics Institute. iHub Gala, Vancouver, BC

Rismani, S. (2017) Artificial Intelligence and Robotics – How Machine Autonomy is Changing the Way We Work? Human Factors Community of Practice, Vancouver, BC

Rismani, S., Moon, A. (2017) Artificial Intelligence and Robotics – How Machine Autonomy is Changing the Way We Live? UBC Extended Learning – New Trends in Science, Vancouver, BC

Rismani, S. (2017) Panelist on Implications of Exponential Technology, Singularity U Event, Vancouver, BC

Rismani, S, Moon, A. (2017) What should a robot do? Robotics and Roboethics, BC Humanist Association, Vancouver, BC

Rismani S, Smith EM, Van der Loos M, Miller WC. (2017) Enhancing Engineering Education through Collaboration Across Disciplines to Create Health and Assistive Technologies. Canadian Engineering Education Association Annual Conference, Toronto, Ontario. [Workshop]

Smith EM, **Rismani S.** (2016) Collaborating to Create Assistive Technology: Cross-Cultural Dialogue. OT24-Hour Virtual Exchange. Online.

Rismani, S., Allan, G., Cheung, V. (2015) The Screw Cutter Project, Clinton Foundation, Miami, FL

Collaborative Reports and Documents

- [Foresight into AI Ethics Toolkit: A toolkit for creating an ethics roadmap for your AI project](#)
  by Open Roboethics Institute, October 2019

- [Ethics Analysis of Predictive Algorithms: An Assessment Report for BC Safety Authority](#)
  As the System Analyst at Generation R. An AI ethics internal audit for BC Safety Authority
  by Generation R Consulting, July 2017

- [The Ethics and Governance of Lethal Autonomous Weapons Systems](#)
  As an assistant researcher, by Open Roboethics Institute, Nov. 2015

Conference Publications

- [Accepted] **S. Rismani,** A. Moon (2021) "How do AI systems fail socially?: an engineering risk analysis approach," *2021 IEEE International Symposium on Technology and Society*, Waterloo, Canada, 2021.
- [Accepted] K. Szilagyi, J. Millar, A. Moon, **S. Rismani** (2021) "Driving into the Loop: Mapping Automation Bias & Liability Issues for Advanced Driver Assistance Systems," *2021 We Robot*, Miami, Florida, 2021.
- [On [arxiv](#), submitted to ICRA 2022] S. Le Page, J. Millar, K. Bronson, **S. Rismani**, A. Moon. "Driver Perceptions of Advanced Driver Assistance Systems and Safety."
- [Accepted] A. Moon, S. Kim, **S. Rismani,** Millar J, A. van Poortvliet, C. Roome (2018) "Lessons Learned: An Ethics Roadmap for Real-Time Predictions," *presented at PAPI 2018, UK.* In press *Journal of Machine Learning Research.*

- [Accepted] **S. Rismani**, and H. F. M. Van der Loos, "Improving Needs-finding techniques for medical device development at low resource environments using Activity Theory," *2017 International Conference on Engineering Design (ICED)*, Vancouver, Canada, 2017.
- [Accepted] **S. Rismani**, P. Ostafichuck, C. Jaeger, J. Nakane, "Using a Project on Assistive Technology to Teach CAD and Rapid Prototyping", *2017 Canadian Engineering Education Association (CEEA), Toronto, Canada, 2017.*
- [Accepted] **S. Rismani**, M. Ratto and H. F. M. Van der Loos, "Use of activity theory-based need finding for biomedical device development," *Proceedings of the 2016 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Orlando, FL, 2016, pp. 4341-4344.
- [Accepted] **S. Rismani**, and H. F. M. Van der Loos, " The competitive advantage of using 3d-printing in low-resource healthcare settings," *Proceedings of the 2015 International Conference on Engineering Design (ICED)*, Milan, Italy, 2015.
- [Accepted] **S. Rismani**, G. Allan, V. Chung, D. Wilson, " Applying the Biodesign innovation process: Addressing the inadequate supply of surgical screws in the developing world," *Proceedings of the 2014 IEEE Conference on Healthcare Innovation and Point-of-Care Technologies*, Seattle, DC, 2014.

Journal Publications

- [Accepted] Moon, A., **Rismani, S**. & Van der Loos, H.F.M. Ethics of Corporeal, Co-present Robots as Agents of Influence: a Review. Curr Robot Rep (2021). https://doi.org/10.1007/s43154-021-00053-6
- [Accepted] EM. Smith, S. **Rismani S**, WB. Mortenson, A. Mihailidis, WC. Miller. (2017) *"A Chance to Try": Shared Control for Powered Wheelchair Assessment and Training*. American Journal of Occupational Therapy.

Thesis

Use of activity theory as the basis for a novel needs-finding technique for
medical device development in low-resource environments **MASc. 2017**

Research and Work Experience

Research assistant, Jan 2020 – Present
Responsible Autonomy and Intelligent Systems Ethics (RAISE lab), Montreal, Canada

- Lead and conduct a scoping review on how the ethics of an AI system is being evaluated
- Lead the study on developing an ontology of occupations in the budding AI ethics industry
- Lead a project on framing ethical and social failures for ML systems and how we can assess/control for them
- Mentor and co-supervise undergraduate research assistants

Director, design research and education Apr 2017 – Present
Open Roboethics Institute, Vancouver, Canada

- Lead the development of ORI AI ethics assessment toolkit
- Present at various venues about the mission and projects of ORI

- Create new partnerships and research opportunities for ORI

AI ethics operationalization research assistant,   Oct 2021 – Present
Mila, Montreal, Canada

- Conduct organizational research to understand the existing perspectives towards implementation of AI ethics practices
- Assist in developing appropriate tools that researchers within Mila could use

Chief Innovation Officer/System Analyst   Apr 2017 – Jan 2019
Generation R Consulting, Vancouver, Canada

- Develop a framework to identify ethical and social implications of implementing automation initiatives in companies
- Perform ethics assessment for organizations deploying predictive algorithms

Research Assistant   Sep 2013 – Mar 2017
Collaborative Advanced Robotics and Intelligent Systems (CARIS) Lab, Vancouver, Canada

- Develop an extension to the Cultural Historical Activity Theory to use for needs finding in medical device development
- Facilitate workshops and study the use of this design technique by design teams
- Conduct interviews with technology users for various project and analyze qualitative data

Design Research Assistant   Jun 2014 – Jan 2015
Rehabilitation Research Lab, GF Strong Rehabilitation Center, Vancouver, Canada

- Co-interview and host prototyping and testing sessions with occupational therapists
- Assist in analyzing and synthesizing the data
- Provide design recommendations

Engineers-in-Scrubs Research Assistant   May 2013 – Aug 2013
University of British Columbia, Vancouver, Canada

- Use grounded theory principles to analyze feedback from nurses and surgeons
- Develop design needs and requirements based on the analysis for medical devices used in international orthopedic surgery

RISE Engineering Research Assistant   May 2012 – Aug 2012
Laboratory for Machine Tools and Production Engineering, RWTH, Aachen, Germany

- Design a program to control the SCHUNK robotic gripper using Simulink and MATLAB
- Develop ideas for using the force data from the tactile sensors of the gripper to ease the assembly process

Data Analyst   Jan 2012 – Apr 2012
Cellula Robotics, Vancouver, Canada

- Use MATLAB to analyze a set of position and pressure data from an undersea robotic excavator to calculate the specific energy and determine the shape of the excavated region.

Design Approval Organization Engineering Student   Sep 2010 – Dec 2010
Heli-One (Delta, Canada)

- Develop an online catalog for all major design modifications using Adobe Dreamweaver by collecting expert opinion, complete several small design modifications to the helicopter

Undergraduate Research Assistant   May 2010 – Aug 2010
Collaborative Advanced Robotics and Intelligent Systems (CARIS) Lab, Vancouver, Canada

- Develop anthromimetic feedback on the wrist of an industrial robotic arm such that the human-robot collaborator can more intuitively understand the joint limits of the arm.

Teaching and Curriculum Design Experience

Curriculum designer assistant   June 2021- Present
ECSE 557, Introduction to Ethics of AI Systems
McGill University, Canada

- Assist in the design and development of the course content and lead in developing five of the tutorials for students

Adjunct Professor,
APSC 100/100 Introduction to Engineering Design   Sep 2018 – Apr 2021
University of British Columbia, Canada

- Facilitate and lead the design studios for seven different modules that are part of the first-year engineering design course at UBC
- Connect the students learning with other

Adjunct Professor,
UBC Vancouver Summer Program   May 2018 – Aug 2018
University of British Columbia, Canada

- Design, teach and manage a 3-credit roboethics course during the 4-week Vancouver Summer Program offered to 60 international students who speak English as their second language

AI Ethics and STEM Teacher   Jan 2018 – Mar 2020
Brainboost, Vancouver, Canada

- Work on the STEM subjects with students from the age of 12-19 who have different learning abilities and have had difficulties in the regular school system
- Teach an AI/robot ethics course to k-12

Curriculum designer   Jun 2015- Apr 2017

First Year Chair Team, University of British Columbia

- Lead the design and development of all the content for a 3-week module on designing assistive technologies as part of a new first-year engineering design course

Community-based experiential learning coordinator   May 2016- Apr 2017

Center for Community-Engaged Learning, University of British Columbia

- Create and coordinate experiential learning experience for 2nd and 3rd year civil, electrical and mechanical engineering courses

Graduate teaching assistant   Jan 2014 – Apr 2016

Mechanical Engineering Department, University of British Columbia

- Prepare teaching material and deliver lab and tutorials for 2nd year mechanical engineering students for a fluid mechanics lab and a design course

Peer-assisted study session (PASS) leader and coordinator   Jan 2013 – Apr 2015

Center for Student Involvement and Careers, University of British Columbia

- Design and deliver PASS sessions for first-year engineering math and physics courses following the supplemental instruction model, coordinate and train a group of PASS leaders

Design Projects

Screw Cutter (UBC, Vancouver and Kampala, Uganda)   Sep 2013 – Mar 2017

- Understand the inventory needs of orthopedic wards in developing countries, particularly investigating the needs of the Mulago National Hospital in Kampala, Uganda
- Develop prototypes and detailed design for the Screw Cutter within the team
- Conduct user testing at Mulago National Hospital

MUSE Chair (UBC, Vancouver)   Sep 2012 – May 2013

- Design user interfaces for controlling music that can be retrofittable onto any armchair. The user interface is designed for dementia patients and the elderly.
- Build the prototypes using 3D printers and water-jet cutters.
- Design and run tests with elderly

Trail Rider (UBC, Vancouver)   Sep 2011 – Dec 2011

- Work collaboratively with the British Columbia Mobility Opportunity Society (BCMOS) to understand the needs of the Trail Rider users. BCMOS is a non-profit organization that enables people with disabilities to experience outdoors by providing resources such as the TrailRider, a human-powered single-wheel device that takes people with disabilities to hiking trails.

- Develop conceptual detail designs for a power-assist, suspension mechanism, and ergonomics adjustments for the redesign.

Solar Water Heater (Tsomanotik, Mexico)   Jul 2011 – Aug 2011

- Complete a technical project regarding alternative energy in Tsomanotik, a non-profit organization situated at Tzimol, a small town in the most southern state of Mexico, Chiapas.
- Analyze and study the existing running water system and solar water heaters to identify the problems.
- Design, build and install three human-powered mechanisms for raising water to a higher level tank which increased the inlet pressure of the water heater. The three designs were a bicycle pump, a hand pump and a pulley system.

Volunteer and Service Experience

VP external communication
Graduate Engineering Equity Committee (GEEC)   Jan 2020 – present

Director, teacher, choreographer   Jun 2009 – present
Chichaklar Dance Company

Executive member   Apr 2013 – Mar 2017
Open Roboethics Initiative, Vancouver, Canada

VP of Communication
Mechanical Engineering Graduate Association   Jan 2014 – Dec 2015

Event coordinator   Apr 2011- Apr 2013
Women in Engineering, UBC Student Development

Team co-lead   Apr 2011- Apr 2013
Global Engineering, Engineers without Borders UBC Chapter