

Curriculum Vitae
KIMBERLEY D. ADAMS

Clinician Scientist

Assistant Professor - Tenure Track | Faculty of Rehabilitation Medicine | University of Alberta
Research Appointment | I Can Centre for Assistive Technology | Glenrose Rehabilitation Hospital

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EDUCATION

Ph.D. in Rehabilitation Science, *University of Alberta*, 2011

Dissertation "Access to Math Activities for Children with Disabilities by Controlling Lego Robots via Augmentative and Alternative Communication Devices"

M.Sc. in Electrical Engineering, Biomedical Specialization, *University of Alberta*, 1993

Thesis "Limitations of CCD Video Cameras in the Measurement of Scoliotic Deformities"

B.Sc. in Electrical Engineering, Computing Specialization, *University of Alberta*, 1987

PROFESSIONAL EXPERIENCE

Certifications

P.Eng. Licensed Professional Engineer, Alberta, 1989 - Present

ATP Certified Rehabilitation Engineering and Assistive Technology Association (RESNA) Assistive Technology Practitioner, 1999 - Present

Employment

Position	Institution	Year(s)
Clinician Scientist Assistant Professor - Tenure Track, and Research Appointment (Joint Appointment)	<i>University of Alberta</i> <i>Glenrose Rehabilitation Hospital</i>	2011 - Present
Clinician Scientist Assistant Professor - Clinical Track, and Research Appointment (Joint Appointment)	<i>University of Alberta</i> <i>Glenrose Rehabilitation Hospital</i>	2005 - 2011* *held concurrently with doctoral studies
Sessional, Assistant Professor and Research Appointment (Joint Appointment)	<i>University of Alberta</i> <i>Glenrose Rehabilitation Hospital</i>	2005
Senior Research Support Specialist - Communication Disorders and Sciences	<i>State University of New York, Buffalo</i> <i>New York, USA</i>	2003 - 2004
Electrical Engineer	<i>Enkidu Research Inc., New York, USA</i>	2003 - 2004
Rehabilitation Engineer (Volunteer)	<i>EquipKIDS International, Cusco, Peru</i>	2002 - 2003
Electrical Engineer	<i>Neural Signals Inc., Atlanta, GA, USA</i>	1999 - 2002

Rehabilitation Engineer	Center for Rehabilitation Technology, <i>Georgia Institute of Technology</i> , Atlanta, GA, USA	1995 - 1999
Rehabilitation Engineer	<i>Madenta Communications Inc.</i> , Edmonton, AB	1991, 1994 - 1995
Augmentative Communication Specialist	<i>Regency Park Centre Rehabilitation Engineering Dept.</i> , Adelaide, South Australia	1994
Rehabilitation Engineer	Assistive Device Service <i>Glenrose Rehabilitation Hospital</i> , Edmonton, AB	1987, 1989 - 1990, 1992-1993
Teaching Assistant	Department of Electrical Engineering, <i>University of Alberta</i> , Edmonton, AB	1990 - 1991
Electromyograph Technician and Research Assistant	Department of Rehabilitation, <i>University of Alberta Hospital</i> , Edmonton, AB	1988 - 1989

HONORS AND AWARDS

Research Assistantship for MSc Degree, Department of Electrical Engineering (Durdle), *University of Alberta*, AB (1990-1993)

Top Teaching Assistant Award, Department of Electrical Engineering, *University of Alberta*, AB (1990)

LANGUAGES

English: Native speaker

Spanish: *Spoken* – conversational proficiency, *written* – conversational proficiency

RESEARCH PUBLICATIONS

Peer Reviewed Research Articles

Note: Students under K. Adams' supervision are underlined.

1. Sakamaki, I., **Adams**, K., Gomez, M., Castanellos, J., Tavakoli, M., & Jafari, N. (Accepted for publication). Design and preliminary testing of a haptics-assisted robot platform for play by children with physical impairments. *Assistive Technology*.
2. **Adams**, K., Rios Rincon, A., Becerra, L., Castanellos, J., Gomez, M., Cook, A. M., & Encarnação, P. (Accepted for publication). An exploratory study of children's pretend play when using a switch-controlled assistive robot to manipulate toys. *British Journal of Occupational Therapy (BJOT)*, Special Issue on Assistive Technology.
3. Jafari, N., **Adams**, K., & Tavakoli, M. (In press). Haptics to improve task performance in people with disabilities: A review of previous studies and a guide to future research with children with disabilities. *Journal of Rehabilitation and Assistive Technology Engineering*.

4. Atashzar F*, Jafari N, Shahbazi M, Janz H, Tavakoli M, Patel R, **Adams K**. (In press). Telerobotics-assisted Platform for Enhancing Interaction with Physical Environments for People Living with Cerebral Palsy. *Journal of Medical Robotics Research - Special Issue on Rehabilitation Robotics*.
 * PhD student from University of Western Ontario, doing research placement at UofA. I supervised this student project. Supervising author is last author in this publication.
5. **Adams K**, Cook A. (2016). Performing mathematics activities with non-standard units of measurement using robots controlled via speech generating devices: Three case studies. *Disability and Rehabilitation: Assistive Technology*. Early On-line. doi: 10.3109/17483107.2016.1151954.
6. Encarnação P, Leite T, Nunes C, Nunes da Ponte M, **Adams K**, Cook A, Caiado A, Pereira J, Piedade G, Ribeiro M. (2016). Using assistive robots to promote inclusive education. *Disability & Rehabilitation: Assistive Technology* (Early On-line). doi: 10.3109/17483107.2016.1167970.
7. Rios, A. M., **Adams, K.**, Magill-Evans, J., & Cook, A. (2016). Playfulness in Children with Limited Motor Abilities When Using a Robot. *Physical & Occupational Therapy in Pediatrics (IPOP)*. doi:10.3109/01942638.2015.1076559
8. **Adams K**, and Cook A. (2015). Using robots in “Hands-on” academic activities: a case study examining speech-generating device use and required skills. *Disability and Rehabilitation: Assistive Technology*. Published Online Dec 8, 2014. doi: 10.3109/17483107.2014.986224
9. Barlott T, **Adams K**, Cook A. (2015). The use of mainstream information and communication technology as assistive technology in lower-income countries. *Universal Access in the Information Society*. doi: 10.1007/s10209-015-0418-z.
10. Barlott T, **Adams K**, Diaz FR, and Molina MM. (2015). Using SMS as a tool to reduce exclusions experienced by caregivers of people with disabilities in a resource-limited Colombian community. *Disability & Rehabilitation: Assistive Technology*. Jul;10(4):347-54. doi: 10.3109/17483107.2014.974223
11. Alvarez L, Wiebe SA, **Adams K**, Hope A, Cook A. (2014). The neurophysiology of augmentative manipulation: A method for technical implementation. *Technology & Disability*. 2014, 26(2/3), pp. 65-77. 13p. doi: 10.3233/TAD-140410
12. **Adams, K.**, & Cook, A. (2014). Access to hands-on mathematics measurement activities using robots controlled via speech generating devices: Three case studies. *Disability and Rehabilitation: Assistive Technology*, 9(4), 286-298. Published Online 2013. doi: 10.3109/17483107.2013.825928.
13. Encarnação, P., Alvarez, L., Rios, A., Maya, C., **Adams, K.**, & Cook, A. M. (2014). Using virtual robot mediated play activities to assess cognitive skills. *Disability and Rehabilitation: Assistive Technology*, 9(3), 231–241. doi: 10.3109/17483107.2013.782577
14. **Adams K**, Cook A. (2013). Programming and controlling robots using scanning on a speech generating communication device: A case study. *Technology and Disability*, 2013; 25(4): 275-286. 12p. doi: 10.3233/TAD-140397

15. Cook, A., **Adams, K.**, Encarnação, P., & Alvarez, L. (2012). The role of assisted manipulation in cognitive development. *Developmental Neurorehabilitation Early Online*, 1–13. doi: 10.3109/17518423.2011.635609
16. Poletz, L., Encarnação, P., **Adams, K.**, & Cook, A. (2010). Robot Skills and Cognitive Performance of Preschool Children. *Technology and Disability*, 22(3), 117-126. doi: 10.3233/TAD-2010-0296
17. Cook, A., Encarnação, P., & **Adams, K.** (2010). Robots: assistive technologies for play, learning and cognitive development. *Technology and Disability*, 22(3), 127-145. doi: 10.3233/TAD-2010-0297
18. Cook, A., **Adams, K.**, Volden, J., Harbottle, N., & Harbottle, C. (2011). Using Lego robots to estimate cognitive ability in children who have severe physical disabilities. *Disability and Rehabilitation: Assistive Technology*, 6(4), 338-346. doi: 10.3109/17483107.2010.534231
19. Higginbotham, D. J., Bisantz, A. M., Sunm, M., **Adams, K.**, & Yik, F. (2009). The effect of context priming and task type on augmentative communication performance. *AAC: Augmentative and Alternative Communication*, 25(1), 19-31. doi: 10.1080/07434610802131869
20. Kennedy, P., & **Adams, K.** (2003). A decision tree for brain-computer interface devices. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 11(2), 148-150. doi: 10.1109/TNSRE.2003.814420
21. Kennedy, PR, Bakay, RAE, Moore MM, **Adams, K.**, Goldthwaite, J, (2000). Direct control of a computer from the human central nervous system. *IEEE Transaction on Rehab. Eng.* 8: pp 198-202. doi: 10.1109/86.847815
22. Feldman, R, and **Adams, K** (1990). Diaphragmatic Electromyography as a Method of Identifying Diaphragmatic Fatigue in Respiratory Post-Polio Syndrome - Its Use in Formulating Treatment, *American Review of Respiratory Disease*.

In review

1. Alvarez, L., **Adams, K.**, & Cook, A. (In review). Quantifying the complexity of using robots as augmentative manipulation tools: an affordances perspective. *Assistive Technology*.
2. Jafari, N., Adams, K., Tavakoli, M., & Weibe, S. (In review). Development of an Assistive Robotic System with Virtual Assistance to Enhance Play for Children with Disabilities: A Preliminary Study. *Journal of Medical and Biological Engineering (JMBE)*

Peer Reviewed Conference Proceedings – Extended Abstracts of 4 to 8 pages

Note: Presenter is indicated with *; Students under K. Adams' supervision are underlined.

1. **Adams***, K., Commandeur*, D., David, B.-L., Tuck*, C., & Loshny, K. (2016, August). Language use during mathematics activities: differences between directing and doing activities using a robot. Paper presented at the International Society of Augmentative and Alternative Communication (ISAAC) Conference, Toronto, ON. (Poster presentation)

2. MacDonald*, J., **Adams**, K., & Pollock, K. (2016, August). Linguistic competence and AAC: Developing a mentoring program to provide an increased number of functional opportunities to communicate. Paper presented at the International Society of Alternative and Augmentative Communication (ISAAC), Toronto, ON. (Podium presentation)
3. Tate*, A., Wilson*, R., **Adams**, K., MacDonald*, J., & Wyness, S. (2016, August). Building an Effective Mentorship Program for Adolescents and Young Adults who use Augmentative & Alternative Communication in Alberta, Canada. Paper presented at the International Society of Alternative and Augmentative Communication (ISAAC), Toronto, ON. (Poster presentation)
4. Encarnação*, P., **Adams**, K., Cook, A., Nunes da Ponte, M., Caiado, A., Leite, T.,... Silva, M. (2015, June 10-14). Using assistive robots to promote inclusive education – first user trials. Paper presented at the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Annual Conference, Denver, CO. (Podium presentation)
5. Jafari, N., **Adams***, K., & Tavakoli, M. (2015, June). *Haptic telerobotics: application to assistive technology for children with disabilities*. Paper presented at the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Annual Conference, Denver, CO. (Podium presentation)
6. **Adams***, K., Rios Rincon, A., Becerra, L., & Esquivel, P. (2015, June). *Using robots to access play at different developmental levels for children with severe disabilities: a pilot study (Extended abstract in conference proceedings and podium presentation)*. Paper presented at the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Annual Conference: New Frontiers in Assistive Technology, Denver, CO. (Podium presentation)
7. Encarnação*, P., **Adams, K.**, Cook, A., Nunes da Ponte, M., Caiado, A., Leite, T., . . . Londral, A. (2014). Training on the use of an integrated augmentative manipulation and communication assistive technology for academic activities. RAatE 2014 - Recent Advances in Assistive Technology & Engineering, Birmingham. (Podium presentation)
8. **Adams***, **K.** and Cook A (2014). Interface design with integrated communication and robotic manipulation to encourage play. International Society for Augmentative and Alternative Communication (ISAAC) Lisbon, Portugal. (Podium presentation)
9. Encarnação*, P., **Adams***, **K.**, Cook, A., Nunes da Ponte, M., Caiado, A., Leite, T.,... Londral, A. (2014). Cultural issues in implementing an integrated augmentative communication and manipulation assistive technology for academic activities. Paper presented at the International Society for Augmentative and Alternative Communication (ISAAC) Lisbon, Portugal. (Podium presentation)
10. Alvarez, L., Rios, A. M., **Adams, K.**, Encarnação*, P., & Cook, A. M. (2013). From Infancy to Early Childhood: The Role of Augmentative Manipulation Robotic Tools in Cognitive and Social Development for Children with Motor Disabilities. Paper presented at the 2012 International Conference on Neurorehabilitation, Toledo, Spain. (Podium presentation)
11. **Adams***, **K.**, Rios Rincon, A.M., Encarnacao, P., Piedade, G., Helmbold, B., Tuck, C. (2013, September). Learning Switch Scanning Skills by Playing with Robots, 12th European Association

for the Advancement of Assistive Technology in Europe (AAATE) Conference, 2013. 6 pages (Podium presentation)

12. Alvarez*, L., Wiebe, S., **Adams, K.**, & Cook, A. (2013, September). The Neurophysiology of augmentative manipulation: A method for technical implementation. Paper presented at the Assistive Technology: From Research to Practice, Proceedings of the 12th European conference of the Association for the Advancement of Assistive Technology in Europe (AAATE 2013), Villamaura, Portugal. 6 pages (Podium presentation)
* Student tied with first place for the **Young Investigator's Award**, and was invited to submit a full paper in the Technology and Disability Journal (see peer reviewed publications).
13. Rios Rincon, A., **Adams, K.**, Magill-Evans, J., & Cook*, A. M. (2013). Changes in playfulness with a robotic intervention in a child with cerebral palsy. Paper presented at the 12th European Conference for the Advancement of Assistive Technology (AAATE), Vilamoura, Algarve, Portugal. 6 pages (Podium presentation)
14. Rios*, A., Sirard, K., Wainer, A., **Adams, K.** (2013, June). Lego Robots Promoting Mother-Child Communication During Free Play: A Pilot Study with a Child with Severe Motor Impairment. Paper presented at the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference. Bellevue, WA. (Poster presentation)
15. **Adams***, K., David, B-L. (2013, June). Methods of Manipulation for Children with Severe Disabilities to Do Hands-On Math Activities: Robot, Directing, Guiding. Paper presented at the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference Bellevue, WA. (Podium presentation)
16. Encarnação*, P., C. Maya, I. Gil, **K. Adams**, and A.M. Cook (2012, September) Virtual robot for cognitive assessment of preschool children, Proceeding of the 1st International Early Childhood Intervention Conference, Braga, Portugal. (Podium presentation)
17. **Adams***, K., & Cook, A. (2012a). Demonstrating and explaining math concepts using integrated communication and robot control Paper presented at the International Society for Augmentative and Alternative Communication (ISAAC), Pittsburgh, PA. (Poster presentation)
18. Encarnacao*, P., Cook, A., M, **Adams***, K., D, Azevedo, L., Gil, I., C, Londral, A., R, et al. (2012). Comparison of Physical and Simulated Assistive Robots for Cognitive Skills Assessment. Paper presented at the International Society for Augmentative and Alternative Communication (ISAAC) Conference, Pittsburgh, PA. (Poster presentation)
19. **Adams***, K., & Cook, A. (2012b). Limits and User Satisfaction of Using Low-Cost Robots for Math Measurement Activities. Paper presented at the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference, Baltimore, MD. (Poster presentation)
20. Cook*, A. M., Encarnação, P., **Adams, K.**, Alvarez, L., & Rios, A. (2012). Cross-Cultural Use of Physical and Virtual Robots to Reveal Cognitive Understanding in Young Children. Paper presented at the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference, Baltimore, MD. (Podium presentation)

21. Encarnação*, P., Piedade, G., **Adams**, K., & Cook, A. M. (2012, February). Virtual Assistive Robot For Play. Paper presented at the International Association of Science and Technology for Development (IASTED) International Conference Assistive Technologies (AT 2012), Innsbruck, Austria. (Podium presentation)
22. **Adams***, K. and Encarnacao, P. (2011), A Training Protocol for Controlling Lego Robots via Speech Generating Devices. 11th European Conference for the Advancement of Assistive Technology (AAATE). Maastricht, Netherlands. (Podium presentation)
23. Encarnação*, P., Piedade, G., Cook, A., **Adams**, K., Gil, I., Maya, C., Azevedo, L., Londral, A.R., Rodrigues, S. (2011), Virtual robot and virtual environments for cognitive skills assessment, 11th European Conference for the Advancement of Assistive Technology (AAATE). Maastricht, Netherlands. (Podium presentation)
24. **Adams***, K. (2011). Involving Users in the Design of a Speech Generating Device Interface for Lego Robot Control. Annual Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference. Toronto, ON. (Podium presentation)
25. Wang, M., **Adams***, K., Encarnação, P., & Cook, A. (2011). Virtual Assistive Robots for Play, Learning, and Cognitive Development. Paper presented at Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference, Toronto, ON. (Poster presentation)
26. **Adams***, K., & Cook, A. (2010). Measuring user accuracy and speed with scanning access on dynamic display speech generating devices in 14th ISAAC 2010 Conference, International Society of Augmentative and Alternative Communication. Barcelona, Spain. (Poster presentation)
27. **Adams***, K., Helmbold, B., & Lucky, K. (2010). "I Tell You a Story": Using Narrative Re-Tell to Assess AAC Competencies, in 14th ISAAC 2010 Conference, International Society of Augmentative and Alternative Communication 2010: Barcelona, Spain. (Poster presentation)
28. Dreyden, T., Encarnação, P., **Adams**, K., Volden, J., & Cook*, A. (2010). The Effect of Robotic Intervention on the Imitation Skills of a Child with Autism: a Case Study. Paper presented at the 14th ISAAC 2010 Conference, International Society of Augmentative and Alternative Communication. (Poster presentation).
29. **Adams***, K., & Cook, A., (2009). Using an augmentative and alternative communication device to program and control Lego robots. Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference. New Orleans, LA. (Podium presentation)
30. Poletz, L., Encarnacao, P., **Adams**, K., & Cook*, A., (2009). "Robot Skills of Preschool Children". Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference, New Orleans, LA. June 25, 2009 (Poster presentation)
31. **Adams***, K.D., J. Yantha*, and A.M. Cook. (2008b). Lego Robot Control via a Speech Generating Communication Device for Operational and Communicative Goals. International Society for Augmentative and Alternative Communication - 13th Biennial ISAAC Conference 2008. Montreal, QC. (Poster presentation)

32. **Adams***, K., Yantha, J., & Cook, A. (2008a). Lego robot control via a speech generating communication device for play and educational activities. Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) 2008, Washington, DC. (Poster presentation)
33. Cook*, A.M., **Adams** K.D., Harbottle, N. (2007). Lego Robot Use By Children With Severe Disabilities. CSUN Conference Proceedings, March, Los Angeles, CA. (Podium presentation)
34. Corrigan*, M. **Adams**, K*,. and Cook, A. (2007). Development of an Interface for Integration of Communication and Robotic Play. Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference Proceedings, Phoenix, AZ. (Podium presentation)
35. Higginbotham, D. J., Bisantz*, A.M., Sunm, M. & **Adams**, K. (2006). Augmentative Communication Devices and Task Performance. Human Factors and Ergonomics Society (HFES) Conference, San Francisco, CA. (Podium presentation)
36. Schulmeister*, J., Wiberg*, C., **Adams***, K., Harbottle, N., Cook, A. (2006). Robot Assisted Play for Children with Disabilities, Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference Proceedings, Atlanta, GA. (Poster presentation)
37. Beliveau, C., **Adams**, K., Cook*, A. (2006) Use of TeleHealth in the Delivery of Clinical Services in Assistive Technology in Northern Alberta, Australian Rehabilitation & Assistive Technology Association (ARATA) National Conference Proceedings, October 21 and 22, 2006, Australia. (Podium presentation)
38. **Adams***, K, Portis, K, Bisantz, A, Buckley, M, Higginbotham, J, Schindler, K, & Sweeney, M, (2005). "Experiences Using a Heuristic Evaluation Tool on AAC Software Interfaces". Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Proceedings, Atlanta, GA. (Poster presentation)
39. **Adams***, KD and Corfield*, D., (2003). "Design Criteria for AAC Devices Used in a Developing Nation", Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Proceedings, Atlanta, GA. (Podium presentation)
40. Kennedy*, PR, Kirby, T, **Adams**, K, King, B, Mallory, A., (2001). "The role of tactile feedback in the control of cortical neural signals two years after implantation in patient TT with mitochondrial myopathy." Neuro-Prosthesis Workshop, National Institutes of Health, Washington, DC. (Podium presentation)
41. **Adams***, KD, Goldthwaite, J, Plummer, T, Moore, MM and Kennedy, P, (2001). "Computer Control Using Surface EMG Signals", Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Proceedings, Reno, NV, pp. 80-82. (Podium presentation)
42. **Adams***, KD, Goldthwaite, J, Moore, MM and Kennedy, P, (2000). "A Surface EMG Connection for Cursor Control and Morse Code", Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Proceedings, Orlando, FL, pp 101-103. (Podium presentation)

43. Kennedy*, PR, **Adams**, K, Bakay, RAE, Goldthwaite, J, Montgomery, G, Moore, M, (1999). "Direct Control of a Computer from the Human Central Nervous System", Proceedings of Brain-Computer Interface Project, New York, NY, pp 65-70. (Podium presentation)
44. **Adams***, KD, Goldthwaite, J, and Kennedy, P, (1999). "A Direct Brain Connection for Cursor Control", Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Proceedings, Long Beach, CA, pp 186-188. (Podium presentation)
45. Harp* AJ, Corkran* JTD, **Adams*** KD, (1998). "Stove Modification for Client with Traumatic Brain Injury", Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Proceedings, Minneapolis, MN, pp 352-354. (Podium presentation)
46. **Adams*** KD and Harp* AJ, (1997), "Customizing a Power Wheelchair with a Built-in Commode", Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Proceedings, Pittsburgh, PA, pp 208-210. (Podium presentation)
47. Hensch* M and **Adams*** K, (1995). "Proposal for an ECU Standard Protocol". Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Proceedings, Vancouver, B.C., pp 437-439. (Podium presentation)
48. **Adams*** KD and Bentz* BD, (1995). "Headpointing: The Latest and Greatest", Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Proceedings, Vancouver, B.C., pp 446-448. (Podium presentation)
49. **Adams** KD, Pon C and Blois* T, (1993). "An Environment for Control Assessment", Rehabilitation Engineering and Assistive Technology Society of North America (RESNA), Las Vegas, NV, pp 68-70. (Podium presentation)
50. **Adams*** K and Abbott* S, (1991). "Designing an Authoring System for User Interfaces for Physically Handicapped Persons", Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Proceedings, Kansas City, MO. (Podium presentation)

Peer Reviewed Conference Proceedings – Short Abstracts

Note: Presenter is indicated with *. Students under K. Adams' supervision are underlined.

1. Barlott*, T., Mendoza, M., Rodriguez*, F., Puentes, P., **Adams**, K. (2013, June) The use of mobile phones to improve information access and social interaction for people with disabilities and their caregivers in an under-resourced Colombian community, Symposium on Disability, Technology and Rehabilitation in Low and Middle Income Countries, Seattle, WA. (Podium presentation)
2. Rios*, A., **Adams**, K. & Cook, A. (2012, September). Changes in the playfulness of children with cerebral palsy with the inclusion of a robot in a free-play situation. Alberta Early Years Conference, Enoch, AB. (Poster presentation)
3. Alvarez*, L., **Adams**, K. & Cook, A. (2012, May). The role of motor experience in cognitive development: Challenges and insights from atypical development. Paper presented at The Jean

Piaget Society for the Study of Knowledge & Development 42nd Annual Meeting, Toronto, ON.
(Poster presentation)

4. Cook, A., **Adams, K.**, Encarnação, P., Alvarez*, L., & Rios, A. (2012, July). Big lessons from small users: What Robots Reveal About Development in Children with Disabilities. Paper presented at the International Society for the Study of Behavioural Development 2012 Biennial Meeting, Edmonton, AB. (Poster presentation)
5. **Adams***, K. (2008). Robot manipulation and augmentative communication for play and learning for children with disabilities. Women and Children's Health Research Institute (WCHRI) Research Day November 26, 2008. (Poster presentation)
6. Mindess*, K., Cook, A., **Adams, K.** (2009, April). Communicative Intent of Vocalizations Recorded During Robot Use. Canadian Association of Speech-Language Pathologists and Audiologists (CASLPA), London, Ontario. (Student poster presentation)
7. **Adams***, K. (2006). Bolstering Power of Single-Participant Research Designs in the Area of Assistive Technology. ASHA-AAC Division Meeting, San Antonio, TX. (Poster presentation)
8. **Adams***, K., & Cook, A. (2006). Integrated Communication and Play. BMES Conference, Banff, AB. (Poster presentation)
9. **Adams***, K., Raso J, and Peterson A, (1992). "Considerations for Establishing the Accuracy of a CCD Video Camera" Montreal, 364-369, International Symposium on 3D Scoliotic Deformities Ed. Jean Dansereau Publisher Gustav Fischer Verlag

Presentations

Note: Presenter is indicated with *. Students under K. Adams' supervision are underlined.

1. Tavakoli*, M., Shahbazi*, M., Atashzar*, F., Patel*, R., **Adams***, K., Kawchuk*, G., Kulic*, D., Scott*, S., Pilarski*, P., Perreault*, S., Wiart*, L., Vette*, A., Wang*, R. (2016, July). Workshop: Advanced Intelligent Mechatronics for Neuromuscular Rehabilitation and Recovery Assessment. Institute of Electrical and Electronics Engineers (IEEE) International Conference on Advanced Intelligent Mechatronics (AIM), Banff, Canada.
2. Encarnacao*, P, **Adams, K.**, Cook, A., Nunes da Ponte, M., Caiado, A., Leite, T., Nunes, C., Piedade, G., Pereira, J., Ribeiro, M., Martins, A., Silva, M., Londral, A. (2015, July). Development of an Integrated Manipulation and Communication Assistive Technology to Support Academic Activities. Beit Issie Shapiro's 6th International Conference on Disabilities, Tel Aviv, Isreal. (Podium presentation)
3. Becerra*, L., **Adams, K.**, Rios Rincon, A., Castanellos*, J., Gomez*, M. (2015, October). Using Robots to access play for children with Severe Disabilities. Women and Children's Health Research Institute (WCHRI) Research Day, Edmonton, AB. (Poster presentation)
4. **Adams***, K. (2014, November, **Invited**). Research at the University of Alberta and Glenrose Hospital Assistive Technology Labs: Robot activities for children who have severe disabilities.

Centro de Investigación en Computación del National Polytechnic Institute (IPN), Mexico City, Mexico.

5. **Adams***, K., Rios Rincon, A., Alvarez, L., Sa, I., Becerra, L., & Esquivel, P. (2014, November). Using robots to assess skills and access play and problem solving for children with severe disabilities. Women and Children's Health Research Institute (WCHRI) Research Day, Edmonton, AB. (Poster presentation)
6. **Adams, K***, Rios, A., Cook, A., Alvarez, L., Becerra, L., & Esquivel, P. (2014, October, **Invited Keynote**). Accessing play and problem solving activities by children who have severe disabilities. Annual Meeting for European Cooperation in Science and Technology (COST) Action TD1309 Play for Children with Disabilities (LUDI), Vilnius, Lithuania.
7. Adams, K. (2014, August, **Invited**). Assistive Robots Research Program. Via Skype to the Centro de Investigación en Computación del National Polytechnic Institute (IPN), in Mexico City, Mexico.
8. Alvarez*, L., **Adams, K.**, Cook, A. (2013, July) Augmentative manipulation for children with disabilities: Cognitive, perceptual and brain development. Computer Science - Reinforcement Learning and Artificial Intelligence Summer Tea-Time Talks Seminar Series, University of Alberta.
9. Encarnacao*, P. Cook, A., **Adams, K.** (2013, April, **Invited**). Robots: assistive technologies for play, learning and cognitive development, Universidad del Rosario, Bogota, Colombia.
10. Encarnacao*, P. Cook, A., **Adams, K.** (2013, April, **Invited**). Comparison of physical and simulated robot use by children with disabilities and matched typically developing children, Universidad del Rosario, Bogota, Colombia.
11. Encarnacao*, P. Cook, A., **Adams, K.** (2013, April, **Invited**). Physical disabilities, child development and robots, Universidad del Rosario, Bogota, Colombia.
12. Cook*, A., **Adams, K.** (2013). Assistive Technology Industry Association (ATIA): Robots as Tools to Develop Language and Cognitive Skills, Conference 2013, Orlando, FL
13. Cook*, A., **Adams***, K., Encarnacao, P., Alvarez*, L., (2012, December, **Invited**). Robots: assessing and promoting cognitive development, International Developmental Neurorehabilitation 2012 Conference, Jasper, AB.
14. **Adams***, K., Cook*, A, Simpson, R., Chung*, Y. (2012). Workshop: Participation in Educational and Therapeutic Activities Using Robots and Augmentative and Alternative Communication (AAC). Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) conference, Baltimore, MD.
15. **Adams***, K. (2012, March, **Invited**). Assistive Technology Research in Edmonton: Overview and Focus on Children's Use of Robots in Academics. *Presentation to Prism Lab, Bloorview Research Institute*, Toronto, ON.
16. **Adams***, K. (2012, January, **Invited**). Assistive Technology Research in Edmonton: Lego and Mobile Phones? *Research Rounds, Occupational Therapy, University of Toronto*, Toronto, ON.

17. Encarnação*, P. Cook, A., **Adams**, K. (2012, April). Virtual robot and virtual environments for cognitive skills assessment, Faculdade de Engenharia da Universidade Católica Portuguesa.
18. Barlott*, T., Guevara*, J.D. **Adams**, K., & Luna, E. (2011, October). Using mobile phones to improve information access and decrease social isolation for people with disabilities and their families in Colombia. *Pay It Forward: OT 24 Hour Virtual Exchange*.
19. **Adams***, K. (2011, September, **Invited**). Access to Math Activities for Children with Disabilities by Controlling Lego Robots via AAC (Augmentative and Alternative Communication) Devices. *Catholic University of Portugal, Faculty of Engineering Seminar Series*, Lisbon, Portugal.
20. Cook, A., **Adams**, K. & Encarnação*, P. (2011, February, **Invited**). Cognitive Development in Children with Disabilities: the Role of Robots. *1st International Conference on Developmental Psychology*, Lisbon, Portugal.
21. Cook, A., **Adams**, K. & Encarnação*, P. (2010, November 4-5). Robots and Augmentative Communication. *COMUNICAR 2010 - Comunicação Aumentativa e Tecnologias de Apoio*, Lisbon, Portugal.
22. Cook* AM and **Adams** KA (2010, September, **Invited**), Playing with Language: AAC and robots. Ii Congreso Internacional de Fonoaudiologia, Bogotá – Colombia.
23. Cook*, A., **Adams***, K., P. Ormond*, (2009, June). “Workshop: The Role of Robotics in Enhancing Communication for Students with Severe Cognitive Delays” with A. Cook, and P. Ormond, Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference, New Orleans, LA.
24. Cook*, A., **Adams**, K. (2008, **Invited**). Robots and Children with Disabilities: Facilitating play, learning and cognitive development. Invited podium presentation at Congreso Iberoamericano Iberdiscap 2008-11, Bogota, Columbia.
25. Noon*, J. Pearlman*, J., and **Adams***, K. (2008). “Workshop: Assistive Technology in Developing Nations: World Health Organization Mandates”, Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference, Washington, DC (1.5 hours)
26. **Adams***, K. (2008, **Invited**). Access to play and education through robots for children with disabilities. Women and Children’s Health Research Institute (WCHRI). (Podium presentation)
27. Cook*, A.M., **Adams** K.D., Harbottle, N., Harbottle, C. (2007). Using Lego Robots to Estimate Cognitive Ability in Children who have Severe Disabilities, RERC State of the Science Conference & Coleman Institute Annual Conference Broomfield, CO.
28. **Adams***, K. (2007) “Assistive Technologies for Cognitive Augmentation”, Brain Injury Rehabilitation Program, Glenrose Rehabilitation Hospital, Edmonton, AB (1 hour)
29. **Adams***, K. Pearlman*, J., Noon*, J. (2007) “Workshop: Assistive Technology in Developing Nations: Brain Storming Session”, Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference, Phoenix, AZ (1.5 hours)

30. Marsden*, R. **Adams***, K., Cook, A. (2007) *Integrated Communication and Play Environment*. Assistive Technology Industry Association (ATIA), Orlando, Florida.
31. **Adams***, K. (2006, **Invited**) "Research Rounds: Human Factors in Alternative and Augmentative Communication", Glenrose Rehabilitation Hospital, Edmonton, AB (1 hour)
32. **Adams***, K., Pearlman*, J., Noon*, J. (2006) "Workshop: Design Brainstorming of Assistive Technology for use in Developing Nations", Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference, Atlanta, GA (1.5 hours)
33. **Adams***, K. (2005, **Invited**) "Research Rounds: Assistive Technology in Developing Nations", Glenrose Rehabilitation Hospital (1 hour)
34. Noon*, J, Lefkowitz*, T, Contreras*, A. and **Adams***, **K.** (2004). " Workshop: Seating and Mobility in Developing Nations", with, Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference, Orlando, FL (1.25 hours).
35. **Adams***, K., Corfield*, D. and Richard*, M. (2003). "Workshop: Effectively Introducing Assistive Technology in Developing Nations", Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference, Atlanta, GA (1.25 hours).
36. **Adams***, K. (2000) "Morse Code Training Program", Computer Show and Tell, Rehabilitation Engineering and Assistive Technology Society of North America (RESNA), Orlando, FL.
37. Haynes*, S., **Adams***, **K.**, Williams*, B. (1997). "Getting a Grip on Learning Disabilities", Pre-Conference Course, Rehabilitation Engineering and Assistive Technology Society of North America (RESNA), Pittsburgh, PA.
38. **Adams***, K., Corkran*, D. (1997), "Heat Shrink Machine", Job Accommodation Case Studies, Touch the Future Conference, Athens, GA.
39. **Adams***, K. (1997) "Assistive Technology for Learning Disabilities", Job Accommodation Case Studies, Touch the Future Conference, Athens, GA.
40. **Adams***, K., Corkran*, D., (1996) "Heat Shrink Machine", Job Accommodation Show and Tell, Rehabilitation Engineering and Assistive Technology Society of North America (RESNA), Salt Lake City, UT.

Book Chapters

1. **Adams**, K. D., Alvarez, L., & Rios-Rincon, A. M. (In press). Robotic systems for augmentative manipulation to promote cognitive development, play, and education. In A. Cook & P. Encarnação (Eds.), *Principles and Practice of Rehabilitation Robots*. Novato, CA: CRC Press.
2. Cook, A.M. & **Adams**, K. (2010). The Importance of Play: AT for Children with Disabilities, in Oishi, M, M. K., Mitchell, I.M., & Van der Loos, H.F. M. (Eds.) *Design and Use of Assistive Technology: Social, Technical, Ethical, and Economic Challenges*, Springer Science+Business Media. p. 33-39.

3. Cook, A. M., **Adams, K.**, Calixto, R., Gan, L. S., Ganton, A., Rees, A., Simpson, T., & Watchorn, R. (2008). Assistive Technologies for Cognitive Augmentation. In Cook, AM and Polgar, JM (Eds.); *Cook and Hussey's Assistive Technologies: Principles and Practice* (3rd ed.). St Louis: Elsevier.

Knowledge Translation Reports

1. **Adams, K.**, & David, B.-L. (2013). Making Hands-on Activities for Everyone: Math and the Lego Mindstorms Robot (pp. 300). Edmonton, Alberta: Alberta Teacher's Association Library
2. Cook, A and **Adams, K.** (2010), "Learning through doing: Children with cerebral palsy in the classroom" REHAB DIALOG, 2010, Issue 2 - Shared with school districts, Alberta Health Services (featuring the work stemming from my PhD work).
3. Hodge M and **Adams K.** (1993). "How to use the IBM Speech Viewer." Distributed by IBM with the purchase of their SpeechViewer product.

Media Coverage

1. *Featuring our assistive robotics development research theme:* Researchers use robotics to improve mobility for children with physical disabilities. Edmonton Journal (August 4, 2016)
2. *Featuring our robots for access to play research stream:*
 - "Robot play helps children with severe disabilities learn and develop", Women and Children's Health Research Institute (WCHRI) Newsletter, Tuesday, July 14, 2015
 - "Science of Play: Professor and engineer Kim Adams uses robotics to help children with disabilities", Stollery HEROES Winter 2016, "One to watch" section. By Shelley Newman
 - Interview with CTV Alberta Prime time on July 21, 2016 aired August 11, 2016.
3. Lego Robots Make Math a Snap - *featuring our robots for access to learning research stream:*
 - Edmonton Journal (Front page of the Saturday edition, January 29, 2011)
 - Covered in other publications across the country, e.g., Vancouver sun, Ottawa - "U of A researchers let robots loose"
 - Also carried by: City TV, Global TV, CBC-TV, Edmonton Sun
4. Komodo News - Year 1, Issue 6 - Tekla goes to Colombia - *featuring work from our international assistive technology research theme.*
5. "Hi-tech help has Cassandra talking in class" - *featuring the work during my PhD*
 - Edmonton Journal (Front page, June 23, 2007)
 - University of Alberta Express News, June 22, 2007 - Robotic toys enable disabled children
 - Also carried by: Global Television News, CTV News, City TV, CBC News, Canada AM, CBC radio
6. Courage/Encouraged Campaign - *to promote public awareness of Glenrose Rehabilitation Hospital research activities*
 - One minute segment specifically on robots for academics research program, including two participants from previous research projects. Ran on CTV January to June, 2008

GRANT FUNDING

Funding Agency	Investigators	Title	Award Value	Funding Years
	PI: Principal Investigator, Co-I: Co-Investigator, C: Collaborator			
Social Sciences and Humanities Research Council (SSHRC) - Insight Development Grant (IDG)	PI: Adams, K. Co-I: Lynn McGarvey C: Bonnie Lynn David	Active engagement in mathematics for children with disabilities: strategies for hands-on learning	\$70,000	2015-2017
Collaborative Health Research Projects (CHRP) Canadian Institutes of Health Research (CIHR) & Natural Sciences and Engineering Research Council of Canada (NSERC) Partnered	PI: Adams, K. Co-I: Tavakoli, Pilarski, Weibe, Cook, Sutton C: Quentin Ranson (GRH) and Veronique Maheu (Kinova Robotics)	Robotic interface with Haptic Guidance and Artificial Intelligence for People with Disabilities	\$333,000	2014-2017
The Federal University of Espirito Santo (UFES/Brazil) Internal Funding	PI: Freire, T. Co-I: Adams, K.; Rios, A.	Use of Robotics and Assistive Technology for Children and Adults with Disabilities	Travel	2014-2016
Glenrose Research Foundation	PI: Adams, K. Co-I: A. Tate; R. Wilson; C: B. Helmbold; C. Round; S. Wyness	Building an effective mentoring program for adolescents and young adults who use augmentative and alternative communication	\$5,500	2014-2015
University of Alberta Killam Research Fund, Operating Grant	PI: Adams, K.	Active engagement in mathematics for children with disabilities: a comparison of assistive technology strategies for hands-on learning	\$7,000	2014-2015
Glenrose Research Foundation	PI: Adams, K. Co-I: Tavakoli, M., Pilarski, P.	Robotics for children with disabilities to interact with their world	\$10,000	2013
Women & Children's Health Research Institute (WCHRI)	PI: Adams, K. Co-I: Cook, A, Pon, C.	Using robots to assess skills and access play and problem solving for children with severe disabilities	\$45,367	2013-2015

Alberta Advisory Committee for Education (AACES)	PI: Adams, K. Co-I: Bonnie Lynn David, Lynn McGarvey	Access to Hands-on Math Activities in the Classroom for Children with Disabilities	\$6,000	2013-2015
Fundação para a Ciência ea Tecnologia (FCT) (Portugal)	PI: Encarnacao, P. C: Adams, K.	Using Assistive Robots to Promote Inclusive Education	€129,032	2013-2015
Canadian Institutes of Health Research (CIHR)	PI: Michelle Keightley Co-I(s): Adams, Barlow, Chau, Davis, Fait, Gagnon, Hung, Mihailidis, Mrazik, Ptito, Rumney, Strother, Tator, Thomas, Reed, Wright, Zabjek	'NeuroCare' as Innovation in Intervention: A Neurophysiological Approach to Determine Readiness for Return to Activity	\$1,026,983	2013-2017
Alberta Teacher's Association (ATA) Curriculum Resource Grant	PI: Adams, K. Co-I: Bonnie Lynn David	Making "Hands-On" activities to Everyone	\$3,000	2012-2013
Fondo de Investigacion Universidad del Rosario (Colombia)	PI: Mendoza, M. C: Adams, K.	Perceived and social representations about disability in vulnerable communities: A case study in the El Codito sector	20,000,000 (pesos colombianos)	2012-2013
Glenrose Foundation	PI: Adams, K. Co-I: Helmbold, B.	Training in Assistive Technology skills using Lego Robots	\$7,000	2012-2013
University of Alberta, Faculty of Rehabilitation Medicine	PI: Adams, K.	Comparing effectiveness, efficiency and satisfaction using a Lego robot versus other modes of manipulation to perform math activities	\$ 5,425	2011-2012
University of Alberta International, International Project Fund	PI: Adams, K. Co-I: Cook, Barlott, Choi, Caverhill, Alvarez, Rios, and University of Rosario collaborators	Accessible mobile social media - cooperative community networking for people with disabilities in Colombia	\$3,000 (plus matching funds Rehab Med, U of A)	2011
Canadian Centre on Disabilities Studies (CCDS)	PI: Adams, K.	Robot control via augmentative communication devices by children with disabilities for performing math curriculum activities	\$5,000	2010

Fundação para a Ciência ea Tecnologia (FCT) (Portugal)	PI: Pedro Encarnacao C: Adams, K. and Al Cook	Comparison of Physical and Simulated Robot Use by Children with Disabilities and Matched Typically Developing Children	€72,538	2010-2012
Glenrose Research Foundation Clinical Research Fund	PI: Adams, K.	Using Integrated Robot and Communication Technology to Enhance the Educational Experience of Children with Disabilities	\$8,400	2009 -2011
Medical Device Development Program	PI: Marsden R. Co-I: Adams, K., & Cook, A.	Integrated Communication and Robotic Play Environment	\$40,000 (\$5,000 UofA)	2006 - 2007
Endowment Fund for the Future, University of Alberta	PI: Adams, K.	Integrated Communication and Robotic Play Environment	\$4,830	2006 - 2008
Glenrose Research Foundation Clinical Research Fund	PI: Adams, K.	Integrated Communication and Robotic Play Environment	\$5,000	2005
Stollery Children's Hospital Foundation, University of Alberta Hospital	PI: Cook, A. Co-I: Adams*, K., Darrah, J., & Volden, J. (*lead role in writing application)	Lego Robot Use by Children with Severe Disabilities	\$30,000	2005 - 2007
Internal Funding, University of Buffalo, Innovative Research and Creative Activities Fund	Co-I: Higginbotham, Adams, Bisantz, Pacquet, Schindler, Buckley	Development of a Human Factors model Communication using AAC devices	\$42,000	2003 - 2004
National Institutes of Health, Small Business Innovative Research (SBIR), Phase I	PI: Adams, K, Neural Signals, Inc.	Muscle Morse n' Mouse Computer Access Device	\$100,000	2000 - 2001

TEACHING

Course Level	Name	Number of Students	Years
3-Credit Courses (3 hours/week x 13 weeks/term)			
REHAB 512/600	Issues in Rehabilitation Science	12-16	2013-2015
REHAB 510 (co-instructor)	Issues in Assistive Technology	5	2011
1- and 1.5-Credit Courses			
OCCTH 543	Student Selected Module - Assistive Technology	20	2005-Present
CSD 523	Augmentative and Alternative Communication	60	Lab co-ordinator 2005-2012 Course and lab co-ordinator 2012-Present
Sections of Courses - Assistive Technology Content			
PTHER 539	Movement Analysis II Lectures (3h) and Labs (3h) - Wheelchair Propulsion	75	2005-2008
PTHER 563	Gross Motor Development and Pediatric Physical Therapy (3h on-line) and Labs (3h)	75-90	2005-Present
OCCTH 414	Advanced Application of AT Principles Across Lifespan Lecture (3h)	90	2005-2006
OCCTH 522	Enabling Occupation: Assistive technology Lecture (3h) and Labs (6h)	90-100	2011-Present
REHAB 512	Issues in Rehabilitation Science - Guest Lecture (2.5h)	12	2009-2011
Directed Study			
REHAB 599	Issues in Assistive Technology (34h)	Timothy Barlott	Winter 2013
REHAB 599	Issues in Assistive Technology (34h)	Nooshin Jafari, Katelyn Loshny	Winter 2014
REHAB 599	Issues in Assistive Technology (34h)	Lina Becerra, Paola Esquivel	Winter 2015
REHAB 599	Issues in Assistive Technology (34h)	Javier Castanellos, Maria Gomez	Winter 2016

Note: Several course numbers and names have changed over the years. Those presented above are the present number and names.

Guest Lectures

EDPY 563 Assistive Technology (Instructor: Kathy Howery) - Robots: assessing and promoting cognitive development. (November, 2014, with A. Cook and L. Alvarez)

REHAB 603 Seminars in Rehabilitation Science (Instructor: Karim Fouad) - Introduction to Assistive Technology and Issues in Research (December, 2012)

OT Practicum, Universidad del Rosario, Bogota, Colombia (Instructor: E. Castro) - Augmentative and alternative communication and participation: Low tech solutions for Colombia (August, 2011)

Assistive Technology, Universidad del Rosario, Bogota, Colombia (Instructors: L. Alvarez and A. Rios)
1. Augmentative and alternative communication (August, 2011)
2. Building Low Cost Assistive Technology (August, 2011, with students S. Caverhill, M. Choi and T. Barlott)

EDPY 497/597 Assistive Technology (Instructor: Kathy Howery) - Robots: Access for every learner (November, 2011)

REHAB 603 Seminars in Rehabilitation Science (Instructor: Karim Fouad) - Playing with Language: Robots and Children (October, 2010, with A. Cook)

EDPY 497 - Psychological theory and Technology in Education (Instructor: Patricia Boechler) - Hands-on activities in Lab (March, 2007)

GRADUATE STUDENT SUPERVISION

PhD Thesis Students

- 2014 - Present **Supervisor**, Isao Sakamaki; PhD Rehabilitation Science
Using electroencephalography to control assistive robots with haptic feedback
(PhD Candidate)
- 2010 - 2014 **Co-supervisor** (with Dr. Al Cook), Liliana Alvarez; PhD Rehabilitation Science
A robot journey into cognition: The role and implications of augmentative manipulation in child development (PhD RS completed)
- 2010 - 2014 **Co-supervisor** (with Dr. Al Cook), Adriana Rios; PhD Rehabilitation Science
The effect of a robotic intervention on the free play experience of children with severe cerebral palsy (PhD RS completed)

MSc Thesis Students

- Accepted Fall 2016 **Supervisor**, Javier Castanellos; MSc Rehabilitation Science
- Accepted Fall 2016 **Supervisor**, Maria Gomez; MSc Rehabilitation Science
- Accepted Fall 2016 **Supervisor**, Paola Esquivel; MSc Rehabilitation Science

- 2015 - Present **Co-supervisor** (with Dr. Mahdi Tavakoli), Mohammed Najafi; MSc EE
Development of a learning from demonstration algorithm in a haptic feedback system
- 2015 - Present **Supervisor**, Lina Becerra; MSc Rehabilitation Science
Using haptic robots for children with disabilities to explore physical environments
- 2014 - Present **Co-supervisor** (with Dr. Karen Pollock), Jenelle MacDonald; MSc SLP thesis
The effects of mentoring on the linguistic competence of adolescents who use augmentative and alternative communication (AAC) devices
SSHRC Scholarship award recipient
- 2014 - Present **Supervisor**, Nooshin Jafari; MSc Rehabilitation Science
Development of a teleoperation system with haptic guidance for children with disabilities for colouring
- 2011 - 2013 **Supervisor**, Timothy Barlott; MSc Rehabilitation Science
A text messaging system for reducing the exclusion of people with disabilities and their families in an under-resourced Colombian community (MSc RS completed)

MSc Research Projects

- 2013 - 2015 **Co-Supervisor** (with Dr. M. Carbonero), Katelyn Loshy; MSc Education
Assessment Tool for Elementary Student's with Physical Disabilities in Mathematics (MSc Education completed)
- 2013 - 2015 **Supervisor**, Danielle Commendeur and Kathryn Robertson; MSc SLP
Evaluation of the language used by augmentative communication users in mathematics activities (MSc SLP completed)
- 2012 - 2014 **Supervisor**, Brittany Evans and Alison Farnand; MSc SLP
Evaluation of materials for children with disabilities to develop language and cognitive skills (MSc SLP completed)
- 2012-2014 **Supervisor**, Adrielle Soriano and Amanda Yuen; MSc SLP
Assessment of child language during play with and without robots - Playfulness Pilot study (MSc SLP completed)
- 2011-2013 **Supervisor**, Amy Wainer; Kathryn Sirard; MSc SLP
Assessment of child language during play with and without robots- Bogota Pilot study (MSc SLP completed)
- 2011-2012 **Co-Supervisor** (with Dr. Al Cook), Jaclyn Zaba, Shauna Sam, Lindsay Schafer, & Angela Sawatzky; MSc SLP
Lego Robot Materials Development (MSc SLP completed)
- 2011- 2012 **Co-Supervisor** (with Dr. Al Cook), Meaghan Bailey & Kayla Reibelng; MSc SLP
Case Study of AAC device recipient from AADL program (MSc SLP completed)
- 2010-2012 **Supervisor**, Libby Shaw; MSc SLP *Modified program

Literature review of augmentative communication device features which enhance integrated communication and play (MSc SLP completed)

- 2010- 2011 **Co-Supervisor** (with Dr. Al Cook), Nicole Maschio, Crystal Arneson, & Carin Broome; MSc SLP
Case Study of AAC device recipient from AADL program (MSc SLP completed)
- 2010-2011 **Co-Supervisor** (with Dr. Al Cook), Shelia Charlton, Sarah Genius*, Shaelene Yungwirth; MSc SLP
*Lego robot skills of children with disabilities * Queen Elizabeth II Scholarship (MSc SLP completed)*
- 2009-2010 **Supervisor**, Jamie Friesen, Kerstin Blazina, Kristen Slauenwhite; MSc SLP
Integrated Communication and Play (MSc SLP completed)
- 2009-2010 **Co-Supervisor**, Linda Poletz; MSc SLP
Lego Robot use as a Proxy to Determine Cognitive Level (MSc SLP completed)
- 2009-2010 **Co-Supervisor**, Katherine Mindess; M.Sc. SPA Project
Coding of Communication Events for a Single Participant in Lego Robot Play (MSc SLP completed)
- 2009-2010 **Co-Supervisor**, Tracey Dryden; M.Sc. SPA (non-thesis)
Single Case Study of Lego Robot Play for a Child with Autism (M.Sc SPA completed)
- 2008-2009 **Supervisor**, Julie Yantha; MSc SLP
Mean Length of Utterance when using an Augmentative Communication Device to control a Lego robot (MSc SLP completed)
- 2007-2008 **Co-Supervisor**, Pascal Stokes and Allison Lockhart; MSc SLP
Lego Robot use for Phonemic Awareness (MSc SLP completed)
- 2006-2007 **Co-Supervisor**, Cara Wiberg and Jen Schulmeister; MSc SLP
Pilot study of Lego Robot use with children who have disabilities (MSc SLP completed)

Student Research Placements

- 2016 **Supervisor**, Adam Patterson, BSc in Mechanical Engineering, University of Alberta. Undergraduate Research Initiative
Design of ability-specific robotic interfaces for children with disabilities
- 2016 **Supervisor**, Alejandra Ruiz, Psychology Student, Universidad de Guadalajara, Mexico. Globalink Research Internship by Mitacs
Haptic perception physiological and neurological process: An approach to the scope of using robots with haptic feedback for children with physical disabilities
- 2016 **Supervisor**, Ilan Sales Galvo de Figueiredo, Computer Engineering Student, State of Sao Paulo University, Brazil. Science without Borders Research Internship
Software development for Novint Falcon user-side robotic interface

- 2015 **Supervisor**, Javier Castanellos, Biomedical Engineering Student, Facultad de Ciencias de la Salud, Universidad del Rosario and Escuela Colombiana de Ingeniería Julio Garavito, Bogota, Colombia. Emerging Leaders of the Americas Program
Haptic robot play systems for children with disabilities
- 2015 **Supervisor**, Maria Gomez, Biomedical Engineering Student, Facultad de Ciencias de la Salud, Universidad del Rosario and Escuela Colombiana de Ingeniería Julio Garavito, Bogota, Colombia. Emerging Leaders of the Americas Program
Haptic robot play systems for children with disabilities
- 2015 **Co-Supervisor** (with Dr. M. Tavakoli), Farokh Atashzar, PhD Student, University of Western Ontario.
Telerobotics-assisted Platform for Enhancing Interaction with Physical Environments for People Living with Cerebral Palsy
- 2015 **Co-Supervisor** (with Dr. M. Tavakoli), Archit Shah, Electrical Engineering Student, India. Globalink Research Internship by Mitacs
Haptic Teleoperation Environment for Children Computer Vision to Inform System of Items in the Environment and Virtual fixtures to Guide Child User to the Items
- 2014 **Supervisor**, Paola Esquivel, BSc in Occupational Therapy, Universidad Nacional de Colombia, Bogota. Emerging Leaders of the Americas Program
Using robots to assess skills and access play and problem solving for children with severe disabilities
- 2014 **Supervisor**, Lina Becerra, BSc in Occupational Therapy, Universidad Nacional de Colombia, Bogota. Emerging Leaders of the Americas Program, *Using robots to assess skills and access play and problem solving for children with severe disabilities*
- 2014 **Supervisor**, Isabela Sa, Occupational Therapy Student, Federal Institute of Science, Education and Technology of Rio de Janeiro, Brazil. Science without Borders Internship
Using robots to assess skills and access play and problem solving for children with severe disabilities
- 2014 **Co-supervisor** (with Dr. P. Pilarski), Elizabeth Guevara, PhD in Computer Science, National Polytechnical Institute of Mexico. CONACYT scholarship
Adaptive level of robotic control - Phase 2
- 2013 **Co-supervisor** (with Dr. P. Pilarski), Carolina Elias, Master's Computer Science, National Polytechnical Institute of Mexico, CONACYT scholarship
Adaptive level of robotic control - Phase 1
- 2009 **Co-supervisor** (with Dr. A. Cook), Bethany Ranjit - 4th year medicine, University of Cardiff, Wales, Research Elective for Medical degree
Constraint induced movement therapy and robotics

MSc Thesis External Reader

- 2015 Jairo Andrés Acevedo Londoño, Escuela De Ingeniería Eléctrica Y Electrónica, Universidad del Valle, Cali-Valle, Colombia

MSc thesis prospectus: *Proposal for rehabilitation of children with upper limb disability based on ludic robotic environment*

Graduate and Undergraduate Research Project –Reader

- 2014 Enyu Zhou, Jiaxin Fan, Peter Atrazhev, Courtney Newsham
BSc Electrical Engineering Capstone Design Project
Haptic Teleoperation Environment for Rehabilitation
- 2010 Janelle Martin
MSc OT Project
Critical literature review on AAC and participation, External expert
- 2009 Paul Coutts, K Hwan, Jim Vian, Adam Hassan
BSc Electrical Engineering Capstone Design Project
Infrared to Bluetooth adapter
- 2009 Khushaal Kalra, Huan, Matthew Fotty, Debra Deauna
BSc Electrical Engineering Capstone Design Project
Infrared to Bluetooth adapter
- 2009 Steven Smith, Brennin Evans, Allen Hwang, Abdul Doctor, & Meer Ali
BSc Electrical Engineering Capstone Design Project
Adapted controller for Play Station 2
- 2009 Mengliao Wang - MSc Computer Science
COMPUT 607 Human Computer Interaction Course Project
Virtual Assistive Robots
- 2007 Mark Corrigan, MSc Educational Psychology
EDPY Capstone Project
Development of an Integrated Communication and Play Interface
- 2006 Brianna Bruce, Anna Kaminski, Erika Szego, Farrah Hasham, Andrea Burr
MSc PT Project
How is Functional Performance Influenced by the Type (Standard, Lightweight, Ultralight) of Wheelchair used by Persons with a Spinal Cord Injury?

SERVICE

University Committees

Member, Teaching Awards Committee (2011-present)

Member, Military Chair Selection Committee (2011)

Member, Pediatric Candidate Selection Committee (2015)

Faculty of Rehabilitation Medicine, Dean's Office, international engagement:

- Facilitation of global partnerships and student placements (2011-present)

Community engagement:

- Faculty of Rehabilitation Medicine, FIRST Lego League outreach, **Coordinator** (2012 - present)
- Department of Communication Sciences and Disorders, AAC camp for children who use augmentative communication devices. **Member**, planning committee for 2016, 2009, 2007, and 2005)

Peer Review Activities

Research Grants

External referee, Collaborative Health Research Projects (CHRP) Grants Competition Canadian Institutes of Health Research (CIHR) and Natural Sciences and Engineering Research Council of Canada (NSERC) partnered (2015)

Reviewer, National Institutes of Health (NIH), Small Business Innovative Research (SBIR) Applications (2003)

Reviewer, National Institutes of Health (NIH), Small Business Innovative Research (SBIR) and R01 Applications (2004)

Journal Manuscripts

Assistive Technology (2016)

Cognitive Systems Research (2016)

Disability and Rehabilitation: Assistive Technology (2013, 2015, 2016)

Conference Extended Abstracts (4 to 10 pages)

DSAI 2016 the 7th International Conference on Software Development and Technologies for Enhancing Accessibility and Fighting Info-exclusion, Special Track "Play for Children with Disabilities" (2016)

Association for the advancement of Assistive Technology in Europe (AAATE) Conference, five extended abstracts (2013, 2015)

SIG CHI (premier society for human-technology and human-computer interaction) (2013)

Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference Proceedings for SIG 17 International Appropriate Technology (2004)

Program committee

Institute of Electrical and Electronic Engineers (IEEE) Computational Intelligence in Robotic Rehabilitation and Assistive Technologies (CIR2AT'2016) Conference, Athens, Greece

Professional Service and Involvement

LUDI Network - Play for Children with Disabilities, European Cooperation in Science and Technology (COST), **International partner** (2013 - present)

Alberta Consortium for Rehabilitation and Assistive Technology (ACRAT): **Founding Member** 2010, **Treasurer** (2010-Present)

Rehabilitation Engineering and Assistive Technology Society of North America (RESNA): **Member** (1990- Present), Board of Directors (2000-2003), Member (1990 - Present), SIG-17 Special Interest Group International Appropriate Technology: Past Chair (2006-2007), Chair (2003 - 2006), Vice-Chair (2002-2003), Secretary / Treasurer (1996-1998); Moderator

Association of Professional Engineers, Geologists, and Geophysicists of Alberta (APEGGA): **Member** (1987 - Present)

Assistive Technology Bag of Tricks Conference: **Organizing committee member** for Edmonton, AB (1993)

Alberta Clinical Engineering Society (ACES): **Founding member**

Association of Women in Engineering and Science (AWES): **Member** (1993-1994)

Canadian Medical and Biomedical Engineering Society (CMBES): **Organizing committee member** for conference in Banff, AB (1991)

Institute of Electrical and Electronics Engineers (IEEE): **Member** (1991)

Hands on Engagement and Tours at Faculty of Rehabilitation Medicine Lab

Educational Psychology EDPY 497 Assistive Technology for All, University of Alberta, students (July 13, 2016)

Family Fun Day, Faculty of Rehabilitation Medicine (June 4, 2016)

Memorial Composite High School students (May 12, 2016)

Cub scouts group (May 4, 2016)

Telus World of Science "Dark Matters: Robots" (March 10, 2016)

Beaver Scouts group (two groups of 20 Feb 8 and 9, 2016)

Heritage Youth Research Summer Program (July 17, 2015)

Discover E Biomedical Tour - group of 23 students boys and girls in grade 6 (2014)

Undergraduate Research Initiative (URI) Biomedical Research Crawl (2012 and 2013)

DiscoverE Team GEM Club, two groups of 20 girls in grades 3 to 5 (2013)

FRM's participation in the UofA Alumni Open House (2005 and 2011)

Tour for Japanese IT Students in English Language Program, arranged through David Janzen, U of A Faculty of Extension's English Language Program, (2010)

Pfizer Canada Discovery Days in Health Sciences at the UofA - Workshop for highschool students (2008)

Hands on Engagement and Tours at Glenrose Rehabilitation Hospital Lab

Rehabilitation Physicians from Japan, Dr. Ming Chan's visitors (2016)

St. Kateri school tour of I Can Centre and Oiler's Interactive Learning (OIL) Centre Centre to 60

children (2014)
Glenrose Foundation and the Board of Trustees (2014)
Allendale Lego Kids tour of I Can Centre and Building Trades of Alberta Courage Centre (2012)
FIRST Lego League participants from Earl Buxton school tour of GRH Robotics lab and Building Trades of Alberta Courage Centre for (2010)
Open House Glenrose Research Centre 100th Anniversary (2012)
Open House of A Kostov Labs (2010)
GRH's Technology Boot Camp - 3-hour workshop in the A. Kostov Assistive Technology Research Lab (2006)
Open House of I Can Centre in December (2005)

Volunteer experience

The Waters, Buffalo, NY. Volunteered in the Activities Department at a care home for senior citizens (2003 - 2005).
YMCA, Atlanta, GA. Scheduled, organized, and supervised a group of adults with developmental disabilities go on community excursions (1999 - 2002, Treasurer 2001-2002).
Hogar Clinica, Cusco, Peru. Introduced assistive communication devices for children with physical disabilities and communication disorders at a rehabilitation clinic (2001).
Hogar Clinica, Santiago, Chile. Counselor at a weekend camp for young adults with disabilities (2000).
St. Mary's Church, Augusta, GA. Supervised a group of adults with developmental disabilities go on community excursions (1997- 1998).
Personal care attendant, near Germansen Landing, British Columbia. Assisted a man who has a C5 spinal cord injury (1995).
MicroComputer Centre, University of Dundee, Scotland. Developed a software module for an augmentative communication program called Talk Assist (1993)
Faculty of Rehabilitation Medicine, University of Alberta. Set up all equipment and assisted during augmentative and alternative communication laboratory sessions (1993).
Glenrose Rehabilitation Hospital, Edmonton, AB. Assisted several persons with physical disabilities set up and use their computers (1989-1990).

Undergraduate and Graduate Student Involvement

Graduate Student Representative on Engineering Faculty Council (1991 - 1992)
Student Panelist for University Management Workshop (1992)
Women Engineering Students Club (Member 1982 - 1987), President (1985)
Electrical Engineering Club (Executive Member 1983 - 1987), Graduation Coordinator (1987)
First Year Engineering Club (Vice President 1982 - 1983)