Eric J. Earley

(He/him)
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Curriculum Vitae
Updated 2025-01-01

Summary

I am an Assistant Research Professor with the Bone-Anchored Limb Research Group at the University of Colorado, the Department of Orthopedics at the University of Colorado Anschutz Medical Campus, and the Limb Restoration Program at University of Colorado Hospital. My research focuses on characterizing and augmenting the sensorimotor experiences of patients with amputation and the incorporation of their prosthesis into the cognitive representation of their body schema.

Understanding these afferent and efferent phenomena allows for the development of technologies and targeted therapies to strengthen prosthesis embodiment, alleviate phantom limb pain, and improve overall quality of life.

This requires a transdisciplinary and collaborative approach bringing together engineers, scientists, surgeons, clinicians, therapists, and patients to develop efficacious and novel technologies that can be impactful not only in a laboratory setting, but at home and during daily use.

Education

Postdoctoral Training	Chalmers University of Technology	2020 – 2023
Ph.D. Biomedical Engineering	Northwestern University	2014 – 2020
M.S. Biomedical Engineering	Northwestern University	2012 – 2014
B.S. Engineering: Mechanical Specialty	Colorado School of Mines	2008 – 2012

Research Experience

Assistant Research Professor *2023 – present*
Bone-Anchored Limb Research Group ♦ University of Colorado
Department of Orthopedics ♦ University of Colorado Anschutz Medical Campus
Limb Restoration Program ♦ University of Colorado Hospital

Facilitated an international consensus study amongst prosthetists to establish recommendations for prosthetic componentry for patients with bone-anchored limbs. Developing an amputation-specific pain survey to characterize subtypes of pain – phantom, residual, bone, muscle, nerve, back, shoulder, and neck – experienced by patients with amputation. Proposing a novel framework for osseophenomena – uniquely enhanced somatosensory and neuropsychological experiences arising from direct skeletal attachment of prosthetic limbs. Coordinating IDE clinical trials and sIDE compassionate use exemptions for osseointegrated implants.

Research estimated to yield at least four peer-reviewed first-author journal articles, two first-author and one middle-author international conference papers, and six first-author international conference abstracts to date.

Postdoctoral Research *2020 - 2023*
Bionic Arms Area ♦ Center for Bionics and Pain Research
Department of Electrical Engineering ♦ Chalmers University of Technology

Mentor: Prof. Max Ortiz-Catalán

Oversaw clinical trials providing and upgrading neuromusculoskeletal implants for transradial prostheses. Proposed methods of characterizing perceptions elicited via varied neurostimulation modulations. Developed signal processing algorithms to remove neurostimulation artifacts from implanted EMG sensors and mathematical models to probe electrical connectivity between implanted sensors. Investigated longitudinal behavioral and functional impacts of prosthesis use at home. Mentored three PhD students and seven Master's students during their theses.

Research yielded at least fifteen peer-reviewed publications to date: five first-author and seven middle-author journal articles, two first-author and one middle-author international conference papers.

Doctoral Research *2014 –2020*
Center for Bionic Medicine ♦ Shirley Ryan AbilityLab
Department of Biomedical Engineering ♦ Northwestern University

Thesis Title: *Sensory Substitution in the Presence of Vision: Providing Joint Speed Feedback to Improve Myoelectric Prosthesis Control and Adaptation*. Dissertation.

Advisors: Dr. Levi Hargrove, Prof. Jon Sensinger

Used sensory feedback to improve motor adaptation by providing information not accurately available via vision, as determined by psychophysical analysis.

Research yielded five peer-reviewed first-author publications: three journal articles and two conference papers.

Master's Research *2012 – 2014*
Center for Bionic Medicine ♦ Rehabilitation Institute of Chicago
Department of Biomedical Engineering ♦ Northwestern University

Advisor: Dr. Levi Hargrove

Improved control of partial-hand prostheses through optimization of EMG pattern-recognition parameters and dynamic window lengths while preserving wrist mobility.

Research yielded three peer-reviewed first-author publications: one journal article and two conference papers.

Research Internship *2012*
BioMechatronics Development Laboratory
Department of Bioengineering ♦ University of Colorado Anschutz Medical Campus

Advisor: Dr. Richard F. *ff* Weir

Designed thumb actuation mechanism and housing and created SolidWorks models of prototype 3-DOF prosthetic hand.

PUBLICATIONS

Peer-Reviewed Journal Articles

1. A.B. Smiles[†], **E.J. Earley**[†], N. Jiang, M. Ortiz-Catalan. "Sensory Feedback of Grasp Security by Direct Neural Stimulation Improves Amputee Prediction of Object Slip." *Prosthesis*, 2025. Links.

2. **E.J. Earley**, J. Zbinden, M. Muñoz-Novoa, F. Just, C. Vasan, A. Sjögren Holtz, M. Emadeldin, J. Kolankowska, B. Davidsson, A. Thesleff, J. Millenaar, S. Jönsson, C. Cipriani, P. Sassu, R. Brånemark, M. Ortiz-Catalan. "Cutting edge bionics in highly impaired individuals: a case of challenges and opportunities," *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 2024. Links.

3. **E.J. Earley**[†], N.S. Chan[†], A. Naber, E. Mastinu, M.T.N. Trương, M. Ortiz-Catalan. "Low-Cost, Wireless Bioelectric Signal Acquisition and Classification Platform." *IEEE Access*, 2024. Links.

4. J. Zbinden, **E.J. Earley**, M. Ortiz-Catalan. "Intuitive control of additional prosthetic joints via electro-neuromuscular constructs improves functional and disability outcomes during home use," *Journal of Neural Engineering*, 2024. Links.

5. E. Lendaro, C. K. Van der Sluis, L. Hermansson, L. Bunketorp-Käll, H. Burger, E. Keesom, C. Widehammar, M. Muñoz-Novoa, B.E. McGuire, P. O' Reilly, **E.J. Earley**, S. Iqbal, M.B. Kristoffersen, A. Stockselius, L. Gudmundson, W. Hill, M. Diers, K. Turner, and M. Ortiz-Catalan. "Treating phantom limb pain with extended reality and machine learning," *Pain*, 2024. Links.

6. **E.J. Earley**, R.E. Johnson, J.W. Sensinger, L.J. Hargrove. "Wrist Speed Feedback Improves Elbow Compensation and Reaching Accuracy for Myoelectric Transradial Prosthesis Users in Hybrid Virtual Reaching Task." *Journal of Neuroengineering and Rehabilitation*, 2023. Links.

7. R. Collu, **E.J. Earley**, M. Barbaro, M. Ortiz-Catalan. "Non-rectangular neurostimulation waveforms elicit varied sensation quality and perceptive fields on the hand," *Scientific Reports*, 2023. Links.

8. J. Zbinden, P. Sassu, E. Mastinu, **E.J. Earley**, M. Muñoz-Novoa, R. Brånemark, M. Ortiz-Catalan. "Improved control of a prosthetic limb by surgically recreating electro-neuromuscular constructs with implanted electrodes," *Science: Translational Medicine*, 2023. Links.

9. M. Ortiz-Catalan, J. Zbinden, J. Millenaar, D. D'Accolti, M. Controzzi, F. Clemente, L. Cappello, **E.J. Earley**, E. Mastinu, J. Kolankowska, M. Muñoz-Novoa, S. Jönsson, C. Cipriani, P. Sassu, R. Brånemark. "A highly integrated bionic hand with neural control and feedback for use in daily life," *Science Robotics*, 2023. Links.

10. **E.J. Earley**[†], A. Berneving[†], J. Zbinden, M. Ortiz-Catalan. "Neurostimulation Artifact Removal for Implantable Sensors Improves Signal Clarity and Decoding of Motor Volition." *Frontiers in Human Neuroscience*, 2022. Links.

11. **E.J. Earley**, J. Zbinden, M. Muñoz-Novoa, E. Mastinu, A. Smiles, M. Ortiz-Catalan. "Competitive Motivation Increased Home Use and Improved Prosthesis Self-Perception after Cybathlon 2020 for Neuromusculoskeletal Prosthesis User," *Journal of Neuroengineering and Rehabilitation*, 2022. Links.

12. E. Lendaro, **E.J. Earley**, M. Ortiz-Catalan. "Statistical analysis plan for an international, double-blind, randomized controlled clinical trial on the use of phantom motor execution as a treatment for phantom limb pain," *Trials*, 2022. Links.

13. B. Ahkami, E. Mastinu, **E.J. Earley**, M. Ortiz-Catalan. "Extra-neural signals from severed nerves enable intrinsic hand movements in transhumeral amputations," *Scientific Reports*, 2022. Links.

14. **E.J. Earley**, R.E. Johnson, J.W. Sensinger, L.J. Hargrove. "Joint Speed Feedback Improves Myoelectric Prosthesis Adaptation after Perturbed Reaches in Non Amputees," *Scientific Reports*, 2021. Links.

15. **E.J. Earley**, R.E. Johnson, L.J. Hargrove, J.W. Sensinger. "Joint Speed Discrimination and Augmentation for Prosthesis Feedback," *Scientific Reports*, 2018. Links.

16. **E.J. Earley**, L.J. Hargrove, T.A. Kuiken. "Dual Window Pattern Recognition Classifier for Improved Partial-Hand Prosthesis Control," *Frontiers in Neuroscience*, 2016. Links.

Peer-Reviewed Conference Papers

Selected for Oral Presentation

1. **E.J. Earley**[*], E. Mastinu, M. Ortiz-Catalan. "Cross-Channel Impedance Measurement for Monitoring Implanted Electrodes," *IEEE Engineering in Medicine and Biology Society (EMBC)*, Glasgow, Scotland, UK. July 2022. Links.

2. B.M. Musolf[*], **E.J. Earley**, M. Muñoz-Novoa, M. Ortiz-Catalan. "Analysis and Design of a Bypass Socket for Transradial Amputations," *IEEE Engineering in Medicine and Biology Society (EMBC)*, Virtual. November 2021. Links.

3. **E.J. Earley**[*], L.J. Hargrove. "Modeling Expected Reaching Error and Behaviors for Motor Adaptation," *IEEE Engineering in Medicine and Biology Society (EMBC)*, Berlin, Germany. July 2019. Links.

4. **E.J. Earley** and L.J. Hargrove[*]. "The Effect of Wrist Position and Hand-Grasp Pattern on Virtual Prosthesis Task Performance," *IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechatronics (BioRob)*, Singapore. June 2016. Links.

Selected for Poster Presentation

5. **E.J. Earley**[*], C. Piazza, K.L. Turner. "A Taxonomy for Commercially Available Myoelectric Terminal Devices," *Myoelectric Controls and Upper Limb Prosthetics Symposium (MEC)*, Frederickton, NB, Canada. August 2024. Links.

6. K.L. Turner*, W. Hill, **E.J. Earley**, M. Muñoz-Novoa, L. Hermansson, H. Lindner. "Refinement of New Items in the Assessment of Capacity for Myoelectric Control for Multi-Articulating Hands," *Myoelectric Controls and Upper Limb Prosthetics Symposium (MEC)*, Frederickton, NB, Canada. August 2024. Links.

7. **E.J. Earley***, M. Ortiz-Catalan. "Neurostimulation Perception Obeys Strength-Duration Curves and is Primarily Driven by Pulse Amplitude," *International IEEE EMBS Conference on Neural Engineering (NER)*, Baltimore, MD, USA. April 2023. Links.

8. **E.J. Earley***, K.J. Kaveny, R.E. Johnson, L.J. Hargrove and J.W. Sensinger. "Joint-based velocity feedback to virtual limb dynamic perturbations," *International Conference on Rehabilitation Robotics (ICORR)*, London, GB, UK. July 2017. Links.

9. **E.J. Earley***, A.A. Adewuyi, and L.J. Hargrove. "Optimizing Pattern Recognition-Based Control for Partial-Hand Prosthesis Application," *IEEE Engineering in Medicine and Biology Society (EMBC)*, Chicago, IL, USA. August 2014. Links.

Non-Peer-Reviewed Abstracts and Proceedings

Selected for Oral Presentation

1. **E.J. Earley***, M.E. Awad, D.H. Melton, C. Hoyt, C. Christiansen, B.M.M. Gaffney, J.W. Stoneback. "A Delphi Survey of OI Component Prescription Consensus," *Global Collaborative Conference on Osseointegration (GCCO)*, Charlotte, NC, USA. November 2023.

2. F. Just*, R. Reho, **E.J. Earley**, M. Ortiz-Catalan. "Neurostimulation artifact removal algorithms to improve control of a tactile feedback prosthesis," *DGBMT Annual Conference on Biomedical Engineering*, Duisburg, Germany. September 2023. Links.

3. B. Ahkami*, E. Mastinu, **E. Earley**, M. Ortiz-Catalan. "Extraneural Recordings Enable the Decoding of Intrinsic Hand Movements in Transhumeral Amputations," *World Congress of the International Society for Prosthetics and Orthotics (ISPO)*, Virtual. 2021. Links.

4. **E.J. Earley***, R.E. Johnson, L.J. Hargrove and J.W. Sensinger. "Visual Discrimination of Biomimetic Arm Speeds," *School and Symposium on Advanced Neurorehabilitation (SSNR)*, Baiona, Spain. 2018. Links.

5. **E. Earley**, K. Kaveny, R. Johnson, L. Hargrove, J. Sensinger*. "Appropriate Sensory Feedback Improves Performance," *World Congress of the International Society for Prosthetics and Orthotics (ISPO)*, Cape Town, South Africa. May 2017. Links.

Selected for Poster Presentation

6. **E.J. Earley***, D. Milius, M.E. Awad, D.H. Melton, Delphi Steering Committee, C.L. Christiansen, B.M.M. Gaffney, J.W. Stoneback. "Consensus via the Delphi Method on Transfemoral Prosthesis Prescription for Bone-Anchored Limbs," *Global Collaborative Congress on Osseointegration (GCCO)*, Charlotte, NC, USA. November 2024.

7. **E.J. Earley***, D. Milius, M.E. Awad, D.H. Melton, C.L. Christiansen, B.M.M. Gaffney, J.W. Stoneback. "An International Delphi Method Study to Develop Consensus on Prosthetic Prescription for Bone-Anchored Limbs," *6th Annual CU Orthopedic Research Symposium*, Denver, CO, USA. October 2024.

8. **E.J. Earley***, A. Smiles, N. Jiang, M. Ortiz-Catalan, J.W. Stoneback, D. H. Melton. "Including Prosthetic Control and Sensory Feedback in Personalized Care for Persons with Upper-Limb Loss and Limb Difference," *5th Annual CU Orthopedic Research Symposium*, Denver, CO, USA. October 2023.

9. N. Sanders*, M. Drout, S. Kohler, B. Cook, **ComSciCon Leadership Team**. "ComSciCon: The Communicating Science Workshop for Graduate Students," *American Astronomical Society Meeting #231*, Washington, DC, USA. January 2018.

10. **E.J. Earley***, K.J. Kaveny, R.E. Johnson, L.J. Hargrove and J.W. Sensinger. "Joint-based velocity feedback improves myoelectric prosthesis performance," *Myoelectric Controls and Upper Limb Prosthetics Symposium (MEC)*, Frederickton, NB, Canada. August 2017. Links.

Publications in Preparation

Journal Articles

1. **E.J. Earley**, D. Milius, P. Stevens. "Prosthetic Component Selection for Bone-Anchored Limbs: Why New Guidelines are Needed," *Journal of Prosthetics & Orthotics*. In review.

2. **E.J. Earley**, M.B. Kristoffersen, M. Ortiz-Catalan. "A Retrospective Comparison of Implantable Epimysial and Intramuscular Electrodes for Use with Bionic Arms." In review.

3. **E.J. Earley**, M. Ramne, J. Wessberg. "Unified Measures Quantifying Intensity and Similarity of Pain and Somatosensory Percepts." In review.

4. **E.J. Earley**, M.E. Awad, D.W. Milius, D.H. Melton, B.M.M. Gaffney, J.W. Stoneback. "Consensus, Guidelines, and Recommendations for Prosthetic Limb Prescription: A Systematic Review and Meta-Synthesis." In preparation (receiving coauthor feedback).

5. **E.J. Earley**, K.G. Shaw, M.E. Awad, B.M.M. Gaffney, C.L. Christiansen, M.L. Iorio, J.W. Stoneback, D.H. Melton. "Measurement of Overall Post-Amputation Pain Does Not Capture the Complete Pain Experience: An Observational Analysis of Phantom Limb, Residual Limb, and Bodily Pain Subtypes." In preparation (receiving coauthor feedback).

6. **E.J. Earley**, D.W. Milius, M.E. Awad, D.H. Melton, K. Ahmed, R. Leijendekkers, B.K. Potter, P. Stevens, B.M.M. Gaffney, C.L. Christiansen, J.W. Stoneback. "Establishing Consensus for Prescription of Prosthetic Components for Transfemoral Bone-Anchored Limbs: An International Delphi Method Study." In preparation (receiving coauthor feedback).

Conference Papers

7. **E.J. Earley***. "Development of the Myoelectric Control Resolution Assessment: A Rapid and Device-Agnostic Outcome Measure for Upper-Limb Prostheses," *International Conference on Rehabilitation Robotics (ICORR)*, Chicago, IL, USA. May 2025. Submitted.

GRANT FUNDING

Completed Research Support

- **Vetenskapsrådet**: 2020-04817 (PI: Max Ortiz-Catalan)
  Integrerade bionisk proteser/Highly integrated bionic prostheses
  2021/01/01 – 2023/02/28 **Role:** Post-Doctoral Investigator

- **NSF-NRI**: Small: 1317379 (PI: Levi Hargrove)
  Modeling, Quantification, and Optimization of Prosthesis-User Interface
  2014/09/01 – 2018/08/31 **Role:** Pre-Doctoral Investigator

- **NRSA T32**: HD07418 (PI: Eric Perreault)
  Pathophysiology & Rehabilitation of Neural Dysfunction
  2016/09/01 – 2018/08/31 **Role:** Pre-Doctoral Trainee

- **NIDILRR**: 90RE5014-02-00 (PI: Levi Hargrove)
  Pattern Recognition-Based Myoelectric Control of Partial-Hand Prostheses
  2013/01/01 – 2014/08/31 **Role:** Pre-Doctoral Investigator

Clinical Trials

In Progress Trials

- **Balmoral Medical Company**: NCT06134167 (PI: Jason W. Stoneback)
  A Study to Evaluate the Safety and Effectiveness Transdermal Compress Device in Participants with Transfemoral Amputations
  2024/03/26 – *present* **Role:** Clinical Research Coordinator

Professional Memberships & Service

Journal Editor

- IEEE Transactions on Medical Robotics and Bionics *2023 – present*

  Associate Editor, Bionic Prostheses
  Personally handled 16 submissions to date

- Frontiers in Human Neuroscience *2023 – present*

  Review Editor, Brain-Computer Interfaces

- Prosthesis, MDPI *2022 – 2023*

  Co-Guest Editor, "Design, Control, and Biomechanics of Prosthetic Limbs." Special Issue link.
  7 submissions (personally handled 3), 4 published (personally handled 2).

Journal Referee
Over 95 verified peer reviews across 18 journals and 5 professional conferences.
Details on Web of Science.

Professional Memberships

- Member, IEEE *2014 – present*
  - Member, IEEE Engineering in Medicine and Biology Society. *2019 – present*
  - Member, Robotics and Automation Society. *2022 – present*
- Member, ISPO *2022 – present*
- Member, AAOP *2024*

ADVISING & MENTORING

PhD Students

- **Jan Zbinden**, Electrical Engineering *2020 – 2023*

  3-Degree-of-Freedom Simultaneous and Proportional Control of Prosthetic Hands. Links.

- **Riccardo Collu**, Engineering & Architecture *2020 – 2022*

  Novel Waveform Shapes for Neurostimulation. Links.

- **Bahareh Ahkami**, Electrical Engineering (co-mentor) *2020 – 2021*

  Extra-Neural Control of Intrinsic Hand Movements in Transhumeral Amputation. Links.

MS Students

- **Roberta Reho**, Robotics Engineering (co-mentor) *2022-2023*

  Rejection Algorithm for Modulated Neurostimulation Artifacts in iEMG signals. Links.

- **Nathaly Sánchez Chan**, Biomedical Engineering *2022*

  ADS_BP v4 Open-Source Release. Links.

- **Malin Lehander**, Biomedical Engineering (co-mentor) *2022*

  Improving Tactile Discrimination with Mindful Sensory Motor Training.

- **Agnes Westerlund**, Biomedical Engineering (co-mentor) *2022*

  Enhancing the Sense of Touch with Brain Modulation.

- **Anton Berneving**, Engineering Maths and Computer Science *2021*

  Neurostimulation Artifact Removal Algorithms for iEMG Prosthesis Control. Links.

- **Brett Musolf**, Biomedical Engineering *2020 – 2021*

  Design of a Bypass Socket for Transradial Prosthesis Use. Links.

- **Andrew Smiles**, Systems Design Engineering *2020 – 2021*

  Slip Prediction and Stimulation System for Sensorized Prosthetic Hands. Links.

TEACHING

Chalmers University of Technology – EEM076 – Electric Circuits and Fields *2020 – 2022*
Lecturer, Examiner

Planned and lectured for 360 undergraduate students over three years. Responsibilities included delivering 14 lectures and writing 3 examinations per year. Course link.
Student course evaluation: 4.2 / 5.0

Learning objectives: analyze linear circuits using DC and AC calculation methods, perform electromagnetic field calculations based on simple geometries, and use computer-based tools to analyze simpler electrical circuits.

Course development included refining electromagnetic field module to better integrate with the circuits modules and adapting the course for digital instruction and examination during the COVID-19 pandemic.

Northwestern University – RSG Research Communication Program *2018*
Graduate Assistant

Assisted running an 8-week workshop series for post docs and graduate students designed to enhance communication skills across disciplines and backgrounds. Mentored 32 students in oral presentation and video direction and editing. Website.

Notre Dame University – PHIL 20632/STV 20233 – Robot Ethics *2016 –2018*
Guest Lecturer

Along with Max Shepherd, gave guest lectures titled "ProstEthics" for Prof. Don Howard's Robot Ethics course focused on historical and current research of prosthetic limbs, and ethical considerations related to prosthetic design and transhumanism.

Nettelhorst Elementary – Get-a-Grip Program *2017*
Student Mentor

Through Northwestern's Science Club, mentored 30 elementary school students in the fundamentals of engineering design, construction, and analysis, and guided them as they developed a prosthetic device made from household items. Website.

Northwestern University McCormick Graduate Leadership Council *2013 – 2017*
Workshop Coordinator and Instructor

Coordinated workshops to teach introductory through advanced MATLAB and SolidWorks skills, and additional workshops on other transferable skills, for over 600 Northwestern graduate students. Website.

Northwestern University – BME 307 – Quantitative Experimentation and Design *2015*
Teaching Assistant

Mentored 50 biomedical engineering undergraduate students as they learned to answer questions using experimental means, and to quantify their results using statistical analysis.

LEADERSHIP

National Communicating Science Conference *2017 – present*
Organizing Committee, Leadership Team, Advisory Committee

Treasurer and advisory committee member, responsible for developing fiscal procedures and managing $300,000 in total donated funds for 30 flagship and local conferences attended by up to 1,500 graduate students. Website.

Workforce for Inclusive Science *2021 - 2023*
Organizing Committee

Facilitating meetings and seminars aimed at promoting and fostering equity and inclusion in academia. Website.

International Conference on Phantom Limb Pain 2021
Organizing Committee

Planned, oversaw, and executed social media plan before and during the event. Moderated discussion panel during final day of the conference. Website.

Chicago Communicating Science Conference *2015 – 2017*
Treasurer, Lead Organizer

Organizer and treasurer for 2016 conference, lead organizer for 2017 conference. Tracked and budgeted $24,000 in total donated funds, secured conference locations, invited keynote speakers, and oversaw conferences for 100 total attendees. Website.

Northwestern University Biomedical Engineering Graduate Students Group *2013 – 2017*
Co-President, Department Representative.

Oversaw academic and social events, managed $3,500 annual budget, represented department in Graduate Leadership & Advocacy Council, and facilitated pop talks (short research summaries using jargon-free language) for annual research day. BMEGS Website. GLAC Website.

Colorado School of Mines Robotics Club *2008 – 2011*
Treasurer, High School Mentor

Developed and managed $26,000 annual budget. Mentored high school robotics team for three iterations of FIRST® Robotics Competition. Co-organized three FIRST® LEGO® League robotics competitions for elementary students. Co-initiated project to design, build and program self-balancing wheelchair. Website.

Public Outreach & Education

Public Talks & Demos *2015 – present*

- "Challenges and Opportunities of Cutting Edge Bionic Prostheses," Rocky Mountain American Society of Biomechanics Meeting, April 2024.
- "New Faculty Member in Department of Orthopedics Brings Expertise in Prosthetic Limb Technology," CU Anschutz School of Medicine, July 2023. Article.
- "Robothanden" documentary, Scandinavian Content Group, Sveriges Television (SVT), 2023. Film.
- Mack Clayton Invited lecture, Department of Orthopedics, University of Colorado Anschutz Medical Campus, June 2023.
- Sahlgrenska Universitetssjukhusets innovation- och teknikutbildning för läkare, 2022.
- Center for Bionics and Pain Research Annual Symposium, 2021-2022.
- PhD Thesis defense, 2019. YouTube.
- "Wunderbar Together Science Slam," Daley Plaza, Chicago, IL, 2019. Event photos.

  "Neural Engineering: Designing Bionic Limbs Controlled by the Brain," College of DuPage STEMinar Series, 2018. YouTube.
- Chicago Science Festival, Illinois Science Council, 2016 – 2019.
- Museum of Science and Industry Robotics Week, 2016 – 2019.
- "How Do I Talk to my Robo-Limb?", RSG Science Communicating Workshop, 2016. YouTube.

- IEEE Engineer's Week, 2016.
- "Adler After Dark", Adler Planetarium, 2015 – 2018.
- Camp Neuro Chicago, 2015.

SciShow YouTube Channel *2018 – 2020*
Freelance Script Writer

Wrote easy-to-understand science video scripts for SciShow, a YouTube channel with 8 million subscribers. Topics included osseointegrated prosthetic limbs, effects of body posture, and fetal motor development, totaling 7 videos with over 1.58 million combined views. Links.

Sci-Inspiration YouTube Channel *2017 – 2018*
Video Creator

Scripted, recorded, directed, and animated videos exploring scientific topics through popular media including movies, television, and video games. Links.

Other Science Videos *2016 – 2020*
- "Neuromusculoskeletal Arm Prostheses", *CBPR,* 2020. YouTube.
- "STEM Connect Careers: Eric Earley." *Discovery Education*, 2017. Website.
- "Prosthetic Limbs and Motor Adaptation", *Ready Set Go (RSG)*, 2016. YouTube.

Science Writing *2017*
- The Cybathlon: The Olympics of Restoring Daily Tasks, *HELIX Magazine*, 2017. Link.

Academic & Technical Skills

- Prosthetic sensory feedback, sensory integration, psychophysics
- Somatosensory and pain characterization and mapping
- Neuromusculoskeletal anatomy, osseointegration, implantable sensors
- Pattern recognition, classification, and machine learning algorithms
- Human motor control, motor learning and adaptation
- Statistical analysis, hypothesis testing, power analysis, linear and nonlinear mixed effects modeling
- Delphi consensus methodology, thematic analysis, systematic review
- FDA Compassionate Use Exemption, Investigational Device Exemption
- International collaborations, project management, team organization, scheduling, Kanban, scrum
- Prosthetic arm standardized tests: ACMC, BBT, MMDT, MT, PLT, RCRT, SHAP, TAC, VET
- MATLAB, Simulink, C, LabVIEW
- SolidWorks, FEA
- Adobe Illustrator, Photoshop, Premiere; Affinity Designer, Photo
- HTML5, CSS
- Native English; limited working proficiency Swedish