

Corey Lynn Murphey

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Website | ORCID | Github

EDUCATION

- Ph.D.** **University of Colorado – Boulder** **8/2021 – present**
In Progress *Department of Computer Science*
Advisors: Elizabeth Bradley and Jed Brown
Focus: Numerical and Scientific Computing
- M.S.** **Stanford University** **4/2012 – 4/2014**
Department of Mechanical Engineering
Advisor: Reginald Mitchell
Focus: Energy Systems; Breadth: Biomechanics and Manufacturing
- B.S.** **Stanford University** **8/2008 – 1/2013**
Department of Mechanical Engineering
Advisor: Ellen Kuhl
Focus: Computational Biomechanics and Biomechanical Engineering

RESEARCH EXPERIENCE

- 6/2021 – present **University of Colorado – Boulder**
Graduate Research Assistant, Advised by Elizabeth Bradley and Jed Brown
- 9/2012 – 6/2013 **Stanford University, Hearing Dynamics**
Research Assistant, Advised by Sunil Puria
Built a model of Békésy's pendulum to demonstrate hair cell dynamics.
Developed a computational model of Békésy's analogy for the inner ear.
- 5/2010 – 8/2012 **Stanford University, Living Matter Laboratory**
Research Assistant, Advised by Ellen Kuhl
Modeled electrochemical conductive pathways of the heart.
Generated electrocardiogram plots of simulated cardiac pacing.
Developed patient-specific models of implant-induced skin growth.
Worked with graduate students to create a model of red blood cell division.
Designed a continuum growth model of the vocal folds and vocal polyps.

PROFESSIONAL EXPERIENCE

- 10/2018 - 7/2021 **Bolder Industries, Boulder, CO**
R&D Engineer, IP Manager, and Chief of Staff
Modeled tire pyrolysis reaction kinetics to anticipate pyrolytic outputs.

- 5/2018 – 8/2018 **Caban Systems**, San Mateo, CA
Thermal Engineer, Consultant
Implemented an intellectual property strategy to protect Bolder Industries' IP.
Modeled heat emitted by batteries inside an energy-storage cabinet.
Calculated cooling required for peak operation of batteries in the cabinet.
- 3/2017 – 4/2018 **Run8 Patent Group**, San Francisco, CA
Patent Agent
Drafted and prosecuted over 50 patent applications.
Managed domestic and foreign patent portfolios.
- 6/2015 – 3/2017 **Nebia**, San Francisco, CA
R&D Engineer and Engineering Project Manager
Simulated heat-transfer from droplets emitted from showerhead nozzles.
Modeled internal fluid pathways optimized for nozzle performance.
Drafted and maintained product requirements documents.
- 4/2014 – 4/2015 **Schox Patent Group**, San Francisco, CA
Patent Agent
Drafted patent applications and managed portfolios of startups.
Maintained a patent portfolio with over 50 distinct projects.
- 6/2013 – 9/2013 **Benvenue Medical Inc.**, Santa Clara, CA
R&D Engineering Intern
Established testing protocols for vertebral augmentation implants.
Developed surgical protocols for mixing and dispensing bone cement.

TEACHING

- Spring 2023 **Chaotic Dynamics (CSCI 4446/5446)**
Course Manager, University of Colorado – Boulder
Advised and evaluated graduate student final projects.
- Fall 2013 **Patent Law and Strategy for Engineers (ME 208)**
Course Assistant, Stanford University
Evaluated patent claim sets and provisional patent applications.
- Fall 2012 **Engineering Dynamics (E15)**
Grader, Stanford University

AWARDS

- 2024 **Outstanding Departmental Service Award**
University of Colorado – Boulder, Computer Science Department
- 2024 **Poster Award - Work in Progress Research, Computer Science Research Expo**
University of Colorado – Boulder, Computer Science Department

- For the work-in-progress poster entitled “Generation of Novel Chord Progressions via a Musically-Inspired Chaotic Mapping” with primary author, Zachary Atkins.
- 2024 **First Prize - Poster Awards, Dynamics Days 2024**
For the poster entitled “A Dynamics-Inspired Model for Phonation-Induced Aerosolization”.
- 2024 **Second Prize - Poster Awards, Dynamics Days 2024**
For the poster entitled “Generation of Novel Chord Progressions via a Musically-Inspired Chaotic Mapping” with primary author, Zachary Atkins.
- 2023 **D. J. Kasik (1972) Scholarship Fund Award**
University of Colorado – Boulder, College of Engineering and Applied Sciences
- 2023 **Outstanding Departmental Service Award**
University of Colorado – Boulder, Computer Science Department
- 2022 **CS Endowed Founder’s Fellowship**
University of Colorado – Boulder, Computer Science Department
- 2021 **Early Career Professional Development Fellowship**
University of Colorado – Boulder, Computer Science Department

GRANTS

- 2019 **Colorado Advanced-Industries Early-Stage Capital and Retention Grant**
State of Colorado, OEDIT
- 2010 – 2012 **Vice Provost of Undergraduate Education (VPUE) Grant**
Stanford University
- 2010 – 2012 **Summer Undergraduate Research Institute (SURI) Grant**
Stanford University
- 2008 **Stanford Summer Engineering Academy (SSEA) Grant**
Stanford University

CONFERENCES

- 2024 Dynamics Days US 2024, Davis, CA.
- 2023 American Association for Aerosol Research (AAAR) 41st Annual Conference, Portland, OR.
- 2023 SIAM Conference on Applications of Dynamical Systems (DS23), Portland, OR.
- 2023 15th International Conference on Advances in Quantitative Laryngology, Voice and Speech Research 2023, Phoenix, AZ.
- 2023 Dynamics Days US 2023, Virtual.
- 2011 ASME 2011 Summer Bioengineering Conference, Portland, OR.
- 2011 IUTAM Symposium on Computer Models in Biomechanics, Stanford, CA.

Conference & Travel Grants

- 2024 **Clive Bailie Memorial Conference Support Fellowship**
Clive Bailie Memorial Fund, University of Colorado – Boulder.

For travel to Dynamics Days US 2024.

2023 **AAAR US 2023 Student Travel Grant**

American Association for Aerosol Research.

For American Association for Aerosol Research (AAAR) 41st Annual Conference.

2023 **Conference Support Fellowship**

Department of Computer Science, University of Colorado – Boulder.

For SIAM Conference on Applications of Dynamical Systems (DS23).

2023 **AQL 2023 Student Registration Award**

For 15th International Conference on Advances in Quantitative Laryngology, Voice and Speech Research 2023.

2023 **Graduate School Domestic Travel Grant**

University of Colorado – Boulder.

For 15th International Conference on Advances in Quantitative Laryngology, Voice and Speech Research 2023.

PUBLICATIONS

Reviewed Conference Papers

- 2011 **C. L. Murphey**, J. Wong, and E. Kuhl, “Computational Simulation of Biventricular Pacing in an Asymptomatic Human Heart,” in SBC2011, ASME 2011 Summer Bioengineering Conference, Parts A and B, Jun. 2011, pp. 917–918, doi: 10.11105/SBC2011-53110.
- 2011 **C. L. Murphey**, J. Wong, and E. Kuhl, “Computational Simulation of Biventricular Pacing in a Human Heart,” in Proceedings of the IUTAM Symposium on Computer Models in Biomechanics, Stanford, California, 2011.

Presentations

Posters

- 2024 **C. L. Murphey**, A. Hilger, E. Bradley, “A Dynamics-Inspired Model for Phonation-Induced Aerosolization,” Dynamics Days US 2024, Davis, CA, Jan. 2024¹.
- 2024 Z. Atkins, **C. L. Murphey**, “Generation of Novel Chord Progressions via a Musically-Inspired Chaotic Mapping,” Dynamics Days US 2024, Davis, CA, Jan. 2024².
- 2023 **C. L. Murphey**, A. Hilger, E. Bradley, “An Experimentally Validated Model of Phonation-induced Aerosolization,” American Association for Aerosol Research 41st Annual Conference (AAAR 2023), Portland, OR, Oct. 2023.
- 2023 **C. L. Murphey**, A. Hilger, E. Bradley, “A Dynamics-Inspired Model for Phonation-Induced Aerosolization,” SIAM Conference on Applications of Dynamical Systems (DS23), Portland, OR, May 2023.
- 2023 **C. L. Murphey**, A. Hilger, E. Bradley, “A Computational Model of Phonation-Induced Aerosolization,” 15th International Conference on Advances in Quantitative Laryngology, Voice and Speech Research 2023, Phoenix, AZ, Mar. 2023.
- 2023 **C. L. Murphey**, A. Hilger, E. Bradley, “A Dynamics-Inspired Model for Phonation-Induced Aerosolization,” University of Colorado – Boulder Applied Math Department’s Research Poster Session, Mar. 2023.

¹Awarded best poster at Dynamics Days 2024 in Davis, CA.

²Awarded second prize for poster awards at Dynamics Days 2024 in Davis, CA.

- 2023 **C. L. Murphey**, A. Hilger, E. Bradley, “A Dynamics-Inspired Model for Phonation-Induced Aerosolization,” Dynamics Days US 2023, Virtual, Jan. 2023.
- 2011 **C. L. Murphey**, J. Wong, and E. Kuhl, “Computational Simulation of Biventricular Pacing in an Asymptomatic Human Heart,” ASME Summer Bioengineering Conference, Farmington, PA, Jun. 2011.

Patents

Inventor

- 2020 US D881,340, “Showerhead and arm,” Apr. 14, 2020.
- 2019 US 10,421,083, “Immersive showerhead,” Sep. 24, 2019.
- 2019 US D855,759, “Shower wand,” Aug. 06, 2019.
- 2018 US 9,931,651, “Immersive showerhead,” Apr. 03, 2018.
- 2018 US 9,925,545, “Immersive showerhead,” Mar. 27, 2018.
- 2018 US D810,233, “Shower wand and adjustable mount,” Feb. 13, 2018.
- 2018 US D810,234, “Showerhead and adjustable bracket,” Feb. 13, 2018.

Books

- 2013 [*Contributor and Editor*] J. Schox, Not So Obvious: An Introduction to Patent Law and Strategy, 3rd ed. CreateSpace Independent Publishing Platform, 2013.

Articles

- 2016 G. Parisi-Amon and **C. L. Murphey**, “Full Steam Ahead,” ANSYS Advantage, vol. 10, no. 1, pp. 10–12, 2016.

SERVICE

Academic Service at the University of Colorado – Boulder

- Spring 2024 **Computer Science PhD Open House**
Graduate Student Organizer, Computer Science Department
- Fall 2023 **Computer Science Graduate Student Association (CSGSA)**
CSGSA Chair, Computer Science Department
- Fall 2023 **Computer Science Ph.D. Application Feedback Program**
Mentor and Program Organizer, Computer Science Department
- Spring 2023 **Computer Science PhD Open House**
Graduate Student Organizer and Panelist, Computer Science Department
- 2022 – 2023 **Computer Science Graduate Committee**
Ph.D. Student Representative, Computer Science Department
- Spring 2022 **Summer Program for Undergraduate Research (SPUR)**
Advisor to Mentors, College of Engineering and Applied Sciences
- Spring 2022 **Discovery Learning Apprenticeship (DLA) Program**
Mentor and Judge, College of Engineering and Applied Sciences
- Spring 2022 **Computer Science PhD Student Open House**
Graduate Student Panelist, Computer Science Department

Other Service and Affiliations

2021 – Present	Westview Lutheran Church: Alto section leader
2021 – 2023	Renova New Music Ensemble: Founding Member, Webmaster, Soprano/Alto
2021 – 2023	CU – Chamber Singers: Alto 1
2018 – 2021	St. Thomas Aquinas – Boulder: Cantor, Soprano 2 Section Leader
2018 – 2020	St. Vrain Innovation Center: Middle School Robotics Mentor
2018 – 2020	Boulder Area Masters Swimming: Volunteer Coach
2012 – 2018	Stanford Masters Swimming: Volunteer Coach
2012 – 2018	NorCal Golden Retriever Rescue : Volunteer
2011 – 2012	Stanford Women’s Varsity Swimming: Team Manager

Peer Mentorship at the University of Colorado – Boulder

2022 – 2023	Zachary Atkins, Ph.D. Student, Computer Science Department
2022 – 2023	Maria Valentini, Ph.D. Student, Computer Science Department
2022 – 2023	Aditya Pandey, M.S. Student, Computer Science Department
2022 – 2023	Armin Gholampoor, M.S. Student, Computer Science Department

PROFESSIONAL MEMBERSHIPS & CERTIFICATIONS**Certifications**

2015 – Present	United States Patent and Trademark Office, Registered Patent Agent
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General Membership

2022 – Present	Acoustical Society of America (ASA)
2022 – Present	Society for Industrial and Applied Mathematics (SIAM)
2022 – Present	The Voice Foundation
2020 – Present	Society of Women Engineers (SWE)
2011 – Present	American Society of Mechanical Engineers (ASME)

Updated April 2024