

COREY LYNN MURPHEY

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Education

Stanford University <i>Master of Science - Mechanical Engineering</i>	Stanford, CA 2012 - 2014
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Focus in Energy Systems; Breadth in Biomechanics and Manufacturing
Academic Advisor: Reginald Mitchell

- Select Projects: Computational model of a cogenerative power plant, and a custom-built bike frame.

Stanford University <i>Bachelor of Science - Mechanical Engineering</i>	Stanford, CA 2008 - 2012
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Focus in Biomechanics and Biomechanical Engineering
Research and Academic Advisor: Ellen Kuhl

- Select Projects: Hybrid-fuel rocket, autonomous robot in the shape of a hippogriff, and a computational model of vocal folds following acute injury.

Experience

Bolder Industries <i>R&D Engineer, IP Manager, and Chief of Staff</i>	Boulder, CO 10/2018 - Present
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- Established R&D protocols for development of new, sustainable carbon- and oil-derived products.
- Modeled tire pyrolysis reaction chemical kinetics to calculate the composition of pyrolytic outputs.
- Optimized new product streams, such as FDA-compliant carbon black and high-flashpoint pyrolytic oil.
- Devised and executed an intellectual property strategy for protecting Bolder Industries' IP.
- Developed business intelligence dashboards to discern progress toward key performance indicators.
- Collaborated with Operations, Finance, and Engineering teams to outfit a sustainable innovation lab.
- Drafted the application and supporting materials for the Colorado OEDIT Advanced Industry Grant, which Bolder Industries was awarded.

Caban Systems <i>Thermal Engineer, Consultant</i>	San Mateo, CA 05/2018 - 08/2018
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- Modeled heat emitted by batteries and other internal components of an energy-storage cabinet.
- Analyzed the effects of solar irradiance on cabinet surfaces and internal air temperatures.
- Calculated internal cooling necessary for peak operation and longevity of batteries within the cabinet.

Run8 Patent Group <i>Patent Agent</i>	San Francisco, CA 03/2017 - 04/2018
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- Developed patent portfolio strategies and budgets for startups across the U.S. and Europe.
- Drafted and prosecuted over 50 patent applications in technology fields, such as energy systems, consumer wearables, advertising technology, medical devices, and project management.
- Managed domestic and foreign patent portfolios including over 80 patent applications.
- Co-authored 5 articles on patent prosecution and IP portfolio strategy published on Hardware Massive.
- Wrote, filed, and prosecuted a patent application to issuance by the USPTO in under 75 days.

Nebia <i>R&D Engineer and Engineering Project Manager</i>	San Francisco, CA 06/2015 - 03/2017
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- Simulated water atomization and heat-transfer from droplets emitted from showerhead nozzles.
- Designed simulation and prototype experiments to select nozzles for a low-flow showerhead and to improve heat-retention, water pressure, and overall shower experience.
- Modeled, simulated, and tested internal fluid pathways configured to optimize nozzle performance.
- Executed failure-analysis experiments to test the shower material's resistance to corrosion.
- Wrote and edited a Kickstarter campaign that garnered over \$3.1 million in sales within 30 days.
- Developed and maintained system-wide and component-level Bills of Materials, including over 175 unique parts made by over different 30 suppliers.

- Developed organization-wide process flows, statements of work, product requirements documents, assembly instructions, and customer installation instructions.
- Collaborated with other teams to design, build, and ship 14,000 shower units in under 18 months.

Schox Patent Group

San Francisco, CA

Patent Agent

04/2014 - 04/2015

- Interfaced with early-stage startups to identify and implement strategies for patent portfolios.
- Drafted patent applications and managed portfolios of startups across various spaces, such as consumer electronics, haptics, advertising technology, manufacturing, and medical devices.
- Maintained a patent portfolio with over 50 distinct projects and over 80 filed patent applications.

Benvenue Medical Inc.

Santa Clara, CA

R&D Engineering Intern

06/2013 - 09/2013

- Established testing protocols to comply with FDA criteria for vertebral augmentation implants.
- Modified implant design according to mechanical test results to improve lifespan and biocompatibility.
- Developed and verified surgical protocols for mixing and dispensing bone cement into spinal implants.
- Prototyped surgical lighting accessories for visualizing vertebrae during spinal operations.
- Contributed to the design, implantation protocol, and FDA compliance of Kiva and Luna 360, which were subsequently cleared by the FDA for vertebral augmentation.

Stanford University, Living Matter Laboratory

Stanford, CA

Research Assistant

05/2010 - 08/2012

- Modeled conductive pathways of the heart and biventricularly-implanted pacemaker leads.
- Generated electrocardiogram (EKG) plots to evaluate the accuracy of simulated cardiac pacing.
- Developed patient-specific models of skin growth induced by subcutaneously implanted balloons.
- Worked with graduate students to create a model of red blood cells to simulate red blood cell division.
- Designed a computational model of the vocal folds and the continuum growth of vocal fold polyps.
- Received Vice Provost of Undergraduate Education (VPUE) grant, participated in Summer Undergraduate Research Institute (SURI), and presented at the ASME 2011 Summer Bioengineering Conference.

Teaching Assistantships

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| • Patent Law and Strategy for Engineers (ME 208) | Stanford University |
| <i>Course Assistant</i> | <i>Fall 2013</i> |
| • Engineering Dynamics (E15) | Stanford University |
| <i>Grader</i> | <i>Fall 2012</i> |

Affiliations & Grants

- **Certifications:** United States Patent Agent #73574, USPTO.
- **Grants:** Vice Provost of Undergraduate Education (VPUE) grant (2010 - 2012), Summer Undergraduate Research Institute (SURI) (2010 - 2012).
- **Professional Affiliations:** Society of Women Engineers (2020 - Present), American Society of Mechanical Engineers (2011 - Present).
- **Personal Affiliations:** St. Thomas Aquinas – Boulder: Cantor and Choral Member (2018 - Present); Boulder Area Masters Swimming (2018 - Present); Stanford Masters Swimming (2012 - 2018); Stanford Women's Varsity Swimming: Team Manager (2011 - 2012).
- **Volunteering:** St. Vrain Innovation Center, Middle School Robotics Mentor (2018 - 2020); NorCal Golden Retriever Rescue Volunteer (2012 - 2018).

Skills

- **Programming & Software:** Python, MATLAB, FORTRAN, C, Java, C++, HTML, CSS, SolidWorks, Autodesk, Hypermesh, Abaqus, ANSYS, Google Apps Script, Arena, JIRA, Microsoft Suite.
- **Manufacturing:** TIG Welding, Oxyacetylene Welding, Milling, Turning, Injection Molding, 3D printing.
- **Languages:** German-conversational, Latin-proficient.
- **Interests:** Cycling, Swimming, Pilates, Classical Singing - Lyric Soprano (Genres: Contemporary and Classical Opera, Gregorian Chant, and Classical and Baroque Oratorio works), Piano.

Publications

Conference Papers

- 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: 10.1115/SBC2011-53110.

Patents (Inventor)

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

Miscellaneous Publications

Articles

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

Books

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