COREY LYNN MURPHEY

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Education

Stanford University — **Stanford, CA**
Master of Science - Mechanical Engineering — *2012 - 2014*
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 — **Stanford, CA**
Bachelor of Science - Mechanical Engineering — *2008 - 2012*
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 — **Boulder, CO**
R&D Engineer, IP Manager, and Chief of Staff — *10/2018 – Present*

- 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 — **San Mateo, CA**
Thermal Engineer, Consultant — *05/2018 - 08/2018*

- 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 — **San Francisco, CA**
Patent Agent — *03/2017 - 04/2018*

- 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 — **San Francisco, CA**
R&D Engineer and Engineering Project Manager — *06/2015 - 03/2017*

- 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

- **Patent Law and Strategy for Engineers (ME 208)** **Stanford University**
  Course Assistant *Fall 2013*
- **Engineering Dynamics (E15)** **Stanford University**
  Grader *Fall 2012*

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.