Lee "Mickey" Clemon

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Work Authorizations: Australia (457 Visa), U.S.A. (citizen)

Experience Summary

- *Design engineer* for 1400 parts over two unique chemical weapon destruction systems using Autodesk inventor.
- *Configuration management and document control* architect using Vault Workgroup for 6 systems across 3 companies.
- *Manufacturing process research* for polymer and metallic additive manufacturing using 5 systems over 6 years. Key outcomes: resource consumption modeling and estimation, process control improvement, successful prototyping for aerospace components. Process-structure-property mapping for SS304 and SS316.
- *Computational research* in statistical modeling of composite materials, manufacturing resource consumption, and environmental impact of production.
- *Field engineer* for two systems including setup, teardown, commissioning, operator training, and procedure development.
- *Educator* in leadership and communication skills for over 400 students and early career professionals through webinar, seminar, and workshop

Technical Specialties

Sustainable manufacturing, additive manufacturing, design, process monitoring, material modeling, life cycle assessment, statistical modeling, environmental impact, pressure systems, safety

Education

Ph.D. in Mechanical Engineering, University of California, Berkeley, California. 2017
Advisors: Tarek Zohdi & David Dornfeld
Fields: Manufacturing, Design, Statistics

M.S. in Mechanical Engineering, University of California, Berkeley, California. 2013
Certificate of Management of Technology
Advisor: David Dornfeld

B.S. in Mechanical Engineering, University of Kansas, Lawrence, Kansas. 2011
Mentor: Chris Depcik

Mandarin Immersion Study, CET Academic Programs, Beijing Institute of Education, Beijing, China. 2009

Professional Experience

Professional Appointments

R&D, S&E, Mechanical Engineering, Member of Technical Staff, Sandia National Laboratories, Livermore, California. 2011-2017

Engineering Intern, Kansas Gas Service, Overland Park, Kansas. 2010.
Design residential natural gas layout, construction plans, and oversee implementation. Project totals approximately USD$700,000.

Research Assistant, University of Kansas, Lawrence, Kansas. 2009-2010.
Programmer to automate interpretation and reformulation of inertial sensor data for dual fluid flow around sailboats.

Research Experience for Undergraduates, University of Minnesota, Minneapolis, Minnesota. 2008.
Design a fluid powered ankle-foot orthosis using hydraulics.

Residence Assistant, Templin Hall, University of Kansas, Lawrence, Kansas. 2007-2008.
Manage building safety and creatively engage students (50) in residential community development.

Awards & Honors

- Dedicated service to the student leaders' conference. American Society of Mechanical Engineers. 2012.
- Outstanding Leadership. Mechanical Engineering Department, University of Kansas. 2011.
- Presidential Volunteer Service Award. President George W. Bush. 2006.
- Movers and Shakers Award. Congressman Dennis Moore, Third Congressional District of Kansas. 2006.
- Eagle Scout Rank. Boy Scouts of America. 2005.

Certifications & Other Professional Recognition

- Certificate, Oral Proficiency - Advanced-Mid (2+) for Mandarin Chinese, American Council on the Teaching of Foreign Languages (ACTFL), 2009.
- Engineer-In-Training, National Council of Examiners for Engineering and Surveying (NCEES), USA.
- Certificate of Management of Technology, University of California, Berkeley, California, 2013.
- Engineers Australia Migration Skill Assessment Outcome: Professional Engineer, Mechanical Engineer.

Professional & Honorary Societies

- American Society of Mechanical Engineers
- Boren Alumni
- Engineers Australia

- International Thespian Society
- National Eagle Scout Association
- National Society of Collegiate Scholars
- Mic-O-Say Honor Society
- Pi Tau Sigma
- Sigma Xi
- Society of Manufacturing Engineers
- Tau Beta Pi

Service

Journal Reviewer

Rapid Prototyping Journal, *International Journal of Precision Engineering and Manufacturing-Green Technology*

Elected Positions

- Resource Development Group, Section VIII Division III Boiler and Pressure Vessel Codes, American Society of Mechanical Engineers. 2017+.
- Volunteer Leadership Training Academy Executive Committee, American Society of Mechanical Engineers. 2015+.
- Committee on Volunteer Training and Development Chair, Student and Early Career Development Sector, American Society of Mechanical Engineers. 2012-2015.
- Early Career Connect Chair, Early Career Connect Affinity Community, American Society of Mechanical Engineers. 2011-2012.
- District C Student Sections Representative, District C, American Society of Mechanical Engineers. 2010-2012.
- Student Leaders Conference Chair, Student Sections Committee, American Society of Mechanical Engineers. 2012.
- Student Sections Committee Vice Chair, Student Sections Committee, Annual Meeting, American Society of Mechanical Engineers. 2011.
- Student Body Representative to Department Chair, Mechanical Engineering Department, University of Kansas. 2010-2011.
- Finance Committee Chair, Tau Beta Pi Convention, Tau Beta Pi Engineering Honor Society. 2010.
- President, Kansas Alpha Chapter, Tau Beta Pi Engineering Honor Society. 2010-2011.
- Student Section Chair, University of Kansas Student Section, American Society of Mechanical Engineers. 2010-2011.
- President, EcoHawks, University of Kansas. 2010-2011.
- Engineering Ambassador, School of Engineering, University of Kansas. 2010-2011.
- Mechanical Engineering Representative, Dean's Funding Advisory Committee, School of Engineering, University of Kansas. 2009-2011.

Appointed Positions

- Additive Manufacturing Working Group, Sandia National Laboratories. 2014-2015.
- Building Emergency Team Lead Support, Sandia National Laboratories. 2013-2015.

- University Recruiter, Sandia National Laboratories. 2012-2016.
- Assistant Scoutmaster, Troop 225, Boy Scouts of America. 2006-2011.

Conference Organization

- Conference Chair, Student Leaders' Training Conference, American Society of Mechanical Engineers. Trained 40 internationally selected undergraduate students in skills relevant to the practicing engineers. 2014.
- Conference Chair, Student Leaders' Training Conference, American Society of Mechanical Engineers. Trained 40 internationally selected undergraduate students in skills relevant to the practicing engineers. 2013.
- Conference Chair, Student Leaders' Conference, American Society of Mechanical Engineers. Trained 40 internationally selected undergraduate students in skills relevant to the practicing engineers. 2012.
- Conference Coordinator, District C Student Professional Development Conference Coordinator, American Society of Mechanical Engineers. Hosted a regional competition among universities in a 7 state area. 2010-2011.

Selected Grants & Fellowships

- CalRecycle Towards a zero-waste campus: maximization on-site plastic processing for educational 3-D printing materials and public roadway resurfacing $2.4 million grant proposal. Selected as sole University of California at Berkeley submission to the State of California. Co-author on proposal. *submitted May 2017.*
- University of California, Berkeley Student Technology Fund. USD$2,700 for manufacturing software. 2016.
- Siemens NX CAD/CAM software licenses and training. In-kind donation to support CAD/CAM integration and tool path planning in undergraduate courses. PI David Dornfeld, proposal coordinators **Lee Clemon** & Max Micali. Valuation of USD$6.1 million in-kind donation. 2015-2017.
- National Physical Science Consortium graduate fellowship for 2 years of doctoral study. USD$25,000. 2015-2017.
- Doctoral Studies Program, Awarded highly competitive fellowship for sponsored graduate studies in business critical topic. Sandia National Laboratories. USD$200,000 direct support. 2015-2017.
- National Physical Science Consortium graduate fellowship for 2 years of graduate study. USD$25,000. 2011-2013.
- Critical Skills Masters Program, Awarded competitive fellowship for sponsored graduate studies. Sandia National Laboratories. USD$150,000 direct support. 2011-2013.
- Data Acquisition, Processing and Analysis of Precision 23 Sailboat Motion. Undergraduate research grant award. University of Kansas. Supervised by Professor Shariar Keshmiri. USD$2000 direct support. 2009-2010.

Publications

Working Articles

- **Lee Clemon**. Directed graphical model for real-time process monitoring in additive manufacturing. *working draft*

- **Lee Clemon**, NYC Yang, and Joshua Yee. Feature design for metallurgical study of additive manufacturing. *draft.*
- **Lee Clemon**. Design principles for metallurgical study of additive manufacturing. *planned research.*

Journal Publications

1. **Lee Clemon**, Joh Mattson Andrew Moore, Len Necefer, Shelton Heilman, Chris Depcik. The Smart Grid, A Scale Demonstration Model Incorporating Electrified Vehicles. Journal of Undergraduate Research (Spring 2011). University of Kansas. Lawrence, KS. 2011.
2. Nancy Yang, Joshua Yee, Kyle Gaiser, **Lee Clemon**, W.Y. Lu, Julie Schoenung, Enrique Lavernia. Process-structure-property relationships for 316L stainless steel fabricated by additive manufacturing and its implication for component engineering. Journal of Thermal Spray and Technology. 2016.
3. **Lee Clemon** and Tarek Zohdi. On the tolerable limits of granulated recycled material additives to maintain structural integrity. Construction and Building Materials. 167C. pp 846-852. 2018.
4. Ruoyu Song, **Lee Clemon**, and Cassandra Telenko. Uncertainty and Variability in Energy and Material Balances for FDM Printers for Makerspaces. Journal of Industrial Ecology. *accepted.*

Peer Reviewed Proceedings

1. **Lee Clemon**, Nicholas Surface, Bryan Strecker, Chris Depcik. Measuring and Managing the Smart Grid, A Scale Model. ASME 2011 International Mechanical Engineering Congress & Exposition. 2011.
2. **Lee Clemon**, Anton Sudradjat, Maribel Jaquez, Aditya Krishna, Marwan Rammah, David Dornfeld. Precision and Energy Usage in Additive Manufacturing. Proceedings of the ASME 2013 International Mechanical Engineering Congress and Exhibition. 2013.
3. Baolong Zheng, Nancy Yang, Joshua Yee, Kyle Gaiser W. Y. Lu, **Lee Clemon**, Y. Zhou, Enrique Lavernia, Julie Schoenung. Review on laser powder injection additive manufacturing of novel alloys and composites. Proc. SPIE 9738. Laser 3D Manufacturing III. 2016.
4. **Lee Clemon**. Energy and Emission Uncertainty in Fused Deposition Modeling for a Job-Shop. 28th Solid Freeform Fabrication Symposium. 1878-1889. 2016.

Published Presentations, Abstracts, and Posters

1. **Lee Clemon**, Will Durfee. Fluid powered ankle-foot orthosis for gait assistance in neurologically hindered people. University of Minnesota, Minneapolis, Minnesota. Poster. 2008.
2. **Lee Clemon**, Jerry Stofleth, Brent Haroldsen. Explosive Energy Qualification and Equivalency Comparison in Impulsively Loaded Pressure Vessel. 17th International Chemical Weapons Demilitarisation Conference. London, England. Presentation. 2014.
3. **Lee Clemon**, Shahriar Keshmiri. Data Acquisition, Processing and Analysis of a Precision 23 Sailboat. Presented at the 13th Annual Undergraduate Research Symposium. Lawrence, Kansas. Poster. 2010.
4. **Lee Clemon**, Nicholas Surface, Chris Depcik, John Mattson, Bryan Strecker, Andrew Moore, and Len Necefer. Renewable Energy and Electric Vehicle Incorporation into the Smart Grid. 6th International Conference on Industrial Ecology. Berkeley, California. Poster 2011.

5. **Lee Clemon**, Chris Depcik. Optimized Usage of Renewable Energy in the Smart Grid. Presented at 14th Annual Undergraduate Research Symposium. Lawrence, Kansas. Presentation. 2011.
6. Nancy Y. C. Yang, Enrique J. Lavernia, Kyle B. Gaiser, **Lee Clemon**, Christopher W. San Marchi, B. Zheng, Y. Zhou, and J. Schoenung. Metallurgical Evolution during Laser Additive Manufacturing of Metal and Composite Alloys. Sandia National Laboratories. Presentation. 2015.
7. Kyle B. Gaiser, N.Y.C. Yang, **Lee Clemon**. Advanced and Exploratory AM Efforts. Sandia National Laboratories. SAND2016-10639PE. Presentation. 2016.
8. Thomas Bither Reynolds, Joshua Keng Yee, Enrique J Lavernia, J Schoenung, B Zheng, Kyle B Gaiser, **Lee Clemon**, Nancy YC Yang, -D Direct Energy Deposition (DED) process induced material properties for the SS316L prototypes. Sandia National Laboratories. SAND2016-9582C. ASME Conference. Vancouver, Canada. Presentation. 2016.
9. **Lee Clemon**, WY Lu, Joshua Keng Yee, Kyle B Gaiser, Enrique J Lavernia, J Schoenung, B Zheng, T Reynolds. 3-D AM induced structural defect and it correlation to mechanical property. Sandia National Laboratories. SAND2016-5515C. Presentation. 2016.
10. Nancy YC Yang, Christopher W San Marchi, **Lee Clemon**, Kyle B Gaiser, Enrique J Lavernia, J Schoenung, B Zheng, Influence of powder metallurgy on the properties of Fe-based alloys using HVOF and LENS deposition. Sandia National Laboratories. SAND2016-5255C. Presentation. 2016.
11. Nancy YC Yang, Christopher W San Marchi, **Lee Clemon**, Kyle B Gaiser, Enrique J Lavernia, J Schoenung, B Zheng. Influence of powder metallurgy on the properties of Fe-based alloys using HVOF and LENS deposition. Sandia National Laboratories. SAND2016-5255C. Presentation. 2016.
12. **Lee Clemon**. Machine learning for additive manufacturing process monitoring. Berkeley/Stanford Computational Mechanics Festival. University of California, Berkeley, California. 2017.

Other Works

1. Asher, D. Morris, J., Fazio-Veigel. The Best Scholarships for the Best Students. Advice for applicants & excerpts from my David L. Boren application. Peterson's Publishing. 2010.

Instruction & Mentoring

Master of Engineering, Mentees

1. Adam Showalter. Athletic Ankle Support Design and Testing. 2017.
2. Victoria Kim. Athletic Ankle Support Design and Testing. 2017.
3. Jonathan Aase. Athletic Ankle Support Design and Testing. 2017.
4. Amanda Tien. Athletic Ankle Support Design and Testing. 2017.
5. Omar Alabdulgader. Improving the Reliability of 3D Printed Materials in Biomedical Applications. 2017.
6. Shashank Raghu. Improving the Reliability of 3D Printed Materials in Biomedical Applications. 2017.
7. Quinlin Hamill. Improving the Reliability of 3D Printed Materials in Biomedical Applications. 2017.

8. Manlin Dai. Improving the Reliability of 3D Printed Materials in Biomedical Applications. 2017.

Undergraduate Researchers *requested course credit

1. Kevin Ninomiya. 2011-2012.
2. Debera Hsiao. 2012-2013.*
3. Evan Ryder. 2015-2016.*
4. Adolfo Tec. 2016.*
5. Swapnil Das. 2016-2017.
6. Akshay Rathish. 2016-2017.
7. Kevin Coulson. 2016-2017.*
8. Nate Barrett-Wilsdon. 2016-2017.*
9. Austin Seol. 2016-2017.*
10. Tony Wang. 2016-2017.

Professional Mentees

1. Hadley Sis. 2010.
2. Anthony Lavernia. 2014.
3. Ryan Hardwick. 2017.

Other Instruction & Leadership

- Bay Area Scientists in Schools (BASIS). Teach elementary school students about science and engineering through 1-hour long experiential lessons. 2012-2013 & 2015-2017
- Assistant Scoutmaster Troop 225, Boy Scouts of America. Teaching leadership and outdoor survival skills to boys ages 11-17. 2006-2011.
- Philmont Crew Leader, Philmont Scout Reservation. Led a crew of 9 for 12-days backpacking in New Mexico at a prestigious and remote reserve. 2006.
- Elementary math instructor for Title III disadvantaged students, Westview Elementary, Olathe, Kansas. 2005-2006.
- Venture Crew president, Crew 2240, Boy Scouts of America. Led a team of 8 high school students in high adventure activities. 2005-2006.

Additional Scholarships

- Office of Awards and Scholarships Honors Scholarship. 2006
- Presson Scott Shane Scholarship. 2006-2010
- Paul and Virginia B Miller Engineering Scholarship. 2006-2010
- George P Bunn Memorial Scholarship. 2008
- El Shafey ESAM Engineer Scholarship. 2008
- Horner Study Abroad Scholarship. 2008
- ASME Student Scholarship, Kansas City Section, 2009
- Robert M. Carey Scholarship. 2010

Hobbies

- Hiking
- Archery
- Camping
- Carpentry
- Futsal