

KAITLYN GEE

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RESEARCH

Mechanosynthesis Lab Group, MIT (August 2018 - present)

- Advisor: Dr. A. John Hart
- Articulating cost-rate-quality tradeoffs for additive manufacturing (AM)
- Implementing numerical physics-based models for rate and cost estimation for laser-based AM
- Investigating organizational impacts of AM across industries through interview-based case studies

Collaborative Haptics in Robotics and Medicine, Stanford University (June 2017- September 2018)

- Advisors: Melisa Orta Martinez, Dr. Allison Okamura
- Designed mechanical assembly of low-budget, multiple-DOF haptic devices (Hapkit, Haplink)
- Coded graphical user interface for miniaturized educational haptic devices in Unity and Processing
- Created force-feedbacked virtual environments for haptic devices: control in Arduino and visual displays in Processing

Soil and Environmental Biogeochemistry, Stanford University (July – December 2015)

- Advisors: Dr. Marco Keiluweit, Dr. Scott Fendorf
- Analyzed and quantified soil oxygen dynamics with x-ray micro-tomography, chemical extractions, gas chromatography, statistical analysis and numerical modeling

EDUCATION

Massachusetts Institute of Technology, MS + PhD in Mechanical Engineering (August 2018 – expected June 2024)

Cumulative GPA 4.8 / 5.0

Advisor: Dr. John Hart, focus in computational design for additive manufacturing
Graduate Resident Advisor, MacGregor House, Fall 2019-present
National Science Foundation Graduate Research Fellow (NSF GRFP), 2019 – present

Stanford University, BS in Mechanical Engineering (September 2014 – June 2018)

Cumulative GPA 3.83 / 4.0

President, Stanford Tau Beta Pi Engineering Honor Society (2017-18)
Resident Assistant, Murray House, Stanford University (2016-17)
Officer, Stanford American Indian Science and Engineering Society (2014-17)

PROFESSIONAL EXPERIENCE

Structures Engineering Intern, The Boeing Company, Everett, WA (June - August 2018)

- Designed, fabricated and statically tested novel laminate composite concept for structural aerospace components
- Developed wireframe and relational layout models for multi-body simulations in CATIA V5 and Virtual.Lab

President, Tau Beta Pi Engineering Honor Society, California Gamma, Stanford University (2017- 2018)

- Directed core team of 10 in organizing events reaching 1000+ members, alumni, professors and students annually
- Coordinated 35+ independent initiatives in professional development, community-building, networking and service

Mechanical Engineer, Engineers for a Sustainable World, Stanford University (January – September 2017)

- Design and test of power management circuitry for solar-powered charging station for Philippines (EAGLE, Arduino, MATLAB)

Aerospace Systems Intern, Northrop Grumman Corporation, Redondo Beach, CA (July – September 2016)

- Quantitatively modelled thermal properties of nanofluids for application as aircraft coolants
- Developed non-linear MATLAB optimization regime for thermal system of fighter

CONFERENCE PROCEEDINGS

Gee, Kaitlyn and A. John Hart. (November 2019). *Parametric rate and cost estimation for laser-based additive manufacturing*. Oral presentation at II International Conference on Simulation for Additive Manufacturing, Pavia, Italy.

Martinez, Melisa Orta, Kaitlyn Gee, Tyler Cloyd, Maria Paula Hernandez, Thomas Hsieh, Bradley Immel, Jonathan A. Sosa, Meilan Steimle, Tiger Sun, and Allison M. Okamura. (March, 2018). *Haplink Customizations*. Poster session presented at IEEE Haptics Symposium 2018, San Francisco, CA.

Keiluweit, Marco, Thomas Wanzek, Amanda Denney, Kaitlyn E Gee, Markus Kleber, Peter Nico, Scott Fendorf. (November 2015). *Are Oxygen Limitations an Under Recognized Regulator of Organic Matter Turnover in Upland Soils?* Oral session presented at ASA and CSSA International Annual Meeting, Minneapolis, MN.

Keiluweit, Marco, Kaitlyn Elizabeth Gee, Amanda Denney and Scott E Fendorf. (December 2015). *Predicting the impact of anaerobic microsites on soil organic matter mineralization rates in upland soils*. Poster session presented at AGU Fall Meeting, San Francisco, CA.

PUBLICATIONS

Shakirov, Eldar, Kaitlyn Gee, Haden Quinlan, A. John Hart, Clement Fortin, Ighor Uzhinsky. (2020). *Simulating the AM Production Facility: A Configurable Tool for Strategic Factory-level Planning*. ASME 2020 15th International Manufacturing Science and Engineering Conference. (Accepted).

Beirut, S, Anne-Claire Le-Henaff, Arjun Chandar, Zhengyang Zhang, Kaitlyn Gee, Jaya Narain, Alexis Jones, Amos Winter. (2019). *A novel, efficient 3D-printing based manufacturing process for custom ocular prostheses*. Oral presentation and peer-reviewed publication at 2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Berlin, Germany, pp. 3734-3737.

Keiluweit, Marco, Kaitlyn Gee, Amanda Denney, Scott Fendorf. (2018). *Anoxic microsites in upland soils predominantly controlled by clay content*. *Soil Biology and Biochemistry*. 118, 42-50.

AWARDS AND HONORS

National Science Foundation Graduate Research Fellow, Class of 2019

MIT Presidential Fellow (Provost Women and Minority), 2018-19

MIT University Center for Exemplary Mentoring (UCEM) Sloan Scholar, Cohort 4

MIT Graduate School Leadership Institute Fellow, Cohort 6

MIT Arete Fellow in Effective Altruism

Tau Beta Pi Engineering Honor Society Member

AISES Outstanding Freshman of the Year 2019