PAUL EGAN, PH.D.

USA/Ireland dual citizen

Assistant Professor and Lab Director
Medicine, Mechanics, & Manufacturing (M3D) Design Lab
Texas Tech University

paul.egan@ttu.edu https://paul-egan.com

EDUCATION

ETH Zurich, Switzerland 2014 - 2018

Postdoctoral Research: 3D Printing
Mech/Bio Simulation
Tissue Engineering
Design Automation

Postdoctoral Teaching: Engineering Design Methods
Design Thinking and Cognition

Carnegie Mellon University

Ph.D., Mechanical Engineering 2014
M.S., Mechanical Engineering 2010

Dissertation: "Cognitive and Agent-based Design Methodologies for Engineering Complex Biological Systems."

Advisors: Dr. Jonathan Cagan
Dr. Philip LeDuc

Oklahoma State University

Department of Mechanical and Aerospace Engineering 2004 - 2009

B.S., Aerospace Engineering 2009
B.S., Mechanical Engineering 2009
General Honor's Degree 2005

Additional Completed Majors: **Applied Physics**
Philosophy

International Studies

STARTUP Campus	Zurich, Switzerland	2017
ETH Zurich, German (A1)	Zurich, Switzerland	2014 - 2015
University of Canterbury	Christchurch, New Zealand	2008
Trinity University	Dublin, Ireland	2007
Cambridge University	Cambridge, England	2005, 2007

JOURNAL PUBLICATIONS

ORCID: 0000-0003-1252-5819

PUBLISHED

[20] Kulkarni, N., S. Ekwaro-Osire, and **P. Egan.** "Fabrication, mechanics, and reliability analysis for 3D printed lattice designs." *Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering,* accepted, 2021.

[19] Arefin, A., N. Khatri, N. Kulkarni, and **P. Egan.** "Polymer 3D printing review and outlook: Materials, process, and design for medical applications." *Polymers,* 13(9), 2021.

[18] Scheele, S., C. Hartmann, M. Siegrist, M. Binks, and **P. Egan.** "Consumer assessment of 3D printed food shape, taste, and fidelity using chocolate and marzipan materials." *3D Printing and Additive Manufacturing,* accepted, 2021.

[17] Moniruzzaman, M., C. O'Neal, A. Bhuiyan, and **P. Egan.** "Design and Mechanical Testing of 3D Printed Hierarchical Lattices Using Biocompatible Stereolithography." *Designs,* 24(3), pp. 22, 2020.

[16] **Egan, P.** "Integrated design approaches for 3D printed tissue scaffolds: Review and outlook." *Materials,* 12(25), pp. 2355, 2019.

[15] **Egan, P.,** X. Wang, H. Greutert, K. Shea, K. Würtz-Kozak, and S. Ferguson. "Mechanical and biological testing of polymer lattices for tissue engineering." *3D Printing and Additive Manufacturing,* 6.2, pp. 73-81, 2019.

[14] **Egan, P.,** I. Bauer, K. Shea, and S. Ferguson. "Mechanics of three-dimensional printed lattices for biomedical devices." *Journal of Mechanical Design,* 141(3), pp. 031703, 2019.

[13] **Egan, P.,** K. Shea, and S. Ferguson. "Simulated tissue growth in 3D printed scaffolds." *Biomechanics and modeling in mechanobiology,* pp. 1-15, 2018.

[12] **Egan, P.,** J. Moore, A. Ehrlicher, D. Weitz, C. Schunn, J. Cagan, and P. LeDuc. "Robust mechanobiological behavior emerges in heterogeneous myosin systems." *PNAS,* pp. 201713219: 1-8, 2017.

[11] **Egan, P.,** V. Gonella, M. Engensperger, S. Ferguson, and K. Shea. "Computationally designed lattices with tuned properties for tissue engineering using 3D printing." *PLoS One,* 12(8), pp. e0182902: 1-20, 2017.

[10] **Egan, P.,** S. Ferguson, and K. Shea. "Design of hierarchical three-dimensional printed scaffolds considering mechanical and biological factors for bone tissue engineering." *Journal of Mechanical Design,* 139(6), pp. 061401: 1-9, 2017.

[9] **Egan, P.,** J. Cagan, C. Schunn, F. Chiu, J. Moore, and P. LeDuc,. "The D3 Methodology: Bridging science and design for bio-based product development." *Journal of Mechanical Design,* 138(8), pp. 081101: 1-13, 2016.

[8] **Egan, P.,** C. Schunn, J. Cagan, and P. LeDuc. "Improving human understanding and design of complex multi-level systems with animation and parametric relationship supports." *Design Science,* e3: pp. 1-31, 2015.

[7] **Egan, P.,** B. Sinko, S. Ketan, and P. LeDuc. "The role of mechanics in biological and bio-inspired systems." *Nature Communications,* 6, pp. 1-11, 2015.

[6] Stankovic, T., J. Mueller, **P. Egan,** and K. Shea. "Generalized optimality criteria for optimization of additively manufactured multi-material lattice structures." *Journal of Mechanical Design,* 137(11), pp. 111705: 1-12, 2015.

[5] **Egan, P.,** J. Moore, C. Schunn, J. Cagan, and P. LeDuc. "Emergent systems energy laws for predicting myosin ensemble processivity." *PLOS Computational Biology,* 11(4), pp. e1004177: 1-16, 2015.

[4] **Egan, P.,** J. Cagan, C. Schunn, and P. LeDuc. "Synergistic human-agent methods for deriving effective search strategies: The case of nanoscale design." *Research in Engineering Design,* 26(2), pp. 145-169, 2015.

[3] **Egan, P.,** J. Cagan, C. Schunn, and P. LeDuc. "Design of complex biologically based nanoscale systems using multi-agent simulations and structure-behavior-function representations." *Journal of Mechanical Design,* 135(6), pp. 061005: 1-12, 2013.

[2] Zapf, V., V. Correa, P. Sengupta, C. Batista, M. Tsukamoto, N. Kawashima, **P. Egan,** C. Pantea, A. Migliori, J. Betts, M. Jaime, and A. Paduan-Filho. "Direct measurement of spin correlations using magnetostriction." *Physical Review B,* 77(2), pp. 020404: 1-4, 2008.

[1] Franco, A., V. Zapf, and **P. Egan.** "Magnetic properties of nanoparticles of CoxFe(3-x)O4 prepared by combustion reaction." *Journal of Applied Physics,* 101(9), pp. 09M506: 1-3, 2007.

Book Chapter

[1] **Egan, P.**, and J. Cagan. "Human and computational approaches for design problem-solving." *Experimental Design Research*. Springer House Publishing, 2016. pp. 187-205.

Conference Proceedings

Peer-Reviewed Papers

[22] Arefin, A., and **P. Egan**. "Computational investigation of tissue and blood vessel growth trade-offs in hierarchical lattices." *ASME IDETC Design Automation Conference*. Virtual Conference, 2021.

[21] Chrico, S., M. Hoque, G. Christopher, and **P. Egan**. "Printability and fidelity of protein-enriched 3D printed foods: A case study using cricket and pea protein powder." *ASME IDETC DFMLC Conference*. Virtual Conference, 2021.

[20] Mahmoud, R., Q. Nguyen, G. Christopher, and **P. Egan**. "3D printed food design and fabrication approach for manufacturability, rheology, and nutrition trade-offs." *ASME IDETC Design Automation Conference*. Virtual Conference, 2021.

[19] Kulkarni, N., S. Ekwaro-Osire, and **P. Egan**. "Mechanical testing and reliability analysis for 3D printed cubic lattices." *ASME IMECE Conference*. Virtual Conference, 2020.

[18] Arefin, A. and **P. Egan**. "Computational design generation and evaluation of beam-based tetragonal bravais lattice structures for tissue engineering." *ASME IDETC Design Automation Conference*. Virtual Conference, 2020.

[17] Briguiet, G. and **P. Egan**. "Structure, process, and material influences for 3D printed lattices designed with mixed unit cells." *ASME IDETC Design Automation Conference*. Virtual Conference, 2020.

[16] Chirico S., M Binks, and **P. Egan**. "Design and manufacturing of 3D printed foods with user validation." *ASME IDETC Design for Manufacturing and Life Cycle Conference*. Virtual Conference, 2020.

[15] **Egan, P.** "Design and biological simulation of 3D printed lattices for biomedical applications." *ASME IDETC Design Automation Conference*. Anaheim, CA, 2019.

[14] **Egan, P.,** I. Bauer, K.Shea, and S. Ferguson. "Integrative design, build, test approach for biomedical devices with lattice structures." ***Best Paper Finalist**** *ASME IDETC Design Theory and Methodology Conference*. Quebec City, Canada, 2018.

[13] **Egan, P.,** V. Gonella, M. Engensperger, S. Ferguson, and K. Shea. "Design and fabrication of 3D printed tissue scaffolds informed by mechanics and fluids simulations." *ASME IDETC Design Automation Conference*. Cleveland, OH, 2017.

[12] **Egan, P.,** S. Ferguson, and K. Shea. "Design and 3D printing of hierarchical tissue engineering scaffolds based on mechanics and biology perspectives." *ASME IDETC Design Theory and Methodology Conference*. Charlotte, NC, 2016.

[11] **Egan, P.,** J. Cagan, P. LeDuc, and C. Schunn. "The d_3 science-to-design methodology: Automated and cognitive-based processes for discovering, describing, and designing complex nanomechanical biosystems." *ASME IDETC Design Theory and Methodology Conference*. Boston, MA, 2015.

[10] **Egan, P.,** C. Schunn, J. Cagan, and P. LeDuc. "Development of graphical user interfaces to improve human design proficiency for complex multi-level biosystems." ***Best Paper Award*** at *ASME Computers and Information in Engineering Conference*. Boston, MA, 2015.

[9] Stankovic, T., J. Mueller, **P. Egan,** and K. Shea. "Optimization of additively manufactured multi-material lattice structures using generalized optimality criteria." ***Best Paper Award*** at *ASME Computers and Information in Engineering Conference*. Boston, MA, 2015.

[8] Chen, T., **P. Egan,** F. Stoeckli, and K. Shea. "Studying the impact of incorporating an additve manufacturing based design exercise in a large, first year technical drawing and CAD course." *ASME IDETC Engineering Education Conference*. Boston, MA, 2015.

[7] **Egan, P.,** T. Ho, C. Schunn, J. Cagan, and P. LeDuc. "The effects of training background and design tools on multi-level biosystems design." *Internation Conference on Engineering Design*. Milano, Italy, 2015.

[6] **Egan, P.,** J. Cagan, C. Schunn and P. LeDuc. "Cognitive-based search strategies for complex bio-nanotechnology design derived through symbiotic human and agent-based approaches." *ASME IDETC Design Theory and Methodology Conference*. Buffalo, NY, 2014. DETC2014-34714.

[5] **Egan, P.,** C. Schunn, J. Cagan, and P.LeDuc. "Surprisingly stochastic: Learning and design application of emergent behavior using interactive simulations of nano-mechanical biological systems." *Annual Conference of the Cognitive Science Society*. Quebec City, CA, 2014.

[4] **Egan, P.,** J. Cagan, C. Schunn, and P. LeDuc. "A modular design tool for visualizing complex multiscale systems." *International Conference on Engineering Design*. Seoul, South Korea, 2013.

[3] **Egan, P.,** J. Cagan, C. Schunn, and P. LeDuc. "Utilizing emergent levels to facilitate complex systems design: demonstrated in a synthetic biology domain." *ASME IDETC Design Automation Conference*. Portland OR, 2013. DETC2013-12072

[2] **Egan, P.,** J. Cagan, C. Schunn, and P. LeDuc. "Design of complex nano-scale systems using multi-agent simulations and structure-behavior-function representations." *ASME IDETC Design Theory and Methodology Conference.* Chicago, IL, 2012. pp. 793-804.

[1] **Egan, P.,** P. LeDuc, J. Cagan, and C. Schunn. "A design exploration of genetically engineered myosin motors." *ASME IDETC Design Automation Conference*. Washington DC, 2011. pp. 1017-1025.

ADDITIONAL CONFERENCE PROCEEDINGS

[10] **Egan, P.** "Prototyping 3D printed foods: Linking biomaterial fabrication to rheological properties." *ASME IDETC Design for Manufacturing and Lifecycle Conference*. Virtual conference, 2020 (Virtual presentation, accepted by abstract review).

[9] **Egan, P.** "Comparison of 3D printed scaffolds for bone tissue engineering." *Biomedical Engineering Society Annual Meeting*. Philadelphia, PA, 2019 (Poster session, accepted by abstract review).

[8] **Egan, P.,** I. Bauer, K.Shea, and S. Ferguson. "Mechanics and tissue growth for beam-based scaffolds." *World Congress of Biomechanics*. Dublin, Ireland, 2018 (Oral presentation, accepted by abstract review).

[7] **Egan, P.,** X. Wang, H. Greutert, K. Shea, K., Würtz-Kozak, and S. Ferguson. "Mechanical and biological characterization of 3D printed polymer lattices for bone tissue engineering." *Swiss Society for Biomedical Engineering*. Winterthur, Switzerland, 2017. (Oral presentation and poster, accepted by abstract review).

[6] Wang, X., **P. Egan,** X, K. Shea, and S. Ferguson. "Finite element simulation for 3D printed scaffolds." *Swiss Society for Biomedical Engineering*. Winterthur, Switzerland, 2017. (Oral presentation and poster, accepted by abstract review).

[5] **Egan, P.,** K. Shea, and S. Ferguson. "Tissue growth simulations for 3D printed scaffolds." *European Society of Biomechanics*. Seville, Spain, 2017. (Oral presentation, accepted by abstract review).

[4] **Egan, P.,** C. Schunn, J. Cagan, and P. LeDuc. "Multiscale modeling and optimization of natural and biomimetic myosin-based systems." *World Congress of Biomechanics*. Boston, MA, 2014. (Oral presentation, invited).

[3] **Egan, P.,** C. Schunn, J. Cagan, and P. LeDuc. "Robust active material components designed with agent-based myosin-actin simulations." *Materials Research Society Meeting and Exhibit*. Boston, MA, 2013. (Poster session, accepted by abstract review).

[2] **Egan, P.,** C. Schunn, J. Cagan, and P. LeDuc. "Probing why nature may favor heterogeneous myosin systems through single molecule and systems level approaches." *Biophysical Society Annual Meeting, Systems Biology.* Philadelphia, PA, 2013. (Poster session, accepted by abstract review).

[1] **Egan, P.,** C. Schunn, J. Cagan, and P. LeDuc. "Investigating heterogeneous system performance of synthetic myosins computationally." *AIChE Synthetic and Systems Biology Conference.* Pittsburgh, PA, 2012. (Oral presentation, accepted by abstract review).

INVITED TALKS

[16] Virtual Event. "Frontiers of Engineering Design for Medical Innovations." *Texas Tech University Health Sciences Center*, School of Health Professions Endowed Lecture Series, Lubbock, TX, 2021.

[16] Open Seminar. "Intersections in biological sciences and mechanical engineering." *Texas Tech University*, Department of Biological Sciences, Lubbock, TX, 2019.

[15] Open Seminar. "Computational design for mechanobiology and advanced manufacturing in medicine." *University of Texas at Austin*, Department of Mechanical Engineering, Austin, TX, 2018.

[14] Open Seminar. "Computational design of additively manufactured lattices for regenerative medicine." *University of Bern*, ARTORG Center for Biomechanical engineering Research, Bern, Switzerland, 2018.

[13] Open Seminar. "Computational design for biomechanics and medicine." *Texas Tech University*, Department of Mechanical Engineering, Lubbock, TX, 2018.

[12] Open Seminar. "Computational design methods for biomechanics and 3D printing." *Virginia Polytechnic Institute and State University*, Mechanical Engineering Department, Blacksburg, VA, 2017.

[11] Open Seminar. "Computational design methods for biomechanics and 3D printing." *Ecole polytechnique federale de Lausanne (EPFL),* Mechanical Engineering Department, Lausanne, Switzerland, 2017.

[10] Internal Talk. "Design and 3D printing of tissue scaffolds tuned for mechanics and biology." *Swiss Federal Institute of Technology (ETH Zurich)*, for European Grants Commission and Postdoctoral Fellows, Zurich, Switzerland, 2017.

[9] Flash Talk. "Design and 3D printing of tissue scaffolds with mechanics and biology perspectives." *Life Sciences Post-doc Day,* Zurich, Switzerland, 2016.

[8] Open Seminar. "Computational, human-centered, and manufacturing approaches for complex biological systems design." *University of California Berkeley*, Mechanical Engineering Department, Berkeley, CA, 2016.

[7] Open Seminar. "Cognitive and agent-based design methodologies for engineering complex biological systems." *Northwestern University*, Mechanical Engineering Department, Evanston, IL, 2016.

[6] Flash Talk. "Characterization, design, and fabrication of tissue engineering scaffolds for optimal mechanical and biological functioning." *Life Sciences Post-doc Day,* Zurich, Switzerland, 2015.

[5] Outreach Talk. "Overcoming the challenges of effective interdisciplinary communication." *ASME IDETC conference FutureME speakers,* Boston, MA, 2015.

[4] Open Seminar. "Computational, human-centered, and manufacturing approaches for complex biological systems design." *University of Michigan*, Mechanical Engineering Department, Ann Arbor, MI, 2015.
[3] Open Seminar. "Biological systems inspire non-obvious engineering design principles." *Mechanics and Engineering of Cellular Systems Center*, Carnegie Mellon University, Pittsburgh, PA, 2013.
[2] Dynamic Talk. "Designing complex systems in the human body." *ICED conference Young Member's Event,* Seoul, South Korea, 2013.
[1] Awards Seminar. "State of the art in unmanned aerial vehical design at Oklahoma State University." *AIAA Conference*, Albuquerque, NM, 2009.

PRESS RELEASES

[5] "Academic Spotlight: Department of Mechanical Engineering." Mechanical Engineering Department. 2021.
<link: https://campuslivettu.com/academic-spotlight-department-of-mechanical-engineering/>
[4] "ME Design Expo." Mechanical Engineering Department. 2019.
<link: https://www.depts.ttu.edu/me/department/news/deisgnexpo2019.php>
[3] "CardioAI: For those who value their health." ETH Startup Campus. 2018.
<link: https://www.startup-campus.ch/en/startups/cardioai-2/>
[2] "Researchers design the building blocks of synthetic muscle using computational method." Phys.org. 2017.
<link: https://phys.org/news/2017-09-blocks-synthetic-muscle-method.html>
[1] "Three OSU students selected Goldwater Scholars." Oklahoma State University. 2008.
<link:https://news.okstate.edu/articles/communications/2008/three-osu-students-selected-goldwater-scholars.html>

INNOVATION ACTIVITIES

NSF Regional I-Corps **Texas Tech University** Fall 2020
Bio-building blocks team: Investigated personalized health solutions with 3D printing
Surgical design trainer team: Investigated mechanical feedback in surgical trainers

RESEARCH EXPERIENCES

Postdoctoral Research **ETH Zurich** Zurich, Switzerland
Stephen Ferguson Laboratory of Orthopaedic Technology Fall 2014 - 2018
Kristina Shea Engineering Design and Computing Lab

Visiting Researcher **Houston Methodist Research Institute** Houston, TX
Mauro Ferrari Nanomedicine, Biomechanics, and Cancer Fall 2015

Doctoral Research **Carnegie Mellon University** Pittsburgh, PA
Jonathan Cagan Integrated Design Innovation Group Fall 2009 - 2014
Philip LeDuc Biomechanics and Cellular Systems

Visiting Researcher **Harvard University and Boston University** Boston, MA
David Weitz Applied Physics and Soft Matter Summer 2012
Allen Ehrlicher Biophysics and Protein Mechanics

Jeffrey Moore	Physiology and Biophysics	
Undergraduate Researcher	**Oklahoma State University**	Stillwater, OK
Larry Hoberock	Machine Vision and Robotics	Fall 2008
Doren Recker	Philosophy of Science and Cognition	Fall 2006 - 2009
Research Internship	**Aerospace Corporation**	El Segundo, CA
Richard Welle	Microfluidics Research and Development	Summer 2007
Research Internship	**Los Alamos National Laboratory**	Los Alamos, NM
Viven Zapf	National High Magnetic Field Lab	Summer 2006

SELECTED HONORS

A Most Influential Faculty Member, Texas Tech	2019
Travel Award: National Academy of Sciences, sixth Arab-American Frontiers, Kuwait	2018
Best Paper Finalist: IDETC/CIE Conference for Design, Theory, Methodology	2018
Best Business Plan, ETH Zurich Business Concept Course	2017
Favorable Submission for Branco Weiss Postdoctoral Fellowship (top 7% of 592)	2017
Best Paper: IDETC/CIE Conference for Additive Manufacturing and 3D-Printing	**2015**
Best Paper: IDETC/CIE Conference for Virtual Environments and Systems	**2015**
ETH Zurich Postdoctoral Fellowship	**2015**
Travel Scholarship for Bio-Inspired Design Workshop in Palo Alto California	2011
National Defense Science and Engineering Graduate Fellowship (NDSEG)	**2010**
Carnegie Institute of Technology Dean's Fellow	2009
1st Place AIAA International Design Build Fly Competition, Chief Engineer	**2009**
Mechanical Engineering Department All Around Student Activities Award	2009
Barry M. Goldwater Scholarship	**2008**
Lew Wentz Foundation Research Scholarship	2006 - 2008
Honor's Freshman Research Scholarship	2004
Oklahoma State Regent's Scholarship	2004
Valedictorian, Union High School	2004
Eagle Scout, Boy Scouts of America	2002

SERVICE

Outreach:	West Texas 3D Covid-19 Relief Consortium -President's Engaged Scholarship Award	2020
	Texas Tech STEM CORE Affiliate Member	2018 - Present
University:	Dean's representative PhD Thesis Defense	2020
	Sling Health Faculty Advisor and Coordinator	2019 - Present
	TTU Undergraduate Outreach for ASME, IEEE, Pi Squared	2019 - Present
	TTU Undergraduate Research Symposium Judge	2019
	TTU Engineers in Medicine	2018 - Present
Department:	ME Department Chair Search	2019 - 2020
	ME Senior Design Expo Organizer	2019 - Present
	ME Design Qualifying Exams Coordinator	2019 - Present
	ME Senior Design Expo Judge	2018

Professional:	Guest Editor: *JoVE* 3DP Scaffold Design Methods	2020 – 2021
	Guest Editor: *Frontiers ME* 3D Printing Scaffolds	2020 - 2021
	Guest Editor: *Polymers* 3D Printing Applications	2020 - 2021
	MDPI *Materials* Reviewer Board	2020 - Present
	NSF Grant Review Panel	2019
Conference:	Session Chair ASME IDETC DTM Conference	2018
	ASME Early Career Design and Advanced Manufacturing Market Segment Leadership Team.	2015 - 2016
	Design Society, Organizer for Young Member's Speakers Event for ICED Conference in Milan, Italy, 2015.	2015
Mentoring:	ASME IDETC PhD student mentorship program	2020

INTERNAL FUNDING

Texas Tech University Accelerator Team, $25,000 2021
Awarded for Surgic LLC Company, CTO role for company

Texas Tech University President's Innovation Award, $25,000 2021
Awarded for Surgic LLC Company, CTO role for company

Texas Tech University Faculty Start-up Grant Innovation Hub, $2,500 2020
Egan, P., *Materials,* 12(25), pp. 2355, 2019.

Texas Tech University Open-Access Initiative, $1,000 2019
Course focus: ME 4371 Capstone Engineering Design II

Texas Tech University TrUE, $2,000 2019 - Present
2020 Scholarship for Fnu Md-Moniruzzaman/Khawja Mezbah Uddin
2019 Scholarship/Equipment for Christopher O'neal

Lew Wentz Research Funding, Oklahoma State University, ~$15,000 2006 - 2009
Multiple one year projects in Philosophy of Science and Engineering focused on conceptual metaphors, artificial intelligence, and dual-process cognition theory

EXTERNAL FUNDING

NSF IUSE: HER-20-0366:, $522,998 (1% credit) 2019
Grant title: "Cultivating Engineers in Medicine: Interdisciplinary Engaged Learning for Biomedical Innovation"
Couse focus: ME 4371 Capstone Engineering Design II

NSF CMMI-1160840 Grant, ~$425,000 (Advisor's proposal) 2012
Significantly aided writing with PIs Jonathan Cagan and Philip LeDuc
Grant title: "Computational design of complex multi-scale systems: Design of synthetic muscle with shape grammars and agent-based search"

TEACHING

Texas Tech University, Costa Rica Campus

Short Course for Medical Design Innovation and Manufacturing	2021

Texas Tech University

Senior Design II, project-based undergraduate course	2019, 2020
Senior Design I, project-based undergraduate course	2019, 2020
Introduction to Design, upper-level undergraduate course	2018

École Polytechnique Fédérale de Lausanne (EPFL)

Lecture for Short PhD Course: "Design for 3D printed tissue scaffolds"	2017

Swiss Federal Institute of Technology (ETH Zurich)

Developed and Taught Course (50%): Engineering Design Methods	2015 - 2016
Research Skills for Engineering Design and Computing Lab Group	2014 - 2015

Carnegie Mellon University

Teaching Assistant for Engineering Design: Grand Challenges	2012
Teaching Assistant for Engineering Design I	2011

RESEARCH ADVISING

Texas Tech University (PhD Students)

Nava Khatri	3D printing and computation	2020 - Present
Amit Arefin	Computational design	2019 - Present
Stefania Chirico	3D Food printing	2019 - Present

Texas Tech University (Hired Researchers)

Quang Nguyen	3D Food printing	2019
Rahmatul Mahmoud	3D Bioprinting	2019

Texas Tech University (Master's Student)

Harshavardhan Agale	3D Printed Materials	2020 - Present
Manasi Parab	Design for 3D printing	2020 - Present
Elizabeth Burnett	3DP Water filters (Project)	2019 - 2020
Nitin Kulkarni	3DP Reliability (Thesis)	2019 - 2020
Rahmatul Mahmoud	3D Bioprinting (Thesis)	2019 - 2020

Texas Tech University (Undergraduate Students)

Brandon Darby	3D printing prototyping (pi^2 funded)	2021 - Present
William Renter	Game Learning Strategies	2021
Juan Leon	Silicone molding	2021
Zareez Choudhury	3D food printing	2021
Sebastian Valbuena	3DP prosthetics	2021
Ray Elias	Ultimaker lattices	2021
Michael Hart	3DP education/innovation	2021
Sean Trimmier	Metal molding	2021
Austin Scott	Machine learning	2020 - Present
Elijah Garcia	Engineers in Medicine project	2020
Michael Lahowetz	Lattice design and simulation	2020

Wesley O'Quinn	Synthetic bone 3D printing	2020
Gabriel Briguiet	3DP Heterogeneous lattices	2019
Quang Nguyen	3D food printing materials	2019
Nicholas Salazar	Abaqus simulations	2019
Emmitt McFather	Food silicon molding	2019
Cody Carson	Ab tester clamp mechanisms	2019
Ivan Delgado	Ab tester material development	2019
Fnu Md-Moniruzzaman	3DP Design (TrUE funded, lead author *Designs*)	2019
Khawja Mezbah Moin Uddin	3D food printing testing (TrUE funded)	2019 - 2020
Christopher O'neal	3DP Mechanics (TrUE funded, co-author *Designs*)	2019 - 2020

ETH Zurich

Isabella Bauer	Research Internship	2017 - 2018
Xiuyu Wang	Master's Thesis	2017
Veronica Gonella	Research Assistant	2016
Max Engensperger	Master's Thesis	2016
Fernando Rodriguez	Bachelor's Thesis	2016

Carnegie Mellon University

Felix Chiu	Undergraduate/Honor's Research	2011 - 2014
Tiffany Ho	Undergraduate/Honor's Research	2012 - 2013
Patra Virasathienpornkul	Undergraduate Project	2012
Xiaozhou Fu	Master's Project	2010 - 2011
Chao Li	Master's Project	2010 - 2011