



# DRAPER®

## *Draper Fellows 2018*

Since 1974, the Draper Fellow Program has supported the graduate study of exceptional students pursuing advanced degrees in engineering and the sciences. Draper Fellow Alumni are from both civilian and military backgrounds and excel worldwide in the technical, corporate, government, academic and entrepreneurship sectors.

**FOLLOWING ARE THE 31 RECIPIENTS  
WHO WILL BEGIN THEIR STUDIES IN 2018.**

**A**

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### **Thomas Abitante**

*Currently pursuing a Ph.D. in Health Science and Technology HST at the **Massachusetts Institute of Technology.***

He grew up in Berkeley Heights, New Jersey and received his undergraduate degree in mechanical engineering at the United States Military Academy. In graduate school, Tom will focus his research on exercise physiology and exercise countermeasures for astronauts. He would like to explore other exercise devices and methods to improve upon or supplement current practices to maximize astronaut health and minimize injury risk for future, long-term planetary missions.

### **Aastha Acharya**

*Will pursue a Ph.D. in aerospace engineering at the **University of Colorado, Boulder.***

She grew up in Kathmandu, Nepal and Branford, Connecticut and received her undergraduate degree in mechanical and aerospace engineering, and a master's degree in aerospace engineering, from Cornell University. She currently works at Lockheed Martin. In graduate school, Aastha plans to continue working toward advancement of autonomous systems and increasing trust in them to enable their widespread use for aerospace and other applications.

### **Nicholas Anastas**

*Currently pursuing his master's degree in aerospace engineering at the **Massachusetts Institute of Technology.***

He grew up in Quincy, Illinois and received his undergraduate degree in computer science at the University of Illinois, Urbana-Champaign. In graduate school, Nick will study at MIT's Man Vehicle Lab, and in the future he hopes to make a contribution to human space flight.

### **Shane Arlington**

*Currently pursuing a Ph.D. in materials science and engineering at **Johns Hopkins University.***

He grew up in Flagstaff, Arizona and received an undergraduate degree in chemical engineering and science, technology

and society, and a master's degree in materials science and engineering, from the Stevens Institute of Technology. At Johns Hopkins University, Shane's research focuses on reactive thin-film materials, exploring the fundamentals of the effects of composition gradients on nucleation in these systems, as well as developing reactive thin films for a number of engineering applications.

### **Katya Arquilla**

*Will pursue a Ph.D. in aerospace engineering at the University of Colorado, Boulder.*

She grew up in Monterey, California and received her undergraduate degree in astrophysics at Rice University. For her Ph.D., Katya plans on developing wearable sensor systems and processing the data from them to quantify the connection between physiological signals and psychological state. This technology will lead to earlier and more accurate diagnoses of mental illnesses such as depression and post-traumatic stress disorder (PTSD) for a wide range of patient populations.

## **B**

### **Rachel Bellisle**

*Will pursue a Ph.D. in Health Sciences and Technology HST at the Massachusetts Institute of Technology.*

She grew up in Exeter, Rhode Island and received her undergraduate degree in biomedical engineering at the University of Rhode Island. In graduate school, Rachel plans to continue research in the areas of neuro engineering, biomechanics and assistive devices, such as exoskeletons.

### **2<sup>nd</sup> Lieutenant Katherine Burnham, U.S. Air Force**

*Will pursue a master's degree in operations research ORC at the Massachusetts Institute of Technology.*

She grew up in Southlake, Texas and received her undergraduate degree in math at the United States Air Force Academy. At MIT, Katie hopes to better understand how the work in her field has improved society and strengthened national defense.

## **C**

### **Scott Carnahan**

*Currently pursuing a Ph.D. in aerospace engineering at the University of Colorado, Boulder.*

He grew up in Lincoln, Illinois and received his undergraduate degree in aerospace engineering from Auburn University. In graduate school, Scott plans to investigate the use of GPS hardware and software for autonomous formation flying of satellites in deep space.

## **D**

### **Jordan Dixon**

*Currently pursuing a Ph.D. in aerospace engineering at the University of Colorado, Boulder.*

He grew up in Littleton, Colorado and received his undergraduate degree in aerospace engineering from the University of Kansas. In graduate school, Jordan plans to continue to study the health effects associated with spaceflight and assistive devices that can compensate for impairments such as vertigo.

### **Lena Downes**

*Will pursue a master's degree in aerospace engineering at the Massachusetts Institute of Technology.*

She grew up in Easton, Massachusetts and received her undergraduate degree in mechanical engineering from the University of New Hampshire. In graduate school, Lena hopes to research guidance, navigation and control of aerospace vehicles.

### **Ryan Dubay**

*Will pursue a Ph.D. in biomedical engineering at Brown University.*

He grew up in Ludlow, Massachusetts and received his undergraduate degree in mechanical engineering from Western New England University. In graduate school, Ryan plans to study biomedical engineering with an emphasis on fluids and integrating optical aspects, and to develop novel techniques for cell and particle sorting as well as improve understanding of inherent heterogeneities within cell populations.

## **L**

### **2<sup>nd</sup> Lieutenant Logan Leahy, U.S. Air Force**

*Will pursue a master's degree in mechanical engineering at the Massachusetts Institute of Technology.*

He grew up in Kings Mills, Ohio and received his undergraduate degree in mechanical engineering at the United States Air Force Academy. In graduate school, he plans to earn a master's degree in mechanical engineering. After completing his graduate studies, Logan plans to join the U.S. Army's operational force as an intelligence officer.

### **Katherine Levinson**

*Will pursue a master's degree in electrical engineering with a focus on signal and image processing at Boston University.*

She grew up in Winchester, Massachusetts and received her undergraduate degree in electrical engineering from Tufts University. Since graduation, Katie has been working at Draper as a navigation engineer in the Positioning, Navigation & Timing group where she has been working to develop navigation algorithms and simulations.

### **Beldon Lin**

*Will pursue a Ph.D. degree in aerospace engineering at the Massachusetts Institute of Technology.*

He grew up in Atlanta, Georgia and received his undergraduate degree in aerospace engineering from the University of Michigan. At MIT, Beldon plans to study aerospace engineering

with a focus on tools and methods, such as multidisciplinary design optimization and system architecture, to help design complex systems.

### **Seamus Lombardo**

*Will pursue a Ph.D. in aerospace engineering at the **Massachusetts Institute of Technology**.*

He grew up in Nanuet, New York and received his undergraduate degree in aerospace engineering from the University at Buffalo (SUNY). In graduate school, Seamus hopes to combine his interests in space systems engineering and human factors through research into space suits. He is particularly interested in designing suits that minimize physical and cognitive loading of astronauts on future planetary EVAs.

### **William Loucks**

*Will pursue a master's of engineering degree electrical engineering and computer science at the **Massachusetts Institute of Technology**.*

He grew up in Las Vegas, Nevada and received his undergraduate degree in mathematics and computer science from MIT. William plans to study modes of cryptography that can be implemented on devices with limited computational ability. He hopes to develop tools that can authenticate and maintain the confidentiality of communication between satellites, while considering how an environment with intense radiation might affect the integrity of such devices.

### **Jingcheng "Aric" Lu**

*Will pursue a Ph.D. in electrical engineering and computer science at the **Massachusetts Institute of Technology**.*

He grew up in Bear, Delaware and received his undergraduate degree in electrical engineering from the University of Delaware. Aric plans to continue his work in 3D printing and additive manufacturing and expand his work to biological applications. This work will combine with his electrical engineering background to develop devices for printing cell tissues, drug development systems and other devices at the bio-electrical interface.

## **M**

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### **Jonathan Manni**

*Currently pursuing a Ph.D. in aerospace engineering at the **University of Colorado, Boulder**.*

He grew up in Canton, Michigan and received his undergraduate degree in electrical and computer engineering from Calvin College. As a Ph.D. student, Jonathan's focus is to advance research in autonomous robotics and space exploration.

### **Alex Markoski**

*Will pursue a master's degree in biomedical engineering at **Brown University**.*

He grew up in Westford, Massachusetts and received his undergraduate degree in electrical engineering from

Worcester Polytechnic Institute. At Brown University, Alex plans to work with microfluidic-based technology, such as organ-on-a-chip devices or organ assist devices, while working on a thesis related to these technologies.

### **Scott McCuen**

*Will pursue a master's of engineering degree in electrical engineering and computer science at the **Massachusetts Institute of Technology**.*

He grew up in Sacramento, California and received his undergraduate degree in electrical engineering and computer science at MIT. In graduate school, Scott will explore the intersection of electrical engineering and biology through his research in bioelectronics.

### **2<sup>nd</sup> Lieutenant Samuel Miller, U.S. Army**

*Will pursue a master's degree in aerospace engineering at the **Massachusetts Institute of Technology**.*

He grew up in Valrico, Florida and received his undergraduate degree in electrical engineering from the United States Military Academy. As an MIT graduate student, Samuel plans to study navigation and control of autonomous vehicles.

### **Ensign Christian Montgomery, U.S. Navy**

*Will pursue a master's degree in aerospace engineering at the **Massachusetts Institute of Technology**.*

He grew up in Tampa, Florida and received his undergraduate degree in aerospace engineering from the United States Naval Academy. In graduate school, Christian plans to research location awareness with emerging applications on mobile devices.

## **P**

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### **Marielle Pellegrino**

*Currently pursuing a Ph.D. in aerospace engineering at the **University of Colorado, Boulder**.*

She grew up in Boca Raton, Florida and received her undergraduate degree in aerospace engineering from the University of Florida. Marielle is studying solar radiation pressure and chaotic regions emanating from the sun and moon to address debris mitigation at medium and high altitude orbits.

## **R**

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### **Evan Roelke**

*Currently pursuing a Ph.D. in aerospace engineering at the **University of Colorado, Boulder**.*

He grew up in Morristown, New Jersey and received his undergraduate degree in aerospace engineering from Brown University. Evan is focusing on entry, descent and landing (EDL) systems during his graduate career.

## S

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### **2<sup>nd</sup> Lieutenant Aaron Schlenker, U.S. Army**

*Will pursue a master's degree in mechanical engineering at the **Massachusetts Institute of Technology**.*

He grew up in Kutztown, Pennsylvania and received his undergraduate degree in mechanical engineering from the United States Military Academy. At MIT, Aaron plans to study control theory or heat transfer. He is particularly interested in applying these fields to micro-electromechanical technology.

### **Erin Shaughnessey**

*Will pursue a Ph.D. in biomedical engineering at **Tufts University**.*

She grew up in Westford, Massachusetts and received her undergraduate degree in aerospace engineering from University of Massachusetts, Lowell. Erin's work experience at Draper inspired her to pursue interdisciplinary research in biomedical engineering for graduate school. She is motivated to enhance the ability of tissue culture systems to mimic the complexities of the *in vivo* physiological environment while simultaneously maintaining their ease-of-use for drug screening and other studies.

### **Kirsten Strandjord**

*Currently pursuing a Ph.D. in aerospace engineering at the **University of Colorado, Boulder**.*

She received a master's degree in aeronautics and astronautics with an astrodynamics specialization from Purdue. She has studied the very stable clocks on board the latest GPS IIF satellites and proposed an improved prediction of GPS satellite clock variations based on their daily repeatability.

## T

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### **Anne Theurkauf**

*Will pursue a master's degree in aerospace engineering at **University of Colorado, Boulder**.*

She grew up in Boston, Massachusetts and received her undergraduate degree in mechanical engineering and physics at Lehigh University. Anne plans on studying controls in graduate school, with specific applications in precision timing and aerospace engineering.

## W

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### **Nicholas Waltman**

*Will pursue a master's of engineering degree in electrical engineering and computer science at the **Massachusetts Institute of Technology**.*

He grew up Lexington, Kentucky and received his undergraduate degree in electrical engineering at MIT. For his graduate degree, Nicholas will focus on engineering applications of signal processing and machine learning.

### **Brandon Weaver**

*Will pursue a master's degree in mechanical engineering at **Tufts University**.*

He grew up in Alabaster, Alabama and received his undergraduate degree in mechanical engineering from Auburn University. At Tufts University, Brandon plans to study navigation systems and assuring the safety of such systems. He hopes to apply this knowledge to areas such as aircraft landing systems and autonomous vehicles.

### **Benjamin Weinreb**

*Will pursue a master's degree in mechanical engineering at the **Massachusetts Institute of Technology**.*

He grew up in Reading, Massachusetts and received his undergraduate degree in engineering from the University of Pennsylvania. At MIT, Ben plans to study mechanical engineering with a focus on mechatronics and controls. He is particularly interested in electromechanical systems with applications to precision motion control.