

## 2018 Undergraduate Summer Research Program

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***Protein-based nanomanufacturing: Using silk and hydrophobins for sustainable lithography***

**Advisor:** Mostafa Bedewy, industrial engineering

**Student:** Megan Black, mechanical engineering & materials science (*Mascaro Scholar*)

***Microstructure and properties of sintered magnetocaloric materials for efficient magnetic refrigeration***

**Advisor:** Markus Chmielus, mechanical engineering & materials science

**Student:** Rafael Rodriguez, mechanical engineering & materials science (*Mascaro Scholar*)

***Magnetocaloric effect of binder jet printed Ni-Mn-Ga magnetic shape memory alloy***

**Advisor:** Markus Chmielus, mechanical engineering & materials science

**Student:** Aaron Acierno, mechanical engineering & materials science (*Mascaro Scholar*)

***Energy-efficient processors, sensors, and systems for space-based sensing and computing***

**Advisor:** Alan George, electrical & computer engineering

**Student:** Sridhar Reddy Velagala, electrical engineering and computer science (*Condon Scholar*)

***Designing efficient electrocatalysts atom by atom***

**Advisor:** John Keith, chemical & petroleum engineering

**Student:** Sarah Newton, chemical & petroleum engineering (*Mascaro Scholar*)

***Black silicon solar cells***

**Advisor:** Paul Leu, industrial engineering

**Student:** Sooraj Sharma, mechanical engineering & materials science (*Mascaro Scholar*)

***Nanofabricated interfaces for electrochemical catalysis***

**Advisor:** James McKone, chemical & petroleum engineering

**Student:** Julia McKay, chemical & petroleum engineering (*Frank and Daphna Lederman Scholar*)

***Capturing tidal energy using smart materials***

**Advisor:** Katherine Ong, mechanical engineering & materials science

**Student:** Katrina Haidari, mechanical engineering & materials science (*Mascaro Scholar*)

Mary Kozuch, mechanical engineering & materials science (*Mascaro Scholar*)

***Smarter Riversheds – Real-time environmental sensors networks***

**Advisor:** David Sanchez, civil & environmental engineering

**Student:** Kathleen Beaudoin, civil & environmental engineering (*Charles A. and Linda E. Sorber Scholar*)

***Feeding a Growing World: Towards a novel process for ammonia synthesis***

**Advisor:** Goetz Vesper, chemical & petroleum engineering

**Student:** Eyram Akabua, chemical & petroleum engineering (*Mascaro Scholar*)

***Making more with less: "Greening" the process industry via process intensification***

**Advisor:** Goetz Vesper, chemical & petroleum engineering

**Student:** Trevor Devine, chemical & petroleum engineering (*Mascaro Scholar*)

***Green electronics – Low-Power memory device on transparent nanopaper substrate***

**Advisor:** Feng Xiong, electrical and computer engineering

**Student:** Nolan Ardolino, mechanical engineering & materials science (*Mascaro Scholar*)

***3D Printing of Graded Alloys for Energy Efficiency in Aerospace Materials Manufacturing***

**Advisor:** Wei Xiong, mechanical engineering & material science

**Student:** Noah Levine, mechanical engineering & material science (*Mascaro Scholar*)