# Rachel E. McCoy

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## Education

**Carnegie Mellon University** Pittsburgh, PA **May 2017**

Bachelor of Science in Materials Science and Engineering (GPA: **3.61/4.00**)
Additional Major: Biomedical Engineering

## Skills

- Applications: Solidworks, AutoCAD, MATLAB, Python, CES, Inventor, CrystalMaker, ImageJ, LaTeX
- Instruments: 3D printing, laser cutting, SEM, XRD, Instron

## Work Experience

- **The Hidary Foundation and Melanoma Research Alliance** *Cancer Genomics Intern* **Summer 2016**
  - Worked with teams from multiple universities and research facilities to collect genomics data on acral melanoma
  - Independently organized and analyzed genomics data from newly funded studies and previously published research to understand the frequency of and relationships between genetic mutations found in acral melanoma patients
- **Carnegie Mellon University** *Undergraduate Research Fellow* **January - August 2015**
  - Built an electrospinning system to fabricate polymer - metal composite nanofiber mats for use in excitable cell culture
  - Characterized mats using SEM to determine fiber dimensions
- **Virginia Polytechnic Institute and State University** *Research Assistant* **Summer 2014**
  - Developed and characterized a novel perfusable tissue engineered tumor platform to study nanoparticle transport in a highly accessible system
  - Determined the effect of mild hyperthermia on nanoparticle transport in the tumor microenvironment
- **Youth Track League** *Director* **Summer 2013, 2014**
  - Designed practices and organized meets for 80 kids aged six to fifteen to teach the basics of track and field and promote healthy exercise habits

## Projects

- **Characterization of Alcoa Titanium Powders for Applications in 3D Printing** *MSE Capstone* **Fall 2016**
  - Analyzed powders through SEM imagingand machine vision to understand the effect of recycling powders
  - Characterized Class C powders for potential use in other industries or processes
- **Novel Device for Oral Delivery of Probiotics** *Molecular and Micro-scale Polymeric Biomaterials* **Spring 2016**
  - Designed and modeled multi-layered device for systematic oral delivery of probiotics
  - Wrote and proposed patents to protect the intellectual property of the design amongst the other groups' projects
- **Microstructure-Sensitive Properties of Wood** *Microstructure and Properties I* **Fall 2015**
  - Designed an experiment to determine conditions corresponding to maximize strength and toughness
  - Performed charpy, tensile, and compression tests on different types of wood with varying moisture content to understand the effect of microstructure on mechanical properties

## Leadership

- **Voting Member on Board of Governors** *Hillel Jewish University Center* **2016**
- **Mentor for Leadership Fellowship** *Hillel Jewish University Center* **2016**
  - Provided advice and guidance to five freshmen through a semester of speakers, activities, and discussions
- **President (2016), VP Membership (2014-2015)** *Carnegie Mellon Jewish Students Association* **2014 - 2016**
  - Re-wrote existing organizational strategy, successfully providing students with meaningful Jewish experiences
  - Streamlined record-keeping of expenses, resulting in a balanced budget

## Honors and Awards

- CMU Greek Awards - Chapter Volunteer of the Year *Alpha Epsilon Pi* **2016**
- Carnegie Mellon Summer Undergraduate Research Fellowship Recipient **Summer 2015**
- Carnegie Institute of Technology Dean's List **Fall 2013, Spring 2015**

## Affiliations

- Member of Carnegie Mellon Varsity Cross Country and Track and Field Program **2013-2014**