

# Emmanuel Cruz

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## RESUME 2019

**Mission:** To serve a lifelong career in growing technology for the mental health and addiction spectrum, addiction caused by any route of reward. Proving it may be prevented with innovative circumvental solutions.

<b>Education:</b>	<b>Cornell Tech – M.E, Computer Science</b> <b>Focus:</b> Startup Oriented, Data Science, Artificial Intelligence <b>Accomplishments:</b> Peggy J. Koenig Cornell Tech Fellowship Worked Alongside Multiple Startups Across NYC	<b>August, 2018-May, 2019</b>
	<b>University of South Florida – B.S Chemistry; Psychology Minor</b> <b>Focus:</b> Drug Development (Synthesis, Testing, Production) Neuroscience & Addiction Therapeutic Effects of Cannabinoids <b>Accomplishments:</b> Placed 3rd In <i>USF</i> Chemistry CASTLE Research Conference Founder and President of Alpha Mu MD/PhD Organization First Recipient of Courageous Bull Award	<b>August, 2014-May, 2018</b>

## Experience: Research

### **Drug Discovery – Dr. James W. Leahy Lab, University of South Florida - Undergraduate**

**Publication:** Organic Letters, Enantioselective Total Synthesis of Cannabinoids- A Practical Route for Analog Development. Shultz, Z; Cruz, E; Leahy, J. ID: ol-2017-03668r

- Achieved Independent Synthesis of THCA<sub>9</sub> Analog
- Presented in 4 Research Conferences, some by Invitation
- Completed Full Synthesis of Multiple Cannabinoids
- Enhanced Enantiomeric Excess through Enzymatic and Organic Agents
- Certified in NMR Spectroscopy
- Certified in LCMS, GCMS and HPLC

### **Neuroscience – Dr. Danielle Gulick Group, University of South Florida – Undergraduate**

- Passed statistical tests to include data in project
- Created and Organized Independent Project
- Constant Western Blotting on Brain Tissue
- Certified In Mouse/Rat injection, euthanasia, tissue removal

### **Physics – Dr. Edwin Rivera Lab, University of South Florida – Undergraduate**

- Repaired corrupt shim maps
- Facilitated NMR Manual Operation and Calibration
- Ran own experiments through live reaction monitoring

## ***Work & Leadership***

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### **Alpha Mu MD/PHD Org. – Bachelor's of Science, Chemistry Minor in Psychology**

- Set foundation of organization
- Grew from 14 to 70+ in one year
- Organized student-presidential STEM debate
- Prepared 40+ home-cooked meals for Cancer Patients

### **Academic Success Center – Bachelor's of Science, Chemistry Minor in Psychology**

- Tutored All Organic and General Chemistry Sections
- Coached approximately 12 students/hour
- Represented ACS to lecture halls

### **Alpha Sigma Phi – Bachelor's of Science, Chemistry Minor in Psychology**

- Facilitated members to volunteer events
- Held University Affairs Position (2016-2017)

### **STEM Academy Mentor – Bachelor's of Science, Chemistry Minor in Psychology**

- Mentored incoming Freshmen into STEM Research fields
- Helped create friend groups and inspire confidence
- Proctored lab experiments of 20+ students

## ***Volunteering***

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### **Moffitt Cancer Center Volunteer, Tampa – USF Campus**

#### ***Radiation Unit***

- Learned the pains of cancer, and how they are treated
- Answered common treatment questions
- Relayed health complaints to technicians
- Provided patients nourishment and comfort items

#### ***Gynecologic Pathology***

- Classified varieties of cancer tissue biopsies
- Introduced to cytology and pathology
- Participated in patient autopsy
- Monitored live-surgery with pathology confirmations

### **K12 Event, NYC – Cornell Tech Campus**

- Oversaw 5<sup>th</sup> graders' Startup Creation Process
- Helped young students build with materials and Scratch

### **Muriel Design , NYC– Cornell Tech Campus**

- Designed mechanics of device
- Sparked children in the community to help

**Awards:****Cornell Tech Awards:***Peggy J. Koenig Fellowship –***U. South Florida Awards:***Irish Bear (Delta Beta Xi) Scholarship -**Florida Scholars Award -**3<sup>rd</sup> Place USF CASTLE Conference -**Best Group- STEM Academy Mentors -**Courageous Bull Award -*

<i>Group</i>	<i>Project</i>	<i>Date Start</i>	<i>Date End</i>	<i>Skills Developed</i>
Leahy	<i>Novel Synthesis of Tetrahydrocannabinol (THCΔ9)</i>	<i>04, 2016</i>	<i>02, 2017</i>	<ul style="list-style-type: none"><li><i>Liquid &amp; Solid Phase Chromatography</i></li><li><i>Mass Spectrometry</i></li><li><i>Nuclear Magnetic Resonance (NMR)</i></li><li><i>Anhydrous Inert Reaction Conditions</i></li></ul>
Leahy	<i>Novel Synthesis of Cannabinoids</i>	<i>02, 2017</i>	<i>09, 2017</i>	<ul style="list-style-type: none"><li><i>Solvent Distillation</i></li><li><i>NMR Certified</i></li><li><i>LCMS Certified</i></li><li><i>Cost of Drug Synthesis</i></li></ul>
Leahy	<i>Novel Synthesis of THCΔ9 Analog</i>	<i>09, 2017</i>	<i>05, 2018</i>	<ul style="list-style-type: none"><li><i>Infrared Spectroscopy</i></li><li><i>Interpretation of NMR Spectra</i></li><li><i>Volatile Reactions</i></li><li><i>Stereoscopic Purification</i></li></ul>
Gulick	<i>Daylight Cycle on Murine CLOCK Protein</i>	<i>07, 2017</i>	<i>10, 2017</i>	<ul style="list-style-type: none"><li><i>Murine Injection</i></li><li><i>Murine Brain Removal</i></li><li><i>Immunostaining</i></li><li><i>Genotyping</i></li><li><i>PCA &amp; Protein Isolation</i></li><li><i>Electrophoresis</i></li></ul>
Gulick	<i>Influence of Novel THCΔ9 Analog on β-Amyloid Plaque Disaggregation</i>	<i>09, 2017</i>	<i>11, 2017</i>	<ul style="list-style-type: none"><li><i>Experiment setup</i></li><li><i>Cost of preclinical trials</i></li><li><i>Cell Culture maintenance</i></li></ul>
Rivera	<i>General NMR Repair</i>	<i>10, 2017</i>	<i>05, 2018</i>	<ul style="list-style-type: none"><li><i>Advanced NMR Certification (2D)</i></li><li><i>Solid-Phase NMR Spectroscopy</i></li><li><i>NMR Calibration, Manual Operation</i></li></ul>
Cai	<i>Peptidomimetics for Alzheimer's β- Amyloid Disaggregation</i>	<i>09, 2015</i>	<i>05, 2016</i>	<ul style="list-style-type: none"><li><i>Liquid &amp; Solid Phase Chromatography</i></li><li><i>Mass Spectrometry</i></li><li><i>Nuclear Magnetic Resonance</i></li><li><i>Anhydrous Inert Reaction Conditions</i></li></ul>