

MICHAEL A. BICK

350 Ferst Drive  
329889 Georgia Tech Station  
Atlanta, GA 30332-1295  
US Citizen

(747)-227-6723  
michael.bick@gatech.edu

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March 4, 2018

Dear Apple hiring manager,

Your *Technology Investigation Product Design Internship* posting found on the Georgia Tech CareerBuzz website interests me. A background on extra-curricular competition teams has given me extensive experience in 3D CAD, design for manufacture, and rapid prototyping, which would allow me to make meaningful contributions on your product design team.

I taught myself to use Dassault Solidworks as a seventh grader on a high school FIRST robotics team that had never used CAD before. Over the next six years, I improved my ability to rapidly ideate and design for ease of manufacture. Working with professional machine shops honed my ability to create unambiguous engineering drawings while the short, six-week build period taught me efficient design. In particular, I became particularly adept in both designing for and manufacturing with our in-house manual mill, manual lathe, and Haas CNC router. By my senior year, each night I would design a prototype to solve a problem or test an idea, begin manufacturing on our CNC router at the next team meeting, and have a functioning concept by the meeting's conclusion. My skills would be invaluable to your team, where I could help create easy-to-manufacture proofs of concept.

My work at Georgia Tech has cemented my desire to use engineering principles to solve challenging problems. After I took Dynamics and Numerical Methods at GT, I wrote robotic path planning and motion control algorithms for autonomous robots. In the past year, I lead a team of six students in designing and manufacturing a three pound battlebot. The team extensively used FEA to optimize the chassis and weapon performance for their weight. I believe I would thrive on your collaborative, multi-disciplinary team where I would be challenged on a daily basis.

Attached you will find my resume; it contains further descriptions of my work on Georgia Tech's FSAE and robotics teams and my high school robotics team. I would be happy to answer further questions by email at [michael.bick@gatech.edu](mailto:michael.bick@gatech.edu).

Sincerely,

Michael Bick

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## EDUCATION

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AUG 2016 - PRESENT    **Mechanical Engineering Major, Robotics Minor** | GPA 3.58/4.0  
**Georgia Institute of Technology**, Atlanta, GA  
Dean's List  
2<sup>nd</sup> Year Junior, Expected Graduation June 2020

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## ACADEMIC PROJECTS

AUG 2016-PRESENT

### GT Motorsports | POWERTRAIN TEAM MEMBER

- Simulating engine dynamics with the eventual goal of increasing efficiency and low-end torque by lowering power-band
- Designing and manufacturing improved camshaft to match optimal lift profile

AUG 2016-PRESENT

### RoboJackets | TEAM MEMBER

- Lead design of a 3lb combat robot including CAD, chassis analysis, and weapon optimization
- Manufactured robotic components using precision machinery including CNC mills, lathes, and waterjets
- Created autonomous path planning and motion profile algorithm using Matlab

AUG 2011-JUN 2016

### MilkenKnights FRC Team | TEAM CAPTAIN

- Managed the 6-week design and construction of a robot, including rapid prototyping, CAD, manufacturing, and control dynamics
- Created top-down Solidworks models of transmissions, gearboxes, and complex linkages
- Implemented position PID, velocity PID, vision tracking, motion profiles, and path following
- Trained students in CAD and operating precision machinery including a mill, lathe, and CNC router

SEPT 2014-JUN 2016

### ASCE Bridge Building Team | TEAM CAPTAIN

- Constructed a three foot, one pound popsicle stick bridge that withstood over 950 pounds of force
- Used FEA and deformable body analysis to validate design

SEPT 2014-JUN 2015

### Conrad Spirit of Innovation | PROGRAMMING/ELECTRICAL LEAD

- Designed for a belt than warned the visually-impaired of threatening obstacles
- Wired and programmed a LIDAR tracking system using an Arduino microcontroller

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## TECHNICAL SKILLS

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**CAD** Solidworks(7 years), Autodesk Inventor(8 years), Top-down Design, Parametric Design, Surface Modeling, 2D Engineering Drawings  
**Manufacturing** Haas CNC, Manual Mill, Manual Lathe, Laser Cutter, Waterjet, 3D Printer  
**Programming** MatLab, Java, Python, HTML, CSS, SASS, Android, L<sup>A</sup>T<sub>E</sub>X  
**Microcontrollers** Arduino, NI myRio/roboRio(LabView)  
**Software** Vim, Adobe Illustrator, Word, Excel

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## AWARDS & HONORS

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NOV 2017	7 <sup>th</sup> /60	Georgia Tech ME2110 Design Competition
APR 2016	2 <sup>nd</sup> /42	FIRST Robotics Orange County Regional
MAR 2015	3 <sup>rd</sup> /41	FIRST Robotics Ventura Regional
MAR 2015	3 <sup>rd</sup> /53	FIRST Robotics Utah Regional
OCT 2014	International	Conrad Spirit of Innovation Semi-Finalist
MAR 2013	1 <sup>st</sup> /65	FIRST Robotics Los Angeles Regional