

Alana Homa

(770)-510-8246 ▪ ahoma3@gatech.edu ▪ amhoma@gmail.com

2307 Flintlock Drive Stone Mountain, GA 30087

Education

PhD in Mechanical Engineering	2020–Present
Georgia Institute of Technology	
Master of Science in Mechanical Engineering	2019–2020
Georgia Institute of Technology	
GPA: 4.0/4.0	
Bachelor of Science in Mechanical Engineering	2015–2019
Georgia Institute of Technology	
Minor in Energy Systems ▪ GPA: 4.0/4.0	

Work Experience

Graduate Research Assistant	May 2019 – December 2020
GTRI – Aerospace, Transportation & Advanced Systems Laboratory	
Advisor: Dr. Comas Haynes	
<ul style="list-style-type: none">Improved accuracy and accelerated computation of a real-time 1D solid oxide fuel cell (SOFC) model through implementation of adaptive discretization techniques in MATLAB and SimulinkAssessed impact of improved SOFC model performance on the cyber-physical investigation of SOFC-gas turbine hybrid power systems at the National Energy Technology Laboratory Hybrid Performance (HyPer) facility	
Undergraduate Laboratory Intern	June 2018 – August 2018
National Renewable Energy Laboratory	
Supervisor: Dr. Joshua McTigue	
<ul style="list-style-type: none">Modeled varying CSP-geothermal integration methods utilizing EES and SAM and analyzed on energetic, exergetic, and Levelized Cost of Electricity basesCompared results of models to trends of reported efficiencies and costs in literature to assess viability of solar-geothermal hybrid technology	
Undergraduate Research Assistant	January 2017 – December 2018
Georgia Tech WATER Lab	
Supervisor: Dr. Marta Hatzell	
<ul style="list-style-type: none">Ran capacitive deionization (CDI) tests and performed proof-of-concept testing on a TiO₂ photoelectrode for CDIProvided support in creating and testing MATLAB code for thermodynamic analogues of batch and continuous mode CDI	

Select Academic Project Experience

2D Numerical Model of Integrated Chip Circuit Cooling
Course: ME 8833 Computational Heat Transfer (2019)
Solar Photothermal Nanoparticle Distillation
Courses: CHEM 3700 Alternative Energy (2017) & GT 4813 Project in Energy Systems (2019)
Ground Source Heat Pump System Design
Course: ME 4315 Energy Systems Analysis and Design (2018)

Skills

- Software: MATLAB, Engineering Equation Solver, System Advisor Model, AutoCAD, SolidWorks, ANSYS

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- Microsoft Excel, Word, PowerPoint, Visio; LaTeX

Awards and Honors

Richard K. Whitehead Jr. Memorial Award	2019
Georgia Tech President's Fellowship	2019

Activities and Leadership

Georgia Tech Solar Racing September 2015 - May 2018

Race Operations Team Lead

Mechanical Team Member

- Managed purchasing of components for 50 member organization with 10 distinct subteams
- Organized logistics, paperwork, and transport for 15 person race team