

# Congratulations

# Class of 2015

**ASU** IRA A. FULTON SCHOOLS OF  
**engineering**  
ARIZONA STATE UNIVERSITY

*I would like to thank my wife, Xinxin Zhao, my advisor Guoliang Xue, my family, my friends, and all CIDSE faculties for all wonderful memories with me*

**Lingjun Li (Chinese)**



*Thank you to my wife, for seeing me through the last 6 years, and my family for all their love and support.*

**Joseph Francis Miceli, the 3rd**



*Thank you Family & Friends for  
attending this joyous occassion.  
I love you All.*

**Amin Abbaszadegan**



***Thanks to God, my family and friends for all your help and support. You are all a blessing to me.***

**Andrew Yaw Adjei**



***Mom and Dad, I Love You and  
thanks for all your continuos  
love and support!***

**Mahdi Javid Ahmadabadi**



*I Dedicate this successful journey to Mom who's my biggest source of support. Wish you were here to celebrate live but we'll throw the big party soon!*

**Fawaz Khaled S Alageel**



*Whoever has taught me one letter, I'll own him one forever. Thanks for all the support.*

**Abdulla Yaslem Albraiki**





*Thank you for your support.*

**ESSA ABDULLA ALTHANI ALFALASI**



*Thank you to my wife Lina- I wouldn't have done this without you.*

*Thank you to my mom, Abatah, Osama, Anwar and Ayub.*

*I love you all.*

**Kaled Mohammad Alhanafi**



*A big thank you to mom and dad  
for supporting me through  
everything*

**Mohammed Abdulla Al-Jaber**



***Thanks to my parents, this  
wouldn't be possible without your  
unconditional support and money!!***

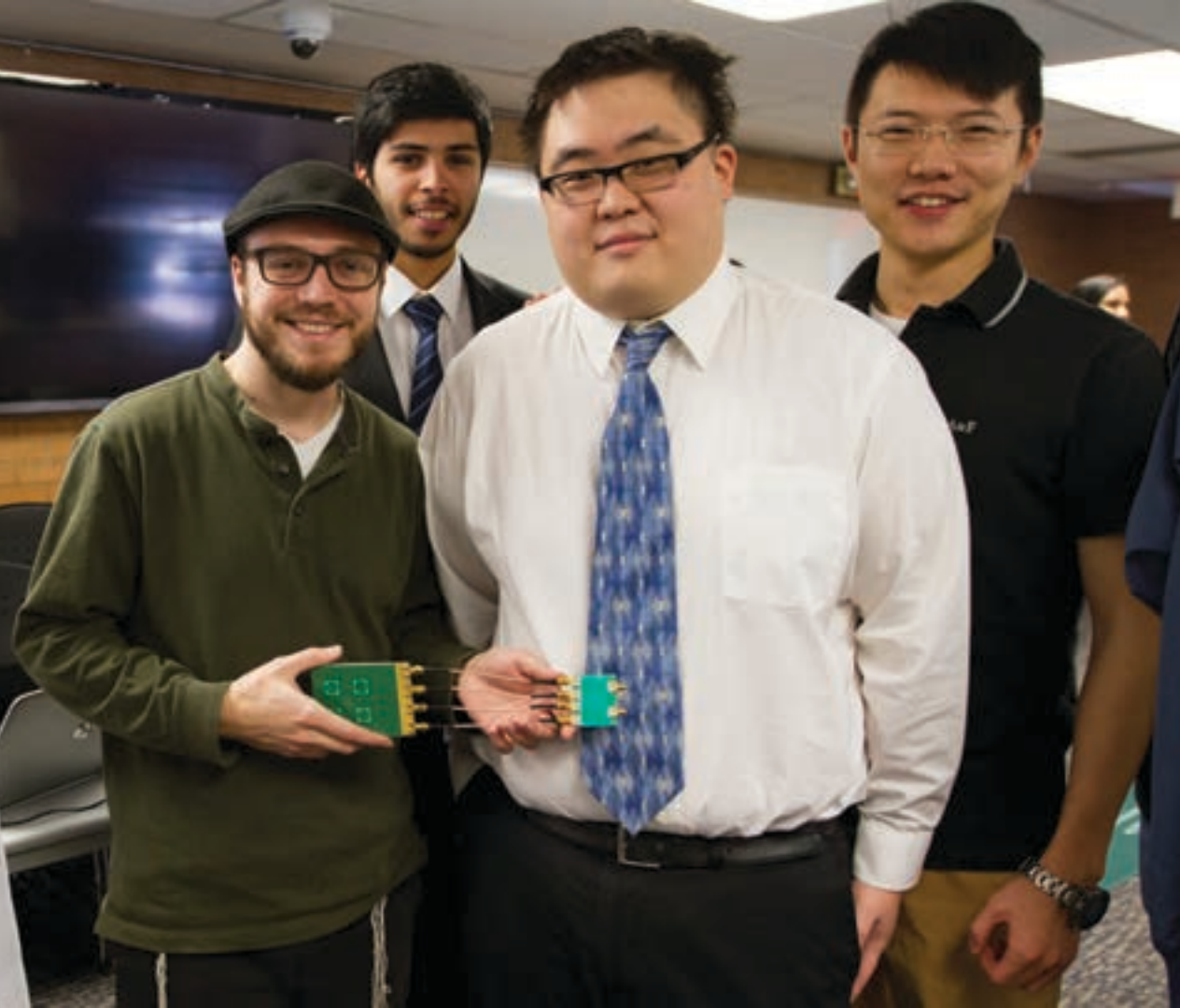
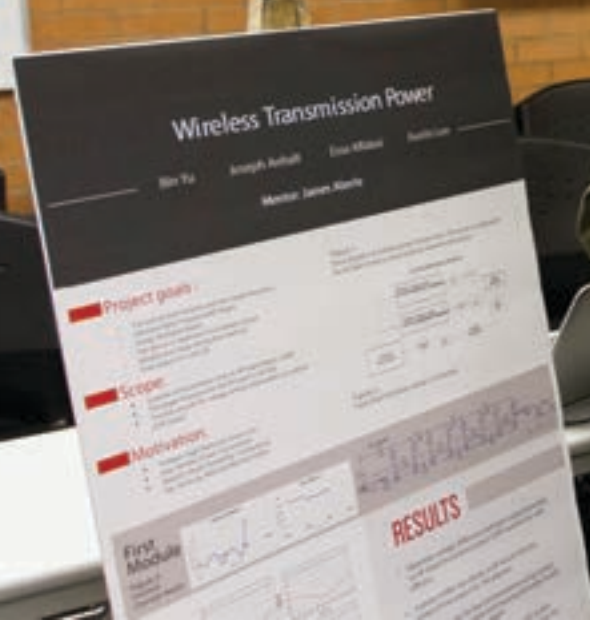
**Khalifa Mohammed Al-Kaabi**



***WE did it!! Thank you parents,  
Matt, and Matthew! I love you!***

**Jessica Faye Allison**





*I want to thank my wife Adeem for her support. You came here to be with me through my hardest times. I want to thank my family also for their prayers.*

**Fahad Mohammed A Almofawez**



***Thanks to the best School ever!***

**Abdulla Khaled A A Al-Saad**





***"Good is the Enemy of Great" - Jim  
Collins***

***We are good, now let's become  
GREAT!***

**Mohammad Talal Y Y H Y Alyousifi**



*Thanks for all of your love and support. I couldn't have made it without you.*

**Nathan Anders**



*I finally did it! It took a village and I would like to thank that village! Without ALL of your support, I would have been a COM major.  
Love, Courtney*

**Courtney Morgan Anderson**



***Love You Amma and Daadan***

**Babji Appanna Dora Appasani**



*I'd like to thank my parents and my husband for supporting all of my major life decisions and making this day possible. I love you three so much!*

**Ashlie Marie Armonbro**



***Thank you for all the support!  
Love you!***

**Milijana Arsenijevic**



*Thank you Au Kwok Kwan and  
Yan Wai Fun!!! @@!*

**Ting Au**



*My beloved friends and family.  
Thank you all who have  
supported me through my college  
career! I love you all very much.*

**Brandon Charles Aubrey**





*A special thanks to my lovely wife Tara and my awesome kiddos for being patient with me, and my dad, Burt, for always believing in me. Love you all!*

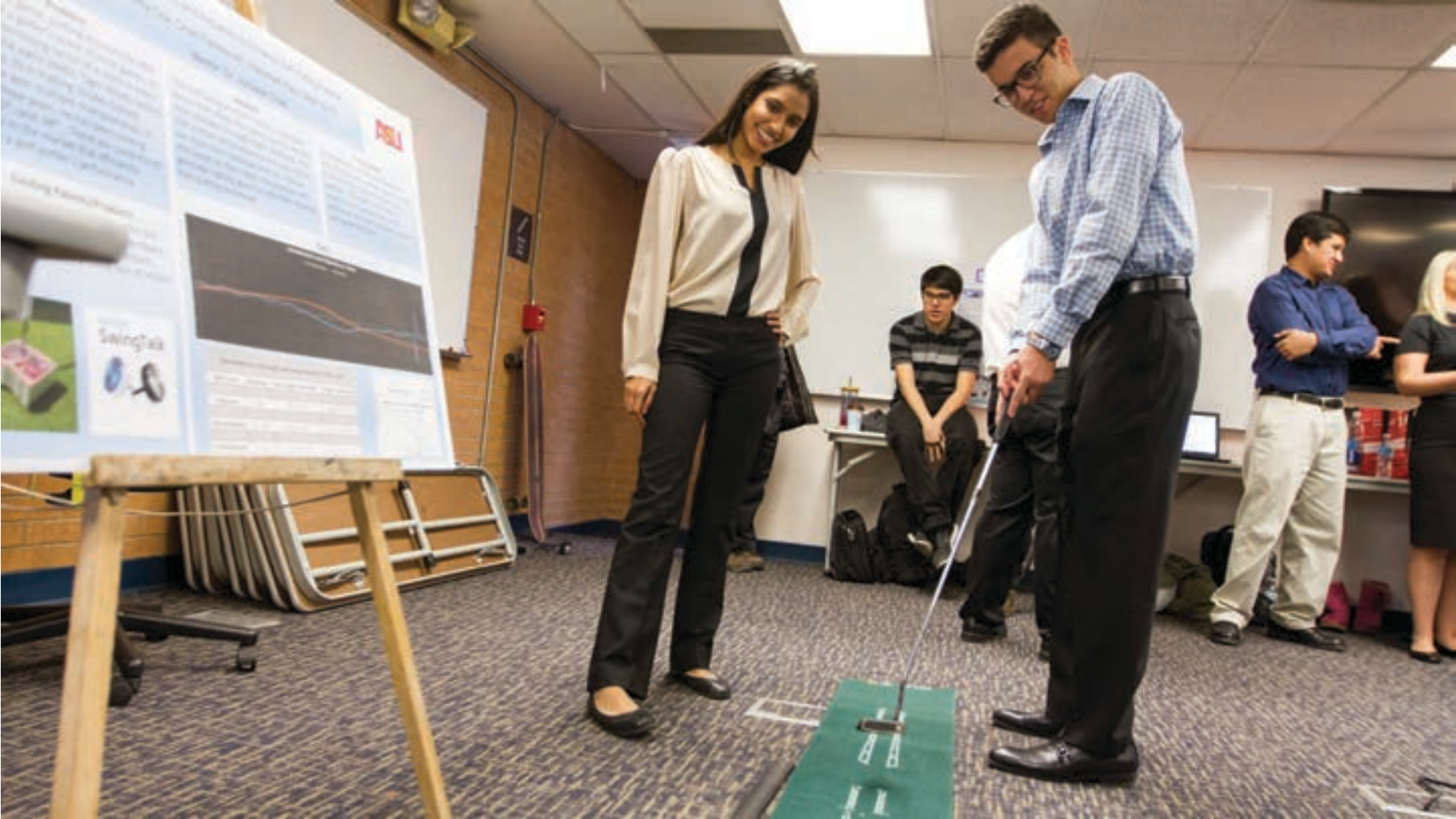
**Michael Anthony Bail**



*Thank you Mom and Dad for the sacrifices you have made to make me achieve my goals. I am truly grateful for everything you have done.*

**Tyler Reed Bailey**





***" Behind every successful man,  
there is a strong, wise and  
hardworking woman "- i Thank  
My wife.....***

**Manukumar Balaraman**



*To my Mom, Dad, and Nhung, thank you for your continued support and belief in me through the long years of school. I did it! Love you guys very much!*

**Khai Banh**



*Thank you for always encouraging me to be the best I can be! I wouldn't have been able to do it without your love and support! - Basnight's & Hanson's*

**Jenna Lee Basnight**



*To Joel, Adele, and Graham- Daddy is finally done with school! Thank you for all the times you tried to let me study in peace. Also, I love you Erin.*

**Jared Peter Bentley**



*I have conquer Electrical Engineering Undergrad, now I will conquer the world and make it a better place!*

**Elizabeth Anne Besenyei**





*Mom & Dad, thank you for  
instilling in me the belief that I  
could do anything I put my mind  
to. - Kenil B.*

**Kenil Paresh Bhatt**



*Worth the sacrifice of seeking higher education without leaving home (iCourse)! Thank you family, friends and love ones, especially Stacey!*

**Karmen Billey**



*Lorelei, all of this was for you  
sweet pea, Daddy loves you.*

**Michael Lee Boales**



*I can't thank my parents enough for the upbringing I received. I can not imagine a happier childhood. My biggest motivation is to make them proud.*

**Wasif Bokhari**



*Thank you to my friends & family for supporting me in this journey. You are nothing short of amazing. I'm the luckiest human in this room. #fact*

**Natalie Ryan Boos**



***Brittany, Frank and Beans.***

**Kyle James Brady**

“”

*Thank you to my wife, Megan, my family, Mom, Dad, Cathy, Greg, Brian, Jennifer, Josh, Lindsey and Daniel, and all my friends!*

**Matthew Calcote**



***Thank you guys for all of your support and encouragement! - Jake***  
***"As iron sharpens iron, so one man sharpens another." Proverbs 27:17***

**Jacob Harrison Carlisle**





# Silk-Gold Nanocomposites for Laser Tissue Welding in Ruptured Intestines

Mitzi Thelakkader<sup>1</sup>, Russell Urie<sup>2</sup>, Chengchen Guo<sup>3</sup>, Jeffrey Yarger<sup>1</sup>, Kaushal Repa<sup>1,2</sup>

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<sup>2</sup>School for Engineering of Matter, Transport and Energy, ASU, Tempe AZ

<sup>3</sup>School of Molecular Sciences, ASU, Tempe AZ

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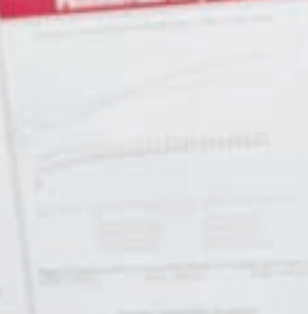
Abstract

Characterization

Photoacoustic Response

Dark-Field

Preparation & Methods



*Thank you Uncle Tom, Mom, Patrick and family! I could not have made it through this journey without all of your support along the way! Go Devils!*

**Christopher Thomas Carlson**



*Thank you to my family and friends!  
I would not be graduating today  
without your help, advice, support,  
and humor! You're the best.*

**Zachary Emmanuel Carpenter**



*Thanks to my wife Nadine, my mom Dalys (Gracias Mamá) and Larry and Carole-Lee Winhold for all the support and encouragement during the past few years*

**Pablo Ruben Medina Castillo**



*I would like to thank my parents  
for their love and support,  
without which this would not be  
possible.*

**Alex Brian Chalcraft**



***Thanks for your support Mom & Dad!***

**Kuldeep Chandrashekar**



*Thanks to my parents and my  
best friend Feng Tian*

**Zheng Chang**



*I wouldn't be here without each and every person who made a positive impact on my life, both directly and indirectly, however little. Thank you!*

**Rafeed Ahmed Chaudhury**





*I arrived a a fool, I left an angry,  
albeit more successful, fool.*

**Jan Christian Chavez-Kortlang**



*Thanks mom and dad for always believing in me and for teaching me to work diligently for the things that I aspire to achieve.*

**Haobo Chen**



*Thank you my cheerleaders - Mom ,  
Dad and Leo , for helping me get  
through every single day and pushing  
me towards my dream degree !*

**Sameeksha Celine Cherla**



***Thank you Akka and Bava.  
Love you  
Trimmy***

**Sukruthi Cherukuri**



*Thank you to my entire family for supporting me, especially my wife Abbey. So proud to be a Sun Devil graduate!*

*-Corey Churchill*

**Corey Edward Churchill**



*Thank you, NP Mechanical, Manny Renteria, Marisela Melendez and a special thanks to my wife Diana Cid for her support, and motivating me to be my best*

**Leonardo D. Cid**



***I couldn't have done it without  
the support of my family!***

**Jade Marie Clark**



*Thanks once more to my parents,  
wife, daughter and professors for  
making this possible. Now if I  
could only figure out this hood...*

**Philip Lyle Clark**





*Thank you to my Mom, Dad I couldn't have done it without you. And thank you to the rest of my family for the support throughout the years.*

**Joshua Conter**





**PISA Engineering**  
Jeffrey Carter

**EcoDrive**

### An LSTM-Based Control Strategy for Fuel Cell-Based Electric Vehicles

Jeffrey Carter, Engineering Department  
Member of the Electrical and Electronic Engineering Institute

**Abstract**

Fuel cell-based electric vehicles (FCV) are a promising alternative to internal combustion engine vehicles (ICEV) due to their zero-emission and high efficiency. However, the high cost of fuel cells and the limited power density of the fuel cell stack are the main challenges for FCV. This paper presents an LSTM-based control strategy for FCV to optimize the fuel cell power output and reduce the fuel cell degradation. The proposed control strategy is compared with a conventional control strategy based on a fuzzy logic controller (FLC). The results show that the LSTM-based control strategy can significantly reduce the fuel cell degradation and improve the fuel cell efficiency. The proposed control strategy is implemented on a real-time simulation platform and the results are compared with the FLC-based control strategy. The results show that the LSTM-based control strategy can significantly reduce the fuel cell degradation and improve the fuel cell efficiency.

Parameter	Value
FCV Power (kW)	100
FCV Efficiency (%)	45
FCV Fuel Consumption (L/h)	10
FCV Fuel Cell Degradation (h)	1000

**References**

- [1] J. Carter, "An LSTM-Based Control Strategy for Fuel Cell-Based Electric Vehicles," *IEEE Transactions on Vehicular Technology*, vol. 68, no. 1, pp. 1-10, 2019.
- [2] J. Carter, "An LSTM-Based Control Strategy for Fuel Cell-Based Electric Vehicles," *IEEE Transactions on Vehicular Technology*, vol. 68, no. 1, pp. 1-10, 2019.

*I want to thank my family for all of their love and support. I wouldn't have been able to complete my degree without them.*

**Austin Scott Cooley**



***Finally made it! I Love you  
Malaysia and Felix, thank you for  
your support. :-)***

**Juan Felix De La Cruz**



*Thank you to all my family,  
friends and SOLO brothers for  
the support you've given me over  
the years.*

**Chauncy Curtis**



*To my friends and family: thank you for sharing in this special day! I am forever grateful for your support and encouragement. With love, Dr. C.L.A.D.*

**Claire Louise Antaya Dancz**



***Thanks Mom and Dad, for  
everything! I love you!  
-Jillian***

**Jillian Grace Dauscher**



*To my sweet wife Amber, our three awesome kids Andrew, Brad, and Abby, and the rest of our family - WE MADE IT! Thank you all so much! I love you!*

**David L. Despain**





*Thank you to my mom, Ruth, my brothers David, Mark, and Brian, and to my dad, James, who watches over us. Love you all!!*

**Jana Elise Devries**





**Share your victory**

**#ASUgrad**

**#FultonGrad**

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**engineering**  
ARIZONA STATE UNIVERSITY

***Thank you  
Mom and Dad for supporting my  
education these past 20 years and  
Roxanne for your love and support as  
my wife. I love you and my boys!***

**Deven Jared Dietrich**



*I would like to thank my wife for her support and patience throughout my college attendance! Without her encouragement I could not have done it!*

**Aaron William Dietz**



*Thank you to my family, both related and chosen by my heart. Thanks to my adviser Dr. Rolf Halden, who always put his students first.*

**Hansa Yi-Yun Done**



*Thanks my family and friends'  
support.*

**Hu Duan**



***Thanks to my family for  
supporting me through this  
journey and my beautiful  
girlfriend for being my inspiration!***

**Javier Alonso Duarte**



*To my beautiful wife, Alison,*

*Thank you for supporting me and making this possible, this is your moment as much as it is mine.*

*I love you - Jake*

**Jacob Emerson Dull**







SLIDE 11

## The Effect of Melt Mixture and Print Orientation on the Fracture Toughness of 3D Printed Materials

Chad Pythia, Mechanical Engineer  
 Member-At-Large, Assistant Professor  
 School of Engineering of Lubrication, Transport and Energy

**Research Question:** How do print mix and orientation affect the fracture mode and fracture toughness of 3D printed materials? How does the orientation of the print affect the crack propagation of the print?

**Abstract (Title & Introduction)**

**Introduction**


**Methodology**

**Results**

**Closing Remarks on Future Work**

**Calculating the Fracture Toughness**

In order to find the fracture toughness we must first find the speed of the crack and the angle in which it spreads to the center.



The velocity,  $V_c$ , is used in Irwin Relation (Gregoire, Maigne 2007) to solve for  $K_{Ic}$  and  $K_{IIc}$

$$v = \frac{2(1-\nu^2)}{E} [J_1(\alpha)K_{Ic}^{2m}K_{IIc}^{2n} + J_2(\alpha)K_{IIc}^{2m}K_{Ic}^{2n}]$$

Next, the Preferential direction (angle) of the crack follows the function,

$$\theta = \arctan\left(\frac{K_{IIc}}{K_{Ic}} - \sin(K_{Ic})\sqrt{B + \left(\frac{K_{IIc}}{K_{Ic}}\right)^2}\right)$$

And the critical value of  $K$  is described as,

$$K_{Ic,crit} = \cos^2\left(\frac{\theta}{2}\right) < K_c > \frac{-3}{2} \cos\left(\frac{\theta}{2}\right) \sin(\theta) K_{IIc}$$

Solving each function for every time step, one can find the value of  $K$  that corresponds to the Preferential Direction. This value of  $K$  is the Fracture Toughness and will be the main focus in future work.

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*I would like to thanks the two most important people that have made my stay at ASU possible, my mom and dad.*

**Mason Olaf Ellwood**



***Thanks to my family. I wouldn't  
have made it this far without you  
all. I finally did it!***

**Cherith Rose Etsitty**



*Thank you so much to my family letting me figure out what I was supposed to do. For being supportive and loving through it all. Love you guys!*

**Steven Brett Evans**



*Thanks to my Family and friends who have supported me, To my Mom, who without, none of this would be possible, wish you were here, for you! Love you!*

**Mark E. Falco**

“”

*Thank my instructor, family and  
friends for supporting me in ASU*

**Yang Feng**



***Thank You Tina, Keith, Patrick, Brian  
and Julianne Foster and a special  
thanks to my amazing girlfriend and  
her family for all their continual  
support***

**Stephen Andrew Foster**



*A huge thank you to my family who has supported and encouraged me the whole way. I know it's been a long process, but you got me through it. Love you!*

**Janette Dawn Fuentes**





*I would like to than my family for all of their support, specially my wife Karla.*

**Jesus Javier Gallegos**



*Thank you for all the help and support you provided; without it, this journey would have been nearly impossible.*

**OMAR GALLEGOS**



***Gracias Mamá y Papá por hacer lo imposible  
para darme el privilegio de ir a la universidad!  
Gracias a dios si se pudo!***

***GOD IS GOOD ALL THE TIME!***

**Jose Martin Ortiz Galvan**



*Thank you*

*Mom,Dad,Rushang,Priyansh*

*Vandana,Vinod, Vanisha,Rahul,Hemant,Kumar,Dami,Kusum,Kaka  
and Kaku. :)*

*Live for your dreams, life is beautiful !!*

**Shrijal Gandhi**



*Thanks for the opportunity for  
being a part of your Masters  
program.*

**Yash Garg**



*Graduation reminds me of everyone who has touched my life.*

*The gift of your presence and acknowledgement is truly valued and appreciated.*

*Thank you!!!*

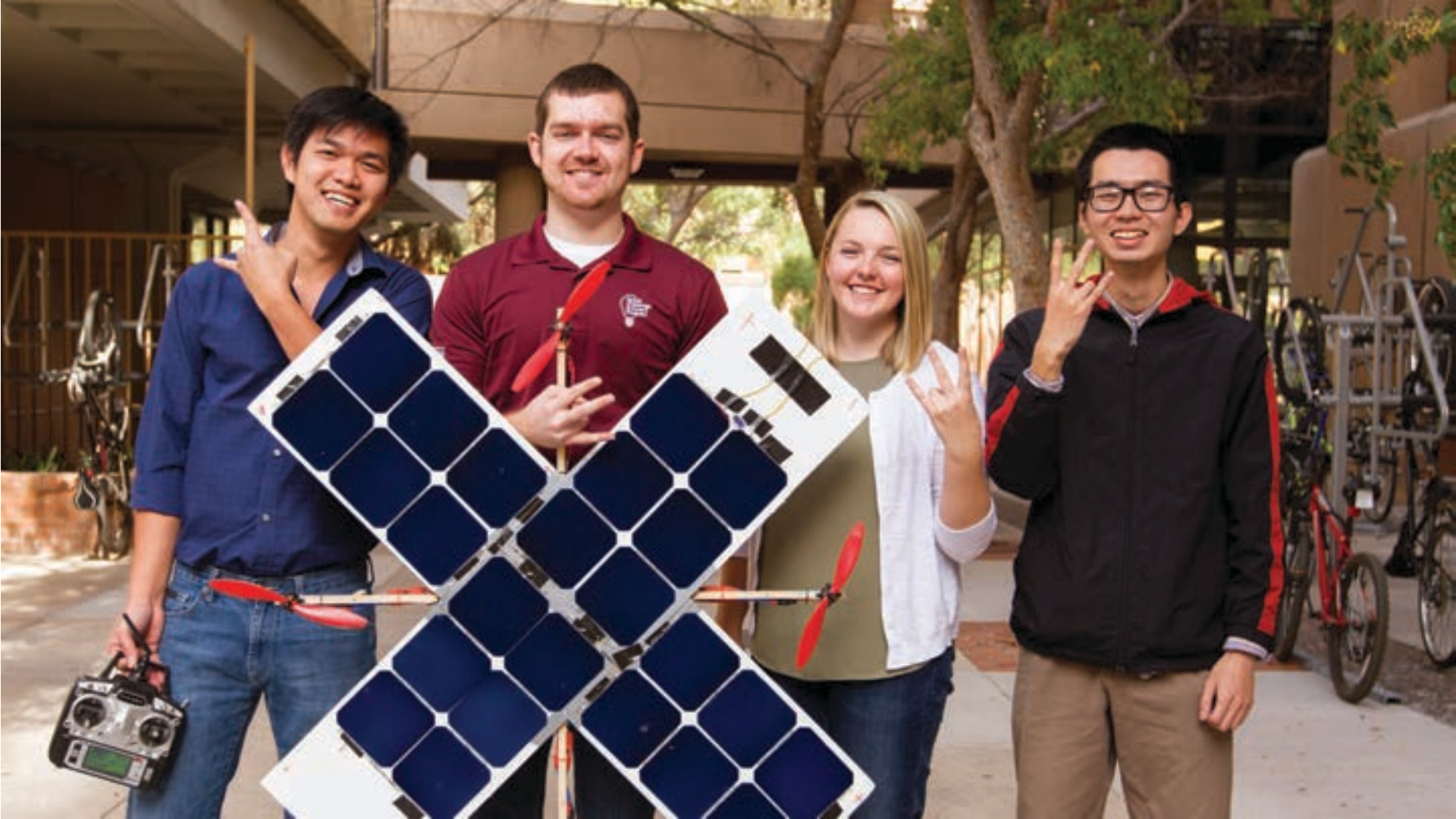
**Sravan Kumar Garipalli**



*I couldn't have done it without the overwhelming support from each of my friends and family. Here's to the next chapter of adventures to come!*

**Brandon William Garrett**







*Thank you to my family for  
supporting me in every way, I  
love you all!*

**Jaime Garza**



*I would like to thank ASU for providing me the opportunity to receive education.*

**Sudrishti Gautam**



***Thank you Chase, Christine,  
Mom and Dad! It took a few tries  
but I am finally here. I could not  
have done it without you.***

**Suzanne Irene Germano**



*Thank you for all of the love and support you have given me! I made it!*

**Alex Gharakanian**



*I want to thank my family for being here to support and cheer me on. Mom and dad, you're the only reason I am here today. I cannot thank you enough!*

**Jantzen Gingras**



*Well I've had enough. Thanks Mom,  
Sandy, Liz, Nhu, and Friendos. I  
should've given up a long time ago,  
glad you wouldn't let me. I am the  
Ultimate*

**Leonard Jesus Joseph Safko Gomez**



*Thanks to my parents for supporting me all these years. Thank you my friends for accompanying me when I'm happy and sad.*

**Bowen Gong**



***Muchas gracias a toda mi familia. Los quiero muchos. Gracias por estar a mi lado en este gran momento de mi vida. ¡¡VIVA AMECA, JALISCO!!***

***~Jessica G.***

**Jessica Gonzalez**





***Thanks for BOlieving in me!***

**Cody Troy Goodman**



***Vanessa Gowin, I am finally done!!!! Thank you for your support. I love you!***

**Ryan Douglas Lee Gowin**



**Don't forget to write**  
**fullcircle.asu.edu**  
**news for alumni and**  
**friends**

*Thank you to everyone who has helped me along this journey! You guys have been the greatest support system! This is for you mom and dad!*

**Lauren Griffith**



*Thanks Sarah & Lucy! You've supported me and motivated me through it all. Thanks mom & dad & in-laws. You're the best!*

**Cody John Griner**



*Thank my beloved parents and grandparents for nurturing and their selfless support.*

**Yan Guan**



***Thanks to my Mom and Dad for  
making me what i am today.***

**Anilkumar Gullapudinagavenkataayyappa**



*The Oscar for best parents goes to -  
Raja Gopal and Satyavathi Gundeti  
And for the best Brother - Venu  
Madhav  
You are my Univers-all :D*

**Navya Gundeti**





***Thank you to all my friend and  
family for your unconditional  
support!***

**Yuanming Guo**



*Thank you to my girlfriend, family,  
and friends for their support,  
understanding, and encouragement  
during the time I spent in the graduate  
program!*

**Erik Steven Gurley**



***Thank you mom and baba for all  
your support!***

**Nalani Renee Haddad**



*I'd like to thank my Mom, Dad,  
Brother, Uncle Morgan and Aunt  
Sandy and family, and God! You all  
helped me get through this! Thanks  
so much!*

**Evan David Hammac**



*Mitra, it is because of you that I could complete this work, thanks for your support and encouragement.*

**Mahdi Hamzeh**



*Thanks to my husband and sons for their love and support during this journey. I dedicate this achievement to my mom for being my best teacher!*

**Adriana Handszer**



*A huge thank you to Mom and Dad for all of your support through my college years I couldn't have done it without you!*

**Zachary Markar Handy**

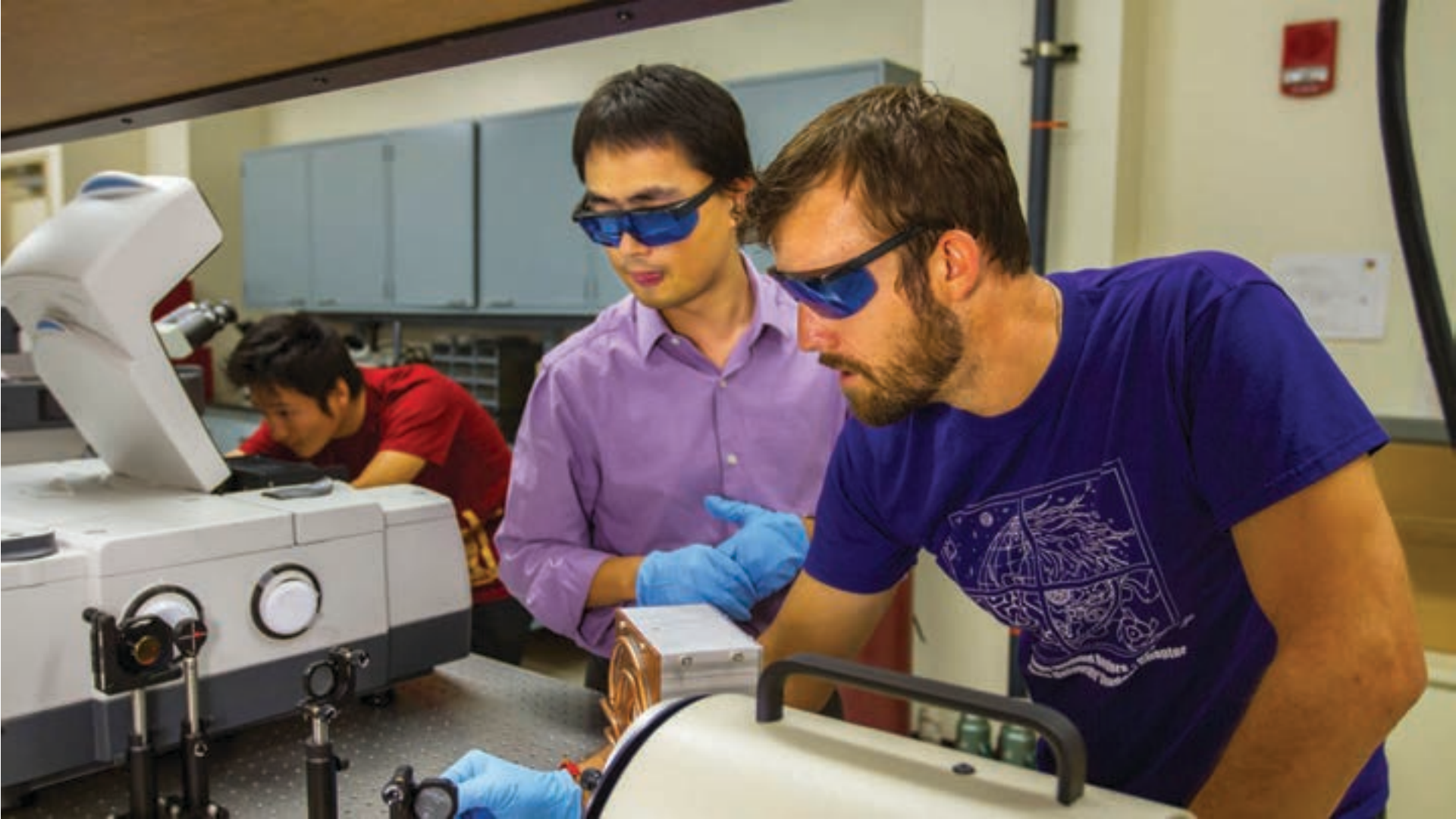


*Thank you to my professor's for  
all the guidance and thank you to  
my family for all of the love and  
support.*

**Joseph Sean Hanson**







*Thank you, Mom & Dad, for not only supporting me, but also guiding me through college and pushing me to be my best (even from far away). I love you!!!*

**Jennifer Michelle Hinojos**



*It has been wonderful 2 years.*

**Bhavin Hirapara**



*Thank you to all my family for always supporting me 100%! I would not be successful without all of your support! I DID IT! Go devils!!!! Love you All!*

**Nicole Marie Horn**



***Thanks to friends, family, and the ASU community that supported me. Love ya little Logan!***

**Troy Alan Hottle**



***Great two years in ASU! What we think, we become. Thank you, my family.***

**Xiao Huang**



*Thank you so much to my wonderful family and closest friends. Your amazing love and support is what got me through. I love you all more than anything.*

**Natasha Brie Hunt**



*I am very grateful to my family and friends who supported me on this journey. A big hug to all in Indiana and those here in AZ. I made it!*

*Thank you*

**Douglas Heaton II**





*To my family: Nate, Robert and  
Vincenza Heisler, Gianluca Interrante,  
his amazing wife Mariella, and my  
beautiful nephew Vincenzo. Vi Voglio  
Tanto Bene*

**Federica Interrante**



*One kids done, one more to go.  
Special thanks to my mom and  
dad. WE DID IT!!! Good luck with  
nursing school Sara :)*

**Nicolas Robert Jacobs**



*Mom and Dad,  
Thank you for all the love and support  
you have given me. I couldn't have  
done this without you!  
Love, Ross*

**Ross Allen Jacquez**



***Thank you all***

**Kotresha Miralagatti Mathada Jagatagere**



*Thank you to my family for all they have done to support me, and to my friends for helping me survive my project classes!!*

**Samantha Ariel Janko**





### Adaptive Control of Central Cooling Systems

Department of Civil Engineering  
North Carolina State University

#### Research Objectives

Develop an adaptive control system for central cooling systems that can learn the system dynamics and adjust the control strategy in real-time to optimize energy consumption.

#### System Data Analysis

The system data was analyzed to determine the system dynamics and to identify the key parameters that affect the system performance.

Figure 1 shows the system data analysis results. The data shows that the system is highly nonlinear and that the control strategy must be adaptive to handle the system dynamics.

Methodology: The adaptive control system was developed using a combination of machine learning and control theory.

#### Data Analysis

The system data was analyzed to determine the system dynamics and to identify the key parameters that affect the system performance.

- 1. System dynamics were identified using a combination of machine learning and control theory.
- 2. The key parameters that affect the system performance were identified.

Figure 2 shows the system data analysis results. The data shows that the system is highly nonlinear and that the control strategy must be adaptive to handle the system dynamics.

Figure 3 shows the system data analysis results. The data shows that the system is highly nonlinear and that the control strategy must be adaptive to handle the system dynamics.

Figure 4 shows the system data analysis results. The data shows that the system is highly nonlinear and that the control strategy must be adaptive to handle the system dynamics.

Figure 5 shows the system data analysis results. The data shows that the system is highly nonlinear and that the control strategy must be adaptive to handle the system dynamics.

Figure 6 shows the system data analysis results. The data shows that the system is highly nonlinear and that the control strategy must be adaptive to handle the system dynamics.

Figure 7 shows the system data analysis results. The data shows that the system is highly nonlinear and that the control strategy must be adaptive to handle the system dynamics.

Figure 8 shows the system data analysis results. The data shows that the system is highly nonlinear and that the control strategy must be adaptive to handle the system dynamics.

Figure 9 shows the system data analysis results. The data shows that the system is highly nonlinear and that the control strategy must be adaptive to handle the system dynamics.

Figure 10 shows the system data analysis results. The data shows that the system is highly nonlinear and that the control strategy must be adaptive to handle the system dynamics.

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#### Methodology

The methodology used in this research was a combination of machine learning and control theory.

The data was analyzed to determine the system dynamics and to identify the key parameters that affect the system performance.

The key parameters that affect the system performance were identified.

The adaptive control system was developed using a combination of machine learning and control theory.

The system data was analyzed to determine the system dynamics and to identify the key parameters that affect the system performance.

The key parameters that affect the system performance were identified.

The adaptive control system was developed using a combination of machine learning and control theory.

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The adaptive control system was developed using a combination of machine learning and control theory.

The system data was analyzed to determine the system dynamics and to identify the key parameters that affect the system performance.

The key parameters that affect the system performance were identified.

*Ana, thank you so much for all your  
patience and support! Beverly and  
Frank, you're the best grandparents  
anyone could ever hope for! Thank  
you!*

**Benjamin A. St John**



***Big thanks to:***

***1. Mom & Dad for their support, & for helping me pay for this!***

***2. Nikita, for inspiring me!***

***3. My friends!***

***4. HDA-SMC & Mack Trucks!***

**Siddharth Joshi**





*I would like to thank my entire family for believing in me and for being there through this amazing journey. Gracias Mamá Lolita!*

**Fernando René Serrano Montes Jr.**



*Thanks to my wonderful family for your support and encouragement through this process. Love you guys!*

*Kenny*

**Kenneth L. Thompson Jr**



***Study Hard, Celebrate Harder!***  
***Forks up!***

**Manoj Kalluri**



***Thank you so much for your  
support and love***

**Sowmya Krishna Kandula**



***Thank you to my friends and  
family for supporting me!***

**Eric Matthew Kaplan**





**Graduation photos**  
**flickr.com/photos/  
fultonengineering**

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**engineering**  
ARIZONA STATE UNIVERSITY

*Thank you to Mom, Dad, Sis and Shrijal for giving me inspiration. Thank you to Dr. Colbourn for guiding me and being my mentor.*

**Rushang Vinod Karia**



***This day would've still been a dream without my parents support. Thanks Mom & Dad***

**Sagar Karri**





***HELLO DRISHTI KAUL !!!***

**Rachana Kaul**



*Thank you Amma, Bobo, Kanna  
and Sushil for being there and  
for helping me get here! Love  
you guys!*

**Madhuri Nagaraj Kaushik**



*Thank you so much Mom, Dad, Divya,  
and Tai for all the sacrifices you guys  
have made for me to be successful  
today. This one's for you guys!*

**Abhay Khaire**



*My time at ASU was one of the best experiences of my life. ASU offered me a chance to fulfil my and my parent's dreams.*

**Puneet Nandkumar Khatavkar**





# ing System

Anthony Wilson

Energy Engineering

## Results

Using the electric field sensor, I was able to determine that the output electric field was directly proportional to the input electric field. The appropriate scaling factor, the data indicates, is for the electric field at a 1.7 ratio.

Input Electric Field (V/m)	Output Electric Field (V/m)
1.0	1.7
2.0	3.4
3.0	5.1
4.0	6.8
5.0	8.5
6.0	10.2
7.0	11.9
8.0	13.6
9.0	15.3
10.0	17.0

*Thank you to my family for all the support over the years! Finally made it!*

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**Joon Young Lee**



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May Lee



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**Don't forget to write**  
**fullcircle.asu.edu**  
**news for alumni and**  
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Engineering  
Construction  
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Registration



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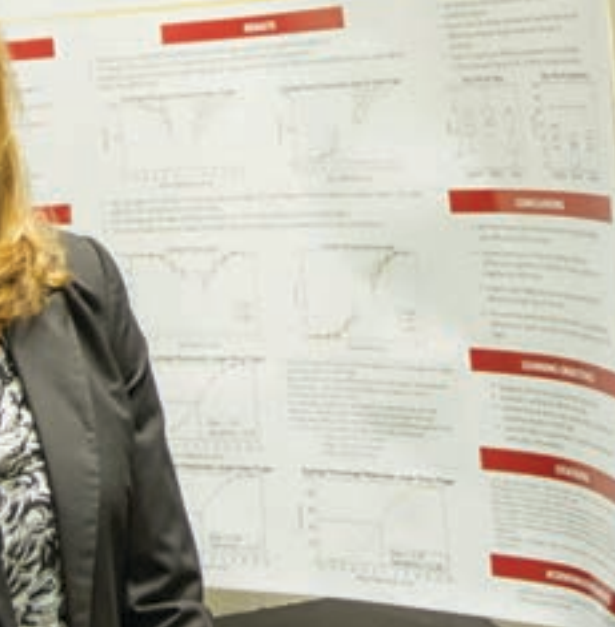
**Riha Paresh Shah**





# Effect of Digits on Size Discrimination Accuracy

Christina Perone, Cynthia Dworkin, Christopher Wang



ASU

*Thanks for coming Mom, Jesse,  
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**Hadya Shawky**



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**Share your victory**

**#ASUgrad**

**#FultonGrad**

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**Tianna Stefano**



# Machine Learning through K-Clustering Algorithm in Netlogo

Ritha Shah, B.S.E., Engineering Management

Mentor: Dr. Luke Ashwin, Professor of Chemical Engineering and Health Sciences  
Virginia Polytechnic Institute and State University

## INTRODUCTION

Machine Learning (ML) is a type of artificial intelligence that automatically identifies patterns in data sets. It is used in various applications of the scientific process to find the most efficient way to solve a problem. In this project, we will use a machine learning algorithm to find the most efficient way to solve a problem. The K-Clustering algorithm has been developed in the Netlogo modeling environment. This is a type of artificial intelligence that is used to find the most efficient way to solve a problem. In this project, we will use a machine learning algorithm to find the most efficient way to solve a problem. The K-Clustering algorithm has been developed in the Netlogo modeling environment. This is a type of artificial intelligence that is used to find the most efficient way to solve a problem. In this project, we will use a machine learning algorithm to find the most efficient way to solve a problem.



Figure 1.1: Data points plotted in K-Clustering

## OBJECTIVES

The objective of this project is to develop a machine learning algorithm that can identify patterns in data sets. The algorithm will be used to find the most efficient way to solve a problem. The K-Clustering algorithm has been developed in the Netlogo modeling environment. This is a type of artificial intelligence that is used to find the most efficient way to solve a problem. In this project, we will use a machine learning algorithm to find the most efficient way to solve a problem.

## METHOD

The K-Clustering algorithm is a type of machine learning algorithm that is used to find the most efficient way to solve a problem. It is based on the idea of clustering data points into groups. The algorithm starts by choosing a random point as the center of a cluster. It then finds all the points that are closest to this center and assigns them to the cluster. This process is repeated until all the points are assigned to a cluster. The K-Clustering algorithm has been developed in the Netlogo modeling environment. This is a type of artificial intelligence that is used to find the most efficient way to solve a problem.

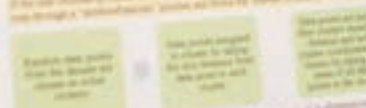


Figure 1.2: Steps of the K-Clustering algorithm

## RESULTS

The K-Clustering algorithm was used to find the most efficient way to solve a problem. The results show that the algorithm was able to identify patterns in the data sets. The K-Clustering algorithm has been developed in the Netlogo modeling environment. This is a type of artificial intelligence that is used to find the most efficient way to solve a problem. In this project, we will use a machine learning algorithm to find the most efficient way to solve a problem.



## CONCLUSION

The K-Clustering algorithm is a type of machine learning algorithm that is used to find the most efficient way to solve a problem. It is based on the idea of clustering data points into groups. The algorithm starts by choosing a random point as the center of a cluster. It then finds all the points that are closest to this center and assigns them to the cluster. This process is repeated until all the points are assigned to a cluster. The K-Clustering algorithm has been developed in the Netlogo modeling environment. This is a type of artificial intelligence that is used to find the most efficient way to solve a problem.



Figure 1.3: Flow of the K-Clustering algorithm

## REFERENCES

- Wang, B., and Michael Whalen. "The Basics of Machine Learning." *Machine Learning*. CRC Press, 2015.
- Wang, B., and Michael Whalen. "Machine Learning." *Machine Learning*. CRC Press, 2015.
- Wang, B., and Michael Whalen. "Machine Learning." *Machine Learning*. CRC Press, 2015.

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**Graduation photos**  
**flickr.com/photos/  
fultonengineering**

**ASU** IRA A. FULTON SCHOOLS OF  
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“”

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*If trees could scream, would we be so cavalier about cutting them down? We might, if they screamed all the time, for no good reason. - J Handy*

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*Thank my family for their love  
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