APPLICATION FOR STUDY, RESEARCH OR TEACHING ASSISTANTSHIPS 2013-14

Fulbright and related grants administered by the Institute of International Education

1. NAME: Mr. (*Title*) Daniel (*First*) Marc (*Middle*) Lofaro (*Last*) (*Suffix*) (*Former Last Name*)

2. COUNTRY: Croatia/HR/EE

3. FIELD OF STUDY: Academic | Engineering|3290

4. SPECIAL OPPORTUNITY:

5. INSTITUTION APPLYING THROUGH (OR AT-LARGE): Drexel University, PA

6. SCREENING DEGREE LEVEL: ☐ Bachelor's ☐ Master's: ☒ Doctorate

GENERAL INFORMATION

7. CURRENT RESIDENCE: Gladwyne (*City*) PA (*State/Province*) United States (*Country*) / (*Valid until*)

8. CITIZENSHIP: (1) United States (2)

9. CITY/STATE OF BIRTH: Gladwyne, PA COUNTRY OF BIRTH: United States

10. ENTRY TO U.S. If you were not born in the U.S., please indicate the date you entered the U.S.: /

11. AGE (as of 11/2012): 28 12. GENDER: Male 13. ARE YOU A VETERAN OR IN THE ACTIVE MILITARY? ☐ Yes ☒ No

GRANT PURPOSE INFORMATION

14. PROJECT TITLE: Mobile Manipulator Unmanned Aerial Vehicles for IED and Mine Removal

15. ABSTRACT OF PROPOSAL:

Unmanned aerial vehicles (UAV) are at the forefront of robotics research in the U.S. as well as in other countries such as Croatia. The collaboration between the DASL Lab in the U.S. and the LARICS Lab in Croatia has resulted in the only bleeding edge research of adding dexterous arms to a UAV. I propose to create a UAV that has dexterous arms that are capable of disarming IEDs and land mines. This is mutually beneficial to the U.S. and Croatia.

16. PROPOSED HOST COUNTRY AFFILIATION (Study/research applicants only)

1) Dr. Kovacic Zdenko, co-PI LARICS Lab at the University of Zagreb, Croatia
2) Dr. Bogdan Stjepan, co-PI LARICS Lab at the University of Zagreb, Croatia
3)
4) Host City and/or Region for Proposed Project: LARICS Lab at the University of Zagreb, Croatia

17. CRITICAL LANGUAGE ENHANCEMENT AWARD ☐ Yes ☒ No *Language to be studied:*

HOST COUNTRY EXPERIENCE

18. (1) List all travel, residence, and/or study in the country(ies) to which you are applying.

(a)

(b)

(c)

(d)

(2) Do you currently reside in or plan an extended visit (more than 4 weeks) to the country(ies) to which you are applying? ☐ Yes ☒ No

(3) If yes, indicate purpose and dates you are or will be in the country(ies) to which you are applying.

APPLICANT NAME: Lofaro, Daniel
COUNTRY: Croatia/HR/EE

FIELD OF STUDY: Engineering|3290

OTHER FOREIGN EXPERIENCE

19. FOREIGN EXPERIENCE (*List country, dates, purpose, including all travel/living.)*

	Primary Purpose	Country(s)		
1)	Study	South Korea		
	Dates (Year) 2008, 2009, 2010, 2011, 2012		**Duration**	approx. 2 wk - 3 mth per visit
2)	Work/Internship/Volunteer	Turkey		
	Dates (Year) 08/2010		**Duration**	3 weeks
3)	Study	Portugal		
	Dates (Year) 10/2012		**Duration**	2 weeks
4)	Study	Japan		
	Dates (Year) 12/2012 (scheduled trip)		**Duration**	2 weeks
5)	Family Visit	Itily, Spain, France, Greece, Mexico, Canada, etc.		
	Dates (Year) 1984-2012		**Duration**	2-3 weeks per trip

20. EXPERIENCE ABROAD COMMENTS:

The majority of my trips to S. Korea are done on my own. Where trips to Portugal Turkey I were with a group of co-workers. I have become accustom to being able to quickly adapt to my surrounding, learning how to order food, ask for/give direction, find housing etc. in the foreign tongue. Socializing with the people abroad has become second nature, I thoroughly enjoy absorbing other cultures and sharing my own.

EDUCATION

21. EDUCATION

	Institutions attended /Country	Dates attended: From/To	Degree received/Expected	Date (mm/yyyy)	Fields of Study/Major
1)	Drexel University United States	09/2008 to 04/2013	Ph.D.	04/2013	Electrical Engr. in Robotics
2)	Drexel University United States	09/2003 to 06/2008	M.S.	06/2008	Electrical Engr in Control Sys
3)	Drexel University United States	09/2003 to 06/2008	B.S.	06/2008	Electrical and Computer Engr.
4)		/ to /		/	
5)		/ to /		/	

22. GRADE POINT AVERAGE: Undergraduate: 3.61 1st Master's: 3.92 2nd Master's: Doctorate: 4.0

EXPERIENCE

23. OCCUPATIONAL EXPERIENCE

	Name and Address of Employer	Type of Work	Dates	Full-time/Part-time
1)	Drexel Autonomous Systems Lab Philadelphia PA United States	Research Assistant	07/2007 to /	☒ FT ☐ PT
2)	Dragonfly Inv. Philadelphia PA United States	Unmanned Aerial Vehicle Engr.	04/2011 to /	☐ FT ☒ PT
3)	Drexel University Philadelphia PA United States	Teaching Assistant	05/2011 to /	☐ FT ☒ PT
4)	IEEE (ICRA 2012) Piscataway NJ United States	Intl conf origination, web des	05/2011 to 07/2012	☐ FT ☒ PT
5)	NATO (ASI-2012) Cesme XX Turkey	Technical/Workshop Chair	08/2009 to 11/2010	☐ FT ☒ PT
6)	FIRST Robotics Villanova PA United States	Mentor and Volunteer	01/2006 to 06/2010	☐ FT ☒ PT
7)	Moog Component Group Springfield PA United States	Controls Engr.	08/2005 to 03/2006	☒ FT ☐ PT
8)	Evaporated Coatings Inc. Willow Grove PA United States	Thin Film Design Engr.	08/2004 to 03/2005	☒ FT ☐ PT

APPLICANT NAME: Lofaro, Daniel
COUNTRY: Croatia/HR/EE

FIELD OF STUDY: Engineering|3290

EXTRA CURRICULAR ACTIVITIES AND ACHIEVEMENTS

List your collegiate and/or recent activities/achievements, the year(s), leadership positions held, and a brief explanation, if necessary.

24. ACADEMIC HONORS, FELLOWSHIPS, SCHOLARSHIPS, AWARDS

(1) NSF-GRFP Honorable Mention 2009

(2) NSF-EAPSI Fellow 2008

(3) Lester Kraus Award 2008

(4) Dean's Fellowship 2008

(5) Graduated Honors with Distinction 2008

(6) Graduated Cum Laude 2008

25. EXTRACURRICULAR ACTIVITIES

(1) IEEE-ICRA 2012 Student Activity Board Event Organizer

(2) Event Design/Organizer: Senior Design Robot Competition 2009-2011

(3) Event Design/Organizer: Indoor Aerial Robotics Competition 2008-2011

(4) Event Design/Organizer: CoE Engineers Week Annual Egg Drop Competition 2007-2011

(5) IEEE Student Branch Technical Chair: 2006-2008

(6) Event Design/Organizer: Eita-Kappa-Nu Popsicle Stick Bridge Contest 2008-2009

(7) Event Design/Organizer: Biannual IEEE Lego Robot Competition 2006-2008

(8) Judge: NAVY SeaPerch Challenge (regional and national competition) 2009-2011

26. PUBLICATIONS, EXHIBITIONS, PERFORMANCES, PRESENTATIONS

(1) Publication: Humanoids 2012 (Japan), URAI 2012 (S. Korea), ICCAS 2012 (S. Korea)

(2) IROS 2012 (Portugal), IASTED 2011 (USA), IROS 2011 (China), EURASIP 2011 (Spain)

(3) 2x+tutorial Humanoids 2010 (USA), IROS 2010 (Taiwan), FIRA 2009 (S. Korea)

(4) Pres: Maker Faire 2012 (USA), Robot Pitch-Major League Baseball game 2012 (USA)

(5) NSF/NRF-EAPSI 2011 (USA), Bryn Mawr College 2010 (USA), k-6 demo 2010 (USA),

(6) Inaugural Student Speaker: DGIST 2010 (S. Korea), Please Touch Museum 2009 (USA)

27. PLANS UPON RETURN TO U.S.

Upon returning to the U.S. I plan on finding a research faculty or tenure-track position at a university (preferentially in the U.S.). I will continue with my small businesses (2x currently in the works). I plan on becoming a chair of an international robotics conference to increase my visibility. I also plan on continuing collaboration with my local and over seas colleagues including my Croatian and Korea partners.

APPLICANT NAME: Lofaro, Daniel
COUNTRY: Croatia/HR/EE

FIELD OF STUDY: Engineering|3290

PERSONAL INFORMATION

28. INFORMATION DOCUMENTING U.S. CITIZENSHIP:

(1) I have a U.S. passport: [X] Yes [ ] No (2) My U.S. Passport Number is: 483664806 (3) Expiration Date: 05 / 16 / 2021

29. IF A NATURALIZED U.S. CITIZEN, ENTER: Naturalization number:

Date of Naturalization: / / Place of Naturalization:

30. LIST OTHER GRANTS, SCHOLARSHIPS, OR AWARDS FOR WHICH YOU ARE APPLYING

(1) (3)

(2) (4)

31. FUNDS FROM OTHER SOURCES AVAILABLE DURING THE GRANT PERIOD TO SUPPORT GRANTEE AND/OR DEPENDENTS.

32. LIST STUDY ABROAD SCHOLARSHIPS/GRANTS AWARDED

(1) Grant Name: Country: Year:

(2) Grant Name: Country: Year:

(3) Grant Name: Country: Year:

33. EMERGENCY CONTACT WHILE ABROAD:

Full Name: Relationship to you:

Street address: City: State: Zip Code:

Country: Telephone: - Email address:

DEPENDENTS INFORMATION

34. MARITAL STATUS: Single 35. NAME OF SPOUSE:

36. NO. OF CHILDREN: a. Ages of children:

37. DEPENDENT'S FINANCIAL STATEMENT: How many dependents will accompany you abroad?

(1) Est. Maintenance Adult Dependent(s): $

(2) Est. Maintenance for Child Dependent(s): $

(3) Transportations of Dependent(s): $

(4) TOTAL OF 1-3: $

(5) Allowance for Dependent(s): $

(6) NET TOTAL: $

STATEMENT BY APPLICANT

By my signature I certify that (1) I have read and understood all instructions accompanying this application (2) To the best of my knowledge, the information provided in my application is true, correct, and complete. (3) I understand that any misrepresentation or omission may be cause for withdrawing a recommended status or grant award. (4) In the event I am awarded a grant: (a) I agree to accept, as a condition of my award, such placement as is made for me in an educational institution abroad; (b) I agree to keep my supervisory agency informed of my whereabouts and academic progress, and to prepare such reports, both progress and terminal, covering my experience while under the grant as may be requested by my supervisory agency; (c) I understand that in case I fail to maintain a satisfactory record, or in case my conduct is considered prejudicial to the best interest of the international educational exchange program, my award may be withdrawn and payments terminated; (d) I understand that all Fulbright program grants are subject to the Policies of the J. William Fulbright Foreign Scholarship Board.

Daniel M. Lofaro 09 / 13 / 2012

Applicant Name (as entered in Fulbright Application) Date

Initial Proof:	☐ Initial_____
Eligibility Check:	☐ Initial_____

STUDENT RECORD FORM

ID# 3413 Rank Rating N MA MW S RM FW R NR

APPLICANT NAME: Lofaro (*Last*) Daniel (*First*) Marc (*Middle*) (*Suffix*)

COUNTRY(S) TO WHICH APPLYING: Croatia/HR/EE

CATEGORY: Academic

SPECIAL PROGRAM:

FIELD OF STUDY: Engineering|3290

SCREENING DEGREE LEVEL: ☐ BA ☐ MA ☒ PHD

INSTITUTION APPLYING THROUGH (OR AT-LARGE): Drexel University, PA

APPLYING FOR: ☒ Full Study/Research ☐ Teaching Assistantship ☐ Travel Only Grant (Hungary, Germany, Italy only)

PROJECT TITLE: Mobile Manipulator Unmanned Aerial Vehicles for IED and Mine Removal

CURRENT RESIDENCE: Gladwyne (*City*) PA (*State*) United States (*Country*)

MAILING ADDRESS: 1163 Norsam Road (*Street address*)

Gladwyne (*City*) PA (*State*) 19035-1419 (*Zip Code*) United States (*Country*)

PRIMARY PHONE #: 610-505-4445

MOBILE PHONE #: 610-505-4445

PRIMARY EMAIL: dml46@drexel.edu

ALTERNATE EMAIL: dan@danlofaro.com

Item	Rcv'd	Institution
Trans PhD	☐	
Trans MA	☐	
Trans BA	☐	
FLE	☐ ☐	
CCE Form	☐	RATING_____
RefRcv'd	☐ ☐ ☐ ☐	

File Status: ☐ **Complete**

CITIZENSHIP *(1)* United States

CITIZENSHIP *(2)*

CTRY OF BIRTH: United States

US PASSPORT #: 483664806

DATE OF BIRTH: 04/27/1984

BA DEGREE: ☒ Yes ☐ No Date Earned/Expected: 06 / 2008

PHD EARNED: ☐ Yes ☒ No Date Earned: /

PREVIOUS FULBRIGHT: ☐ Yes ☒ No

(1) Country: (2) Category: (3) Year:

FELONY/MISDEMEANOR: ☐ Yes ☒ No

ETHNICITY

- ☐ American Indian or Native American
- ☐ Asian or Pacific Islander
- ☐ Black/African American (Non-Hispanic)
- ☐ Hispanic/Latino
- ☐ White (Non-Hispanic)
- ☐ Two or more groups
  Specify: _____
- ☒ No Response

STATEMENT OF GRANT PURPOSE

Daniel M. Lofaro, Croatia, Electrical and Computer Engineering in Robotics

Project Title: Mobile Manipulator Unmanned Aerial Vehicles for IED and Mine Removal

Unmanned aerial vehicles (UAV) are at the forefront of robotics research in the U.S. as well as in other countries such as Croatia. The most recent examples of traditional UAVs are the U.S. military's Predator and MAKO fixed-winged drones. The University of Pennsylvania's (UPenn) General Robotics, Automation, Sensing and Perception (GRASP) Lab was among the first use the small and agile quadroptors (four rotor helicopters) to create fast, autonomous and precision flying UAVs. All of the latter UAVs have no dexterous manipulation capabilities . In other words none of the latter are able to pick up a payload and drop it off autonomously in another location. Adding a single degree of freedom (one joint) grasper (manipulator) to the UAV to allow for easy payload pickup and drop off has been shown viable through the efforts of Yale and UPenn (2010-2012). Though these manipulators are able to attach themselves to an object they are fixed to the chasis of the UAV. Thus they rely solely on the UAV to position the manipulator in free space. This is the current state of the art, however it does not allow for dexterous manipulation. The next logical step is the creation of UAVs with the ability to manipulate the environment independent of overall movement of the craft. The collaboration between the Drexel Autonomous Systems Lab (DASL) at Drexel University in Philadelphia, PA (the lab in which I research) and the Laboratory for Robotics and Intelligent Control Systems (LARICS) at the University of Zagreb in Croatia has resulted in the only bleeding edge research of adding dexterous arms (multi joint) to a UAV for world manipulation to date. DASL and LARICS has dubbed UAVs with dexterous arms Mobile Manipulating UAVs or MM-UAVs. MM-UAVs are well suited for applications such as diffusing Improvised Explosive Devices (IED - U.S. priority), disarming land-minds (Croatian priority), collecting sample of materials, performing maintenance on a bridges/buildings, or clearing rubble in hazardous areas (Korpela 2012). It is a mutual understanding between Croatia and the U.S. that this is a key technology to be pursued to increase safety of each countries population. In addition both countries agree that it is important to become more visible in the blooming field of unmanned aerial vehicle technologies. I propose to create a MM-UAV that has the dexterity to manipulate the environment via the use of attached arms/manipulators. A special focus will be put on dexterity for disarming IEDs and land-mines (key goals for the U.S. and Croatia). The latter will be done in conjunction with Dr. Kovacic Zdenko and Dr. Bogdan Stjepan at LARICS. This will show that MM-UAVs have the ability to perform dangerous, dexterous and delicate tasks that are typically preformed by humans (a new and cutting edge portion of UAV and robotic research).

Adding dexterous arms to a UAV creates many challenges; System stability - *making sure it can fly*; Effect on the dynamics of the system due to arms - *what happens when the arms move and pickup/releases objects*; Kinematic design - *how it is put together*; Software, communications, sensors - *what controls the UAV and how does it know what it is doing in the world* all need to be addressed. The creation of this MM-UAV is a systems integration problem. I propose using parts I am already am skilled with to complete this task. This includes the GAUI^{TM}500X Quadcopter, Dynamixel^{TM}actuators, my opensoruce control software I originally designed for a complex full-size humanoid robot. (Linux based) and control algorithms from my Ph.D. dissertation specifically designed for bipedal stability while preforming dexterous manipulation (extremely similar to this task except on a legged robot). Having experience with the parts, software and algorithms allows for quick development, shorter time to maturity and greater probability to bring the project to fruition. MM-UAVs are in its infant state as a technology. This gives both Croatia and the U.S. a chance be noted as the first in the field. Thus this project is timely and compelling for the host

country and the U.S. In addition LARICS is procuring a 3D printer/rapid prototyper (good for construction of the parts for the arms) and has multiple GAUIs™and other quadcopters available for immediate use. This will help in making my independent research come to throughition.

My proposed time-line revolves around a three tier infrastructure: platform/algorithm development, test/re-design and verification. The first tier (month 1-3) will be dedicated to initial platform and algroithm development as well as getting up and running at LARICS. The second tier (month 4-6) is dedicated to testing and redesign of the platform. Movement between the first and second tier is expected until the final design is created. The final tier (month 7-9) will be a wrap-up period where high quality data will be produced and recorded. The results will be submitted for publication. The highly competitive international robotic conferences IROS and ICRA will the primary targets for publication. The publications will focus on the viability for IED and land mine removal.

Through my experience working directly with members of my host lab at the NATO workshop that I orginized, as well as at DASL, I am confident that useful and constructive communication will be accomplished despite the language difference. To further increase my Croatian language capability and communication I will take advantage of the Croatian language classes available in and around the University of Zagreb.

My experience and education is ideally suited to the completion of this project. My masters thesis focused on control systems and my Ph.D. dissertation (in progress) focusses on stability of a legged robot during manipulation using dexterous arms. Currently my special skills and experience in controls allowed me to work with UAV as a consultant for U.S. UAV R&D teams. My contributions in full-size humanoid robotics shows that I am proficient in the hardware, software, electronics and control required for the complex MM-UAV systems.

Outside of lab I plan on being active in sports and exploring the culinary aspects of Croatia, both in fare and in spirits. I have found that in my past travels to Korea you learn more about a culture when you eat and play with the locals. This is exactly what I plan to do. In addition I am an award winning amateur photographer and I plan on documenting my entire visit through still media. I also plan on submitting my work to well known photography magazines for publication.

My hosts are continuously involved in organizing international conferences. I feel that international networking is key for professional and personal growth. I will help with the conferences, offering my past experiences in workshops and conferences when needed, and in return I will have gain invaluable international networking. This is exceptionally important to me because international collaboration has also become the de facto basis for what sets me apart from other researchers in science and engineering in the U.S. Thus it is crucial that I gain this experience through Fulbright.

In summary by performing research at LARICS in the University of Zagreb the mutual understanding between Croatia and the U.S. will be strengthened because both countries agree that MM-UAVs are a key technology to be pursued to increase safety of their citizens. In addition it is a timely opportunity for each country to become more visible in the blooming field of unmanned aerial vehicle technologies. I have shown a three tiered infrastructure to complete my set goals and I have a plan of action to improve my communications ability when in Croatia. Performing my research at LARICS will allow me to make the logical transition from my dissertation topic to the field of MM-UAVs. Because LARICS is one of two labs in the world currently working on MM-UAVs it is the ideal place for me to become a top researcher in the field. This will not only be beneficial to LARICS and DASL but also to my future career as a prospective faculty in complex control systems and robotics. Receiving the Fulbright to Croatia will open many doors for post-doc and faculty positions at universities and vastly push my personal and professional growth forward.

PERSONAL STATEMENT

Daniel M. Lofaro, Croatia, Electrical and Computer Engineering in Robotics

Prior to 2008 I did not like to travel. I did not see the use in it, and to be honest I was scared or the world being a dangerous place. My foreign language skills at the time were mediocre at best. I was afraid that if I went overseas to do research I would have trouble understanding people and them me. The is the story of my life changed and why I believe that international travel and collaboration is key to personal and professional growth and success. Before I start the story I must inject that: (1) To put it lightly I have a love of all and anything that is robots and will do almost anything to work with them. (2) My advisor Dr. Paul Oh, whom fully and completely trust, had just put me on the National Science Foundation (NSF) project grant PIRE where I am the primary caretaker full-size humanoid robot Jaemi HUBO (a dream come true).

In the fall of 2007 my Dr. Oh pushed me to apply for a NSF-EAPSI fellowship. The NSF-EAPSI would allow me to travel to S. Korea and work in the HUBO Lab at the Korean Advanced Institute of Science and Technology (KAIST). In Dr. Oh's opinion this was a required part of my studies if I were to work with HUBO, thus because of my love of robotics and my position in the NSF-PIRE had to apply. This is because at KAIST I would learn all there is to know about the HUBO robot. In my mind there was one problem with applying to the NSF-EAPSI, I might get it. This would mean I have to go to a dangerous place on the brink of war, S. Korea. I was scared. I ended up receiving the fellowship and reluctantly travelled to S. Korea spent my entire summer of 2008. This was the summer that changed my life in the best of ways!

By the time I arrived in Seoul Intl. airport (Incheon Intl.) I had already come to the realization that I would not be returning to the U.S. until the coming fall. I would have to make the best of a situation that I "thought" was bad. As I toured S. Korea, met the locals and worked with the members of the HUBO Lab I came to the realization that I was the luckiest man in the world. As the days from my arrival turned into weeks I had formed a close Korean friend base. We would play basketball together, go to the bar and norebong (Korean karaoke) and talk about what apparently all young men talk about, girls. I learned that Koreans are not as different from American as I thought. An important lesson that I learned is that the easiest, and most fun, way for a guy learn a new language is to go to dinner with a girl. When you are trying to impress someone (a girl) you really put your mind to learning conversational Korean. This made collaboration with HUBO Lab a breeze. In addition only were my lab-mates very motivated and smart, our skill sets also complement each other. It ended up being the perfect match (also why I believe we are successful).

By the end of my stint in S. Korea I have learned that the world is not as scary and dangerous as I thought. It is a fun, interesting and beautiful place filled with rich culture that I just needed to explore. The bubble that I lived in had been popped and now I am ready to take on the world. I proceeded to go back to S. Korea multiple times for collaboration work, conferences, invited talks and other events with my new found friends and collaborators. Because of my spectacular experience with S. Korea I sought out other research opportunities abroad. One pertinent example was working for the North Atlantic Treaty Organization (NATO). While organizing this workshop I was able to correspond with researchers from all over the world including Prof. Zdenko from University of Zagreb (he taught me Bela, a Croatian card game which I play with my friends in the U.S. to this day). From that relationship a member of Prof. Zdenkos lab, Matko, came to my lab for a Fulbright in 2011-12. Now the logical next step (and my much desired choice) is to return the favor and go to Prof. Zdenko's lab for Fulbright.

International travel and collaboration changed my life for the better. Its importance professionally and socially are immeasurable. When my bubble was popped and I joined the world, I learned and became a better man for it. Fulbright will allow me to continue to learn and grow in ways I can only do now, while I am young, through work and play.

Display Transcript

10220732 Daniel M. Lofaro
Sep 16, 2012 11:45 pm

This is NOT an official transcript. Courses which are in progress may also be included on this transcript.

Institution Credit Transcript Totals

Transcript Data

STUDENT INFORMATION	
Curriculum Information	
Current Program	
BS in Electrical Engineering	
College:	College of Engineering
Major and Department:	Electrical Engineering, Electrical & Computer Engr
Major and Department:	Honors Program, Honors Program

***Transcript type:Unofficial Student Transcript is NOT Official ***

DEGREES AWARDED			
Awarded:	BS in Electrical Engineering	**Degree Date:**	Jun 14, 2008
Institutional Honors:	Cum Laude		
Departmental Honors:	With Distinction-Honors Prgm		
Curriculum Information			
Major:	Electrical Engineering		
Major Concentration:	5 YR UG Co-op Concentration		

INSTITUTION CREDIT -Top-

Term: Fall Quarter 03-04

Major:	Still Deciding
Academic Standing:	Good Standing

Subject	Course Level	Title	Grade	Credit Hours	Quality Points	Start and

							End Dates
HUM	106	UG	Humanities & Commun I	B	3.000	9.00	
TDEC	110	UG	Math Fndns Engr I	A	3.000	12.00	
TDEC	111	UG	Phys Fndns Of Engr I	C	3.000	6.00	
TDEC	120	UG	Chem/Biol Fndns Engr I	B	3.000	9.00	
TDEC	130	UG	Engineering Design Lab I	A	4.000	16.00	
UNIV	101	UG	The Drexel Experience	A	1.000	4.00	I

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	17.000	17.000	17.000	17.000	56.00	3.29
Cumulative:	17.000	17.000	17.000	17.000	56.00	3.29

Unofficial Transcript

Term: Winter Quarter 03-04

Major: Still Deciding

Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
HUM	107	UG	Humanities & Commun II	A	3.000	12.00	
TDEC	112	UG	Math Fndns Of Engr II	A	3.000	12.00	
TDEC	113	UG	Phys Fndns Of Engr II	B	3.000	9.00	
TDEC	121	UG	Chem/Biol Fndns Engr II	C	3.000	6.00	
TDEC	131	UG	Engineering Design Lab II	A	4.000	16.00	
UNIV	101	UG	The Drexel Experience	A	1.000	4.00	I

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	17.000	17.000	17.000	17.000	59.00	3.47
Cumulative:	34.000	34.000	34.000	34.000	115.00	3.38

Unofficial Transcript

Term: Spring Quarter 03-04

Major: Still Deciding
Academic Standing: Good Standing
Additional Standing: Dean's List

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
HUM	108	UG	Humanities & Commun III	A	3.000	12.00	
TDEC	114	UG	Math Fndns Of Engr III	A	3.000	12.00	
TDEC	115	UG	Phys Fndns Of Engr III	B	3.000	9.00	
TDEC	122	UG	Chem/Biol Fndns Engr III	A	3.000	12.00	
TDEC	132	UG	Engineering Design Lab III	A	4.000	16.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	16.000	16.000	16.000	16.000	61.00	3.81
Cumulative:	50.000	50.000	50.000	50.000	176.00	3.52

Unofficial Transcript

Term: Fall Quarter 04-05

Major: Electrical Engineering
Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
COOP	201	UG	Co-op Experience Evaporated Coatings, Inc.	DCU	12.000	0.00	I

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	0.000	0.000	0.000	0.000	0.00	0.00
Cumulative:	50.000	50.000	50.000	50.000	176.00	3.52

Unofficial Transcript

Term: Winter Quarter 04-05

Major:	Electrical Engineering
Academic Standing:	Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
COOP	201	UG	Co-op Experience Evaporated Coatings, Inc.	DCU	12.000	0.00	I

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	0.000	0.000	0.000	0.000	0.00	0.00
Cumulative:	50.000	50.000	50.000	50.000	176.00	3.52

Unofficial Transcript

Term: Spring Quarter 04-05

Major:	Electrical Engineering
Academic Standing:	Good Standing
Additional Standing:	Dean's List

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECE	200	UG	Funds Intelligent Systems	A	3.000	12.00	
TDEC	201	UG	Energy I	A	3.000	12.00	
TDEC	211	UG	Materials I	B	3.000	9.00	
TDEC	221	UG	Systems I	A	3.000	12.00	
TDEC	231	UG	Eval/Pres Exper Data I	A	4.000	16.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	16.000	16.000	16.000	16.000	61.00	3.81
Cumulative:	66.000	66.000	66.000	66.000	237.00	3.59

Unofficial Transcript

Term: Summer Quarter 04-05

Major:	Electrical Engineering
Academic Standing:	Good Standing
Additional Standing:	Dean's List

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECE	201	UG	Electric Circuits	A	3.000	12.00	
ECEC	490	UG	ST: Programming of Engineers	B	3.000	9.00	
TDEC	202	UG	Energy II	B	3.000	9.00	
TDEC	222	UG	Systems II	A	3.000	12.00	
TDEC	232	UG	Eval/Pres Exper Data II	A	4.000	16.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	16.000	16.000	16.000	16.000	58.00	3.62
Cumulative:	82.000	82.000	82.000	82.000	295.00	3.59

Unofficial Transcript

Term: Fall Quarter 05-06

Major: Electrical Engineering

Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
COOP	201	UG	Co-op Experience Moog Components Group Inc	DCU	12.000	0.00	
ECEE	302	UG	Electronic Devices	C	4.000	8.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	4.000	4.000	4.000	4.000	8.00	2.00
Cumulative:	86.000	86.000	86.000	86.000	303.00	3.52

Unofficial Transcript

Term: Winter Quarter 05-06

Major: Electrical Engineering

Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End

							Dates
COOP	201	UG	Co-op Experience Moog Components Group Inc	DCU	12.000	0.00	
HIST	285	UG	Technology in Hist Perspective	A	3.000	12.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	3.000	3.000	3.000	3.000	12.00	4.00
Cumulative:	89.000	89.000	89.000	89.000	315.00	3.53

Unofficial Transcript

Term: Spring Quarter 05-06

Major: Electrical Engineering
Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECEL	301	UG	ECE Laboratory I	A	2.000	8.00	
ECES	302	UG	Transform Methods & Filtering	C	4.000	8.00	
ECON	211	UG	Principles Econ I (Micro)	A	3.000	12.00	
MATH	290	UG	Linear Modeling for Engineers	B	4.000	12.00	
PHIL	221	UG	Epistemology	A	3.000	12.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	16.000	16.000	16.000	16.000	52.00	3.25
Cumulative:	105.000	105.000	105.000	105.000	367.00	3.49

Unofficial Transcript

Term: Summer Quarter 05-06

Major: Electrical Engineering
Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECEC	304	UG	Design with Microcontrollers	A	4.000	16.00	

ECEL	302	UG	ECE Laboratory II	A	2.000	8.00
ECES	304	UG	Dynamic Systems and Stability	B	4.000	12.00
MATH	291	UG	Complex & Vector Analy for Eng	A	4.000	16.00
PHIL	315	UG	Engineering Ethics	B	3.000	9.00

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	17.000	17.000	17.000	17.000	61.00	3.58
Cumulative:	122.000	122.000	122.000	122.000	428.00	3.50

Unofficial Transcript

Term: Fall Quarter 06-07

Major: Electrical Engineering
Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECEL	303	UG	ECE Laboratory III	A	2.000	8.00	
ECES	356	UG	Theory of Control	A+	4.000	16.00	
ECES	444	UG	Systems and Control I	A+	4.000	16.00	
ECES	521	UG	Probability & Random Variables	B-	3.000	8.01	
ENGR	361	UG	Stat Analysis of Engr Systems	B-	3.000	8.01	
HNRS	201	UG	ST: Ballroom Dancing	A	3.000	12.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	19.000	19.000	19.000	19.000	68.02	3.58
Cumulative:	141.000	141.000	141.000	141.000	496.02	3.51

Unofficial Transcript

Term: Winter Quarter 06-07

Major: Electrical Engineering
Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECEL	304	UG	ECE Laboratory IV	A+	2.000	8.00	
ECEP	352	UG	Elec Motor Control Principles	B+	4.000	13.32	
ECES	445	UG	Systems and Control II	A	4.000	16.00	
ECES	522	UG	Random Process & Spec Analysis	B-	3.000	8.01	
EGMT	504	UG	Communications	W	3.000	0.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	16.000	13.000	13.000	13.000	45.33	3.48
Cumulative:	157.000	154.000	154.000	154.000	541.35	3.51

Unofficial Transcript

Term: Spring Quarter 06-07

Major:	Electrical Engineering
Academic Standing:	Good Standing
Additional Standing:	Dean's List

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
CS	511	UG	Robot Lab	A+	3.000	12.00	
ECES	352	UG	Intro Digital Signal Process	A	4.000	16.00	
ECES	446	UG	Systems and Control III	A	4.000	16.00	
HIST	236	UG	World War II	B+	3.000	9.99	
MATH	221	UG	Discrete Mathematics	A-	3.000	11.01	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	17.000	17.000	17.000	17.000	65.00	3.82
Cumulative:	174.000	171.000	171.000	171.000	606.35	3.54

Unofficial Transcript

Term: Summer Quarter 06-07

Major: Electrical Engineering
Academic Standing: Good Standing
Additional Standing: Dean's List

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECEE	352	UG	Analog Electronics	A	4.000	16.00	
ECES	306	UG	Intro Modulation & Coding	A-	4.000	14.68	
ECES	358	UG	Computer Control Systems	A	4.000	16.00	
HIST	243	UG	Germany & World of Hitler	A	3.000	12.00	
MEM	255	UG	Introduction to Controls	A+	4.000	16.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	19.000	19.000	19.000	19.000	74.68	3.93
Cumulative:	193.000	190.000	190.000	190.000	681.03	3.58

Unofficial Transcript

Term: Fall Quarter 07-08

Major: Electrical Engineering
Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECEE	451	UG	Electroacoustics	B+	3.000	9.99	
ECES	511	UG	Fundamentals of Systems I	B+	3.000	9.99	
ECES	817	UG	Non-Linear Control Sys	A	3.000	12.00	
ECES	898	UG	Master's Thesis Sys Engr	A	3.000	12.00	I
MEM	800	UG	ST: Autonom Vehicle Control I	A	3.000	12.00	I

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	15.000	15.000	15.000	15.000	55.98	3.73

Cumulative:	208.000	205.000	205.000	205.000	737.01	3.59

Unofficial Transcript

Term: Winter Quarter 07-08

Major: Electrical Engineering
Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECES	512	UG	Fundamentals of Systems II	B-	3.000	8.01	
ECES	690	UG	ST: Biologic Sig Processing I	A	3.000	12.00	
ECES	818	UG	Mach Learning/Adaptive Control	A	3.000	12.00	
ECES	898	UG	Master's Thesis Sys Engr	A	4.000	16.00	I

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	13.000	13.000	13.000	13.000	48.01	3.69
Cumulative:	221.000	218.000	218.000	218.000	785.02	3.60

Unofficial Transcript

Term: Spring Quarter 07-08

Major: Electrical Engineering
Academic Standing: Good Standing
Additional Standing: Dean's List

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECES	513	UG	Fundamentals of Systems III	A-	3.000	11.01	
ECES	651	UG	Intelligent Control	A-	3.000	11.01	
ECES	898	UG	Master's Thesis Sys Engr	A	3.000	12.00	I
MEM	800	UG	ST:Autonom Vehicle Control II	A+	3.000	12.00	I

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA

Current Term:	12.000	12.000	12.000	12.000	46.02	3.83
Cumulative:	233.000	230.000	230.000	230.000	831.04	3.61

Unofficial Transcript

TRANSCRIPT TOTALS (UNDERGRADUATE QUARTER) -Top-

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Total Institution:	233.000	230.000	230.000	230.000	831.04	3.61
Total Transfer:	0.000	0.000	0.000	0.000	0.00	0.00
Overall:	233.000	230.000	230.000	230.000	831.04	3.61

Unofficial Transcript

[Overall Financial Aid Status | Financial Aid Eligibility Menu]

RELEASE: 8.4.1

Display Transcript

10220732 Daniel M. Lofaro
Sep 16, 2012 11:50 pm

This is NOT an official transcript. Courses which are in progress may also be included on this transcript.

Institution Credit Transcript Totals

Transcript Data

STUDENT INFORMATION	
Curriculum Information	
Current Program	
Doctor of Philosophy	
College:	College of Engineering
Major and Department:	Electrical Engineering, Electrical & Computer Engr

***Transcript type:Unofficial Student Transcript is NOT Official ***

DEGREES AWARDED			
Awarded:	MS in Electrical Engineering	**Degree Date:**	Jun 14, 2008
Curriculum Information			
Major:	Electrical Engineering		

INSTITUTION CREDIT -Top-

Term: Spring Quarter 07-08

Major:	Electrical Engineering
Academic Standing:	Good Standing
Additional Standing:	Dean's List

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECES	513	GR	Fundamentals of Systems III	A-	3.000	11.01	
ECES	651	GR	Intelligent Control	A-	3.000	11.01	

ECES	898	GR	Master's Thesis Sys Engr	A	3.000	12.00	I
MEM	800	GR	ST:Autonom Vehicle Control II	A+	3.000	12.00	I

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	12.000	12.000	12.000	12.000	46.02	3.83
Cumulative:	12.000	12.000	12.000	12.000	46.02	3.83

Unofficial Transcript

Term: Fall Quarter 08-09

Major: Electrical Engineering
Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECES	697	GR	Research In Systems Engr	A	6.000	24.00	
MEM	666	GR	Advanced Dynamics I	B+	3.000	9.99	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	9.000	9.000	9.000	9.000	33.99	3.77
Cumulative:	21.000	21.000	21.000	21.000	80.01	3.81

Unofficial Transcript

Term: Winter Quarter 08-09

Major: Electrical Engineering
Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECES	697	GR	Research In Systems Engr	A	6.000	24.00	
MEM	667	GR	Advanced Dynamics II	B	3.000	9.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	9.000	9.000	9.000	9.000	33.00	3.66
Cumulative:	30.000	30.000	30.000	30.000	113.01	3.76

Unofficial Transcript

Term: Spring Quarter 08-09

Major: Electrical Engineering
Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECES	697	GR	Research In Systems Engr	A	9.000	36.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	9.000	9.000	9.000	9.000	36.00	4.00
Cumulative:	39.000	39.000	39.000	39.000	149.01	3.82

Unofficial Transcript

Term: Summer Quarter 08-09

Major: Electrical Engineering
Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECES	697	GR	Research In Systems Engr	A	3.000	12.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	3.000	3.000	3.000	3.000	12.00	4.00
Cumulative:	42.000	42.000	42.000	42.000	161.01	3.83

Unofficial Transcript

Term: Fall Quarter 09-10

Major: Electrical Engineering
Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
CS	583	GR	Intro to Computer Vision	A	3.000	12.00	

ECES	697	GR	Research In Systems Engr	INC	6.000	0.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	9.000	3.000	3.000	3.000	12.00	4.00
Cumulative:	51.000	45.000	45.000	45.000	173.01	3.84

Unofficial Transcript

Term: Winter Quarter 09-10

Major: Electrical Engineering

Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECES	697	GR	Research In Systems Engr	INC	9.000	0.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	9.000	0.000	0.000	0.000	0.00	0.00
Cumulative:	60.000	45.000	45.000	45.000	173.01	3.84

Unofficial Transcript

Term: Spring Quarter 09-10

Major: Electrical Engineering

Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECES	697	GR	Research In Systems Engr	INC	9.000	0.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	9.000	0.000	0.000	0.000	0.00	0.00
Cumulative:	69.000	45.000	45.000	45.000	173.01	3.84

Unofficial Transcript

Term: Fall Quarter 10-11

Major: Electrical Engineering

Academic Standing:	Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECES	697	GR	Research In Systems Engr	A	9.000	36.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	9.000	9.000	9.000	9.000	36.00	4.00
Cumulative:	78.000	54.000	54.000	54.000	209.01	3.87

Unofficial Transcript

Term: Winter Quarter 10-11

Major:	Electrical Engineering
Academic Standing:	Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECES	697	GR	Research In Systems Engr	A	9.000	36.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	9.000	9.000	9.000	9.000	36.00	4.00
Cumulative:	87.000	63.000	63.000	63.000	245.01	3.88

Unofficial Transcript

Term: Spring Quarter 10-11

Major:	Electrical Engineering
Academic Standing:	Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECES	697	GR	Research In Systems Engr	A	9.000	36.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	9.000	9.000	9.000	9.000	36.00	4.00
Cumulative:	96.000	72.000	72.000	72.000	281.01	3.90

Unofficial Transcript

Term: Summer Quarter 10-11

Major: Electrical Engineering
Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECES	697	GR	Research In Systems Engr	A	9.000	36.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	9.000	9.000	9.000	9.000	36.00	4.00
Cumulative:	105.000	81.000	81.000	81.000	317.01	3.91

Unofficial Transcript

Term: Fall Quarter 11-12

Major: Electrical Engineering
Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECES	697	GR	Research In Systems Engr	A	9.000	36.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	9.000	9.000	9.000	9.000	36.00	4.00
Cumulative:	114.000	90.000	90.000	90.000	353.01	3.92

Unofficial Transcript

Term: Spring Quarter 11-12

Major: Electrical Engineering
Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates
ECES	697	GR	Research In Systems Engr	A	9.000	36.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA

Current Term:	9.000	9.000	9.000	9.000	36.00	4.00
Cumulative:	123.000	99.000	99.000	99.000	389.01	3.92

Unofficial Transcript

TRANSCRIPT TOTALS (GRADUATE QUARTER) -Top-

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Total Institution:	123.000	99.000	99.000	99.000	389.01	3.92
Total Transfer:	0.000	0.000	0.000	0.000	0.00	0.00
Overall:	123.000	99.000	99.000	99.000	389.01	3.92

Unofficial Transcript

[Overall Financial Aid Status | Financial Aid Eligibility Menu]

RELEASE: 8.4.1