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ENGINEERS' SOCIETY
of
WESTERN PENNSYLVANIA

STUDENT SCHOLARSHIP APPLICATION FOR THE YEAR 2017-18

APPLICANT NAME		
DATE 7/25/2017		
NAME OF RELATED ESWP MEMBER		
MEMBER # 1127		
RELATIONSHIP Father		
HOME ADDRESS		CAMPUS ADDRESS
207 Buffalo Ridge Road		5032 Forbes Ave
McMurray, PA 15317		SMC 5612
		Pittsburgh, PA 15289
HIGH SCHOOL	CITY, STATE	GRAD. DATE
Peters Township HS	McMurray, PA	06/2016
COLLEGE	CITY, STATE	EXPECTED GRAD. DATE
Carnegie Mellon Univ.	Pittsburgh, PA	05/2019
MAJOR		
Computer Science		



STUDENT SCHOLARSHIP APPLICATION FOR THE YEAR 2017-18

1. List any extra curricular activities that you participated in (community service, volunteer work, etc.) including length of service. (Attach extra sheet if necessary)

Included in attached resume

2. List any awards, honors or scholarships you have received. Include the date of the Award. (Attach extra sheet if necessary)

Included in attached resume

3. Essay question (The essay question is important to the final selection of the finalist for the awards. Select one of the topics. Take time to organize your thoughts. Provide your answers in typewritten form in 500 words or less. Type the essay question you are answering at the top of the essay. Attach the essay to your completed application.)

- Describe in detail an accomplishment that you have achieved while you were a student. Why were you successful? How will your success influence your future plans as an engineer?
- Describe in detail your strengths and interests. Describe how you will apply your skills to a career as an engineer.
- Describe in detail a challenge that industry will need to face in the future. What opportunities exist for technical graduates to help companies deal with that challenge?

4. Scholastic Performance:

Please attach a copy of your most recent transcript, including grade point average and class rank. Also, include a copy of test result scores from the SAT exam.

Describe in detail your strengths and interests. Describe how you will apply your skills to a career as an engineer.

My personal interest in engineering began very early. After joining a First Lego League (FLL) team in fourth grade, I was introduced to the Carnegie Mellon University (CMU) National Robotics Engineering Center (NREC). At NREC, I would marvel at the amazing feats of technology that computer science and engineering could create. Seeing those incredible machines inspired me to do more.

FLL is what initially sparked my interest in computer science and engineering. It gave me an understanding of the challenges faced by engineers every day.

In academics, I would continue to push myself by taking the hardest classes I possibly could, while also working on many things outside of school. As a freshman in high school, I took AP Computer Science, the highest level programming class available at my school. The same year, I joined a newly formed First Robotics Competition team as the lead programmer, where I learned a lot about the difficulties of controlling mechanical machines.

The summer after my freshman year, I attended Andrew's Leap at CMU. There, our instructor taught us concepts of computer science with great passion and enthusiasm. He stimulated my desire to learn more. As a result in the Fall, I decided to work on a research project about the parallelization of graph search algorithms.

The next summer, after completing my sophomore year, I took two college classes at CMU. Taking these classes was very challenging, but it was also very stimulating.

After joining Carnegie Mellon as an undergraduate in computer science, I have continued to learn a great deal in the classroom and also to push myself to do more outside of it. To pursue this goal, I have participated in multiple hackathons, which provide a good opportunity to learn new technologies.

After my freshman year, I interned at Quantlab Financial, where I worked on software systems upon which millions of dollars of trades are executed. Working in this environment helped me understand how real world software development is done, especially in an environment where small failures can result in the loss of a lot of money.

This summer, I am interning at Microsoft in Azure Site Reliability Engineering. Azure is Microsoft's cloud platform, which is used for internal products and by most large corporations. As such, the reliability of this core infrastructure is vital to create trust. This environment has helped me understand how development is done with enormous scale and fault tolerance in mind. Understanding the systems and processes in place at Microsoft have also helped me appreciate how important processes are in allowing companies to continue to innovate and shift to meet new demands.

The autonomous tanks and robots of NREC set my mind on Computer Science and engineering by giving me tangible examples of the vast potential of this field. I continue to progress my knowledge and experience in order to reach my eventual goal of using my skills to push the boundaries of technology and thus meaningfully contribute to the progression of society as an engineer.

Activities Resume

- Microsoft Corporation (Summer 2017)
 - Worked in Azure Site Reliability Engineering
 - This division ensures the reliability of the Azure, Microsoft's cloud platform
 - Worked on SREBot
 - This is a chatbot and intelligence platform, whose goal is to reduce the time needed to mitigate issues that occur through intelligence and a natural interface
 - Added user context information to the bot, so that it knew which teams the user is a member of in order to only display relevant content
 - Removed dependencies on external systems, by caching periodically, to ensure that SREBot continues to operate when external systems are down and continues to have fast response times
 - Added conversational context to the bot, so that it remembers what you previously told it so that it can reuse that information
- Quantlab Financial (Summer 2016)
 - High Frequency Trading company in Houston, TX
 - Technology intern working on their trading systems.
 - Designed and developed an order gateway to make trades on a new stock exchange
- TartanHacks (Feb 2016)
 - 24 hour hackathon
 - Worked in team of 4 to create CMUMeets, a website, which automatically fetches and compares your class schedule against your friend's schedules to visually show when you can meet with your friends.
- Build18 (Jan 2016)
 - 1 week hardware hackathon
 - Worked in team of 4 to create PoolMaster, which consisted of a hardware rig that held a Kinect above a pool table. It would take images of the pool table and tell the player what the best shot to take was.
- HackCMU (Sept. 2015)
 - 24 hour hackathon.
 - Worked in a team of 4 to create TartanTag, a game for Android phones where the goal is to tag other people with by scanning barcodes attached to their chest and back, while avoiding getting tagged yourself.
 - Had to learn new technologies and apply them in a 24 hour time period. Created a working final product.
- First Robotics Competition (FRC - 2012 to 2015)
 - Lead Programmer for 3 Years
 - Won Rookie Inspiration Award in Freshman Year (March 2013)
 - Sophomore year, placed 13th out of 48 teams in Pittsburgh (March 2014)
- PA Governor's School for the Sciences (Summer 2015)
 - Attended 5 week, state-funded program for science hosted by CMU

- For the final project, worked in team of 10 to develop GAUSS, an online stochastic simulator, which allows for biological processes to be easily simulated
- PreCollege at CMU (Summer 2014)
 - Took 2 college classes.
 - 15-122 Principles of Imperative Computation
 - 21-127 Concepts of Math
- Andrew's Leap at Carnegie Mellon University (CMU) (Summer 2013)
 - 7 week summer camp. Learned and applied theoretical math and advanced programming techniques.
- PHASE, the School Science Club (2012 - 2015)
 - Treasurer
 - Club organizes participation in multiple science and engineering competitions: TSA TEAMS, PJAS, PRSEF, and Science Olympiad
- TSA TEAMS (Tests of Engineering Aptitude, Math, and Science)
 - 1st place JV Team in region in 9th and 10th Grade (Feb. 2013 & 2014)
 - 1st place Varsity Team in Pennsylvania (Feb 2015)
- PJAS (Pennsylvania Junior Academy of Science)
 - Presented 'Motion Detection' project in 9th Grade
 - Improved the reliability of camera-based motion security systems
 - Presented 'Optimization of Graph Search Algorithms' in 10th Grade
 - Improved the efficiency of graph search algorithms through efficient parallelization
 - Presented 'Optimizing Artificial Intelligence with Distributed Computation'
 - Improved the efficiency of chess artificial intelligence by distributing the computation over multiple machines.
 - 1st Award in Regionals in 9th, 10th, 11th (Feb. 2013, 2014, 2015)
 - 1st Award in States in 9th and 10th (May 2013 & 2014)
 - Perfect Score and Special Award in Computer Science in 10th and 11th Grade (Feb. 2014, 2015)
- PRSEF (Pittsburgh Regional Science and Engineering Fair)
 - Presented 'Motion Detection' project in 9th Grade
 - Presented 'Optimization of Graph Search Algorithms' in 10th Grade
 - Presented 'Optimizing Artificial Intelligence with Distributed Computation in 11th
 - Won Duquesne Award in 9th (April 2013)
 - Won Navy Award and Honorable in 10th (March 2014)
 - Won Pittsburgh Supercomputing Center Award in 11th (March 2015)
- Science Olympiad
 - Won 1st Place in Circuit Lab in Region (March 2014)
 - Won 4th Place in Astronomy in Region (March 2014)
 - Won 1st Place in Green Generation in Region (March 2015)
 - Won 4th Place in Technical Problem Solving in Region (March 2015)
- FBLA (Future Business Leaders of America)

- In 9th, developed and presented 'Alien Invasion' 2d space shooter in Processing
 - Won 4th in Computer Game and Simulation Programming in State
 - (submitted December 2012, Presented April 2013)
- In 10th, developed and presented a Conference Registration System made in C++
 - Won 8th in Desktop Application Programming in State
 - (submitted December 2013, Presented April 2014)
- In 11th, developed 'School Events', a mobile application that accesses and displays school events
 - Won 3rd in Mobile Application Development in State
 - (submitted December 2014, Presented April 2015)
- Open Competitive Events (100+ Competitors) at FBLA State Conference
 - Placed 1st in 'The Internet' (April 2015)
 - Placed 2nd in 'Computer Operating Systems' (April 2014)
 - Placed 2nd in 'Google Apps/Social Media/Open Source' (April 2014)
 - Placed 3rd in 'Computer Operating Systems' (April 2015)
 - Placed 5th in 'The Internet' (April 2013)
 - Placed 9th in 'Digital Tools' (April 2015)
- Verizon App Challenge
 - Developed a plan for an app that audits energy usage and finds areas for reduction
 - Won Best High School Team in the State
- USA Computing Olympiad
 - Participated in competitions 4 times a year
 - Advanced to silver level (March 2014)
 - in top ~15% in that competition
- Volunteering
 - Volunteered at the Carnegie Science Center demonstrating science related products to visitors (Summer 2013) (50 hours)
 - Helped run robotics workshops that promoted science to young children (Summer 2014)
- National Honors Society (11th)
 - Participated in community service
- JV Tennis (9th, 10th, 11th)
 - Started most games in all years.
- National German Exam
 - in 10th, Placed in Silver Level (80-89th Percentile) (Feb. 2014)

SAT[®]

Score Report

207 Buffalo Ridge Rd
MC Murray, PA 15317 - 6609

Test Date: **Oct. 11, 2014**

Registration Number: **0041378910**

Sex:

Date of Birth: **Mar. 09, 1998**

Test Center Number: **39408**

High School Code: **390535**

High School Name:

Peters Township High School

Critical Reading

720

| 200 to
800

96th National Percentile

Mathematics

800

| 200 to
800

99th National Percentile

Writing

800

| 200 to
800

99th National Percentile

Multiple Choice

80 | 20 to 80

Essay Score

10 | 2 to 12

Online Score Report

Go online to get more details about your performance, including areas of strength and check out additional resources to help you boost your college readiness.

How Did I Score Compared to Others?

A percentile is a number between 1 and 99 that shows how your score ranks compared to other students who took the test. It represents the percentage of students whose scores are below yours. Say, for example, your Math percentile is 47; this means you did better than 47 percent of college-bound seniors. Percentiles are based on the most recent scores earned by students in the previous year's graduating class who took the SAT[®] during high school.

Will My Scores Change and Why?

Your test score represents a snapshot in time. If you took the test multiple times that number would likely be different on each test. This is why a score range may better represent your true ability; it looks at multiple snapshots of your score instead of just one. Usually, Critical Reading, Mathematics, and Writing scores fall in a range of roughly 30 to 40 points above or below your true ability.

Should I Take the SAT Again?

Beginning March 2016, there's a new SAT that's focused on what research shows to be essential for college readiness while reflecting what you're learning in your classes. The best way to get ready for the SAT is by working hard in challenging high school courses, and as you strengthen your skills you may want to take the new SAT to show off what you've learned. To find out more visit collegereadiness.collegeboard.org/sat.

SAT Summary of Scores

Date		Oct. 11, 2014	May 03, 2014				
Grade		11	10				
SAT							
Critical Reading		720	690				
Mathematics		800	750				
Writing		800	710				
Sub-scores	Multiple Choice	80	71				
	Essay	10	9				

SAT Subject Test Scores

Date		June 07, 2014					
Grade		10					
Subject Test							
		Biology-M					
Test Score		750					
Language Subscores	Reading						
	Listening						
	Usage						
Subject Test							
		Math Level 2					
Test Score		800					
Subject Test							
Test Score							

*Scores from the SAT Subject Test in Mathematics are not comparable to Math section, test, and related subscores on the SAT.
 *Not all SAT Subject Tests have subscores.

How Should I Send My Scores to Colleges?

This student score report is for your use only. Most colleges require you to have the College Board send them official score reports — they don't accept copies of student score reports, online score reports, or score report labels on transcripts.

With Score Choice™, you decide which scores you send to colleges. Choose by test date for the SAT and individual test for SAT Subject Tests™ — in agreement with an institution's stated score-use practice. Visit studentscores.collegeboard.org for detailed analysis of your scores and more information on sending scores to colleges.



College Plan

There are a lot of great possibilities to explore in choosing a college. Get a step-by-step road map and advice on what to do when. Access your online score report for details.



SAT Practice

Keep improving your college readiness skills with resources available at Khan Academy®. When you take the new SAT (beginning March 2016), you can further connect to FREE, world-class personalized practice recommendations online on khanacademy.org/sat.



SAT Subject Tests™

Get ahead by challenging yourself. Let colleges know you're interested in specific majors or programs by taking SAT Subject Tests. Some colleges may use those scores to place you out of introductory-level college courses.

Carnegie Mellon University

na :: Unofficial Academic Record as of 25 Jul 2017

Name: _____
 College: School of Computer Science
 Department: Computer Science
 Major: Computer Science

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Beginning of Undergraduate Record

Advanced Placement / Transfer Credits

ADVANCED PLACEMENT CREDIT

DPT	CRS #	COURSE TITLE	UNITS	FINAL GRADE
	03011	AP BIOLOGY	9.0	AD
BSC	03110	GENERAL BIOLOGY	9.0	AD
CS	15112	FNDMTLS OF PGMG & CS	12.0	AD
MSC	21120	DIFFERENTIAL INT CAL	10.0	AD
MSC	21122	INTEGRN & APPROX	10.0	AD
PHY	33111	PHYSICS I SCI STUDNT	12.0	AD
PHY	33112	PHYSICS II SCI STDNT	12.0	AD
STA	36201	STATS REASON PRACTCE	9.0	AD
	79011	AP EUROPEAN HISTORY	9.0	AD
	79012	AP US HISTORY	9.0	AD
TOTAL AP / TRANSFER CREDIT			101.0	

NOTE

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2013 / 2014

Summer 1/All 2014

DPT	CRS #	COURSE TITLE	UNITS	FINAL GRADE	QUALITY POINTS
CS	15122	PRIN IMPRTV COMPTATN	10.0	A	40.0
MSC	21127	CONCEPTS OF MATHMTCS	10.0	B	30.0

	UNITS PASSED	UNITS FACTORABLE	FINAL QPA	TOTAL POINTS
Semester	20.0	20.0	3.50	70.0
Cumulative	121.0	20.0	3.50	70.0

Carnegie Mellon University

:: Unofficial Academic Record as of 25 Jul 2017

2015 / 2016

Fall 2015

DPT	CRS #	COURSE TITLE	UNITS	FINAL GRADE	QUALITY POINTS
CS	15128	FRSHMN IMGRATN COURS	1.0	A	4.0
CS	15150	PRIN FNCTIONL PRGMMG	10.0	A	40.0
ECE	18100	INTRO ELEC COMP ENG	12.0	A	48.0
MSC	21241	MATRC & LINR TRNSF	10.0	C	20.0
ENG	76101	INTERPRETN & ARGMNT	9.0	A	36.0
CMU	99101	CMPTNG CARNEGIE MELL	3.0	P	0.0

	UNITS PASSED	UNITS FACTORABLE	FINAL QPA	TOTAL POINTS
Semester	45.0	42.0	3.52	148.0
Cumulative	166.0	62.0	3.52	218.0

Spring 2016

DPT	CRS #	COURSE TITLE	UNITS	FINAL GRADE	QUALITY POINTS
CS	15214	PRIN 0-0 SFTWR CONST	12.0	A	48.0
CS	15251	GRT THERTCL IDEAS CS	12.0	B	36.0
ECO	73100	PRINC OF ECONOMICS	9.0	B	27.0
PHI	80180	NATURE OF LANGUAGE	9.0	A	36.0
PSY	85241	SOCIAL PSYCH	9.0	B	27.0

	UNITS PASSED	UNITS FACTORABLE	FINAL QPA	TOTAL POINTS
Semester	51.0	51.0	3.41	174.0
Cumulative	217.0	113.0	3.47	392.0

2016 / 2017

Fall 2016

Dean's List

DPT	CRS #	COURSE TITLE	UNITS	FINAL GRADE	QUALITY POINTS
CS	15210	PRL SEQ DATA STR ALG	12.0	B	36.0
CS	15213	INTR COMPUTER SYSTEMS	12.0	A	48.0
PHY	33104	EXPERIMNTL PHYSICS	9.0	A	36.0
STA	36217	PROB THEO RNDM PROC	9.0	A	36.0
ENG	76270	WRITNG FOR PROFESSNS	9.0	A	36.0

	UNITS PASSED	UNITS FACTORABLE	FINAL QPA	TOTAL POINTS
Semester	51.0	51.0	3.76	192.0
Cumulative	268.0	164.0	3.56	584.0

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Carnegie Mellon University

:: Unofficial Academic Record as of 25 Jul 2017

Spring 2017

DPT	CRS #	COURSE TITLE	UNITS	FINAL GRADE	QUALITY POINTS
CEE	12100	INTRO CIV & ENV ENG	12.0	A	48.0
CS	15381	AI RPRSNTN & PRB SLV	9.0	A	36.0
CS	15440	DISTRIBUTED SYSTEMS	12.0	B	36.0
CS	15451	ALGORITHM DES & ANLS	12.0	B	36.0
ECE	18240	STRC DES DIGTL SYSTM	12.0	B	36.0
ML	82252	KOREAN CIN TRAN PERS	9.0	A	36.0

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	UNITS PASSED	UNITS FACTORABLE	FINAL QPA	TOTAL POINTS
Semester	66.0	66.0	3.45	228.0
Cumulative	334.0	230.0	3.53	812.0

2017 / 2018

Fall 2017

DPT	CRS #	COURSE TITLE	UNITS	FINAL GRADE	QUALITY POINTS
MLG	10601	MACHINE LEARNING	12.0		0.0
CS	15437	WEB APPLCTN DEVLPMNT	12.0		0.0
CS	15453	FRML LNG ATMT & CMPB	9.0		0.0
CS	15487	INTRO CMP SECURITY	12.0		0.0
ECE	18349	INTRO EMBEDDED SYS	12.0		0.0
PHI	80310	FORMAL LOGIC	9.0		0.0

	UNITS PASSED	UNITS FACTORABLE	FINAL QPA	TOTAL POINTS
Semester				
Cumulative				

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End of Undergraduate Record
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