

# Northwestern | THE GRADUATE SCHOOL

## Application for Admission

App Type **New Student** Submitted Date **12-27-2018** App ID# **79371756**

Intended **Full-time** Status Entry **Fall 2019** Quarter Prior TGS Applicant (Program)

Last Name **Lin** First **Stephanie** Middle **C**

Gender Pronouns (US only) **she/her/hers** Birthdate **07-15-1997** Gender **Female**

Program **Computer Science: MS** Secondary PhD (MEAS Only)

Specialization/Area of Interest **Graphics** MS Consideration (MEAS Only)

Cluster

JD/PhD No DPT/PhD No Fee Waiver US Vet/Active Forces No

Ethnicity **Asian** Hispanic **No**

Citizenship **UNITED STATES** Visa

Citizenship Status **U.S. Citizen**

Country of Birth **CANADA** Green Card #

Current Address  
**7512 Forest Hill Rd** Permanent Address  
**7512 Forest Hill Rd**

**Burr Ridge, IL, 60527**  
**UNITED STATES**

Current Phone **6303378278** Permanent Phone

Cell Phone **6303378278** Preferred Phone **Cell Phone Number**  
Number

Email Address **sci97@cornell.edu**

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Previous Institution From To Field of Study Level Degree Date  
**Cornell University** **08-25-2015** **05-26-2019** **Electrical & Computer Engineering** **US Bachelor of Science**

Cumulative UG GPA	<b>3.42</b>	UG Junior/Senior Year GPA	<b>3.52</b>
Cumulative UG GPA - Unconverted		Max UG GPA Scale	
Cumulative Grad GPA			
Cumulative Grad GPA - Unconverted		Max Grad GPA Scale	

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Letters of Recommendation

1. **Steven Petersen** [steven.t.petersen@intel.com](mailto:steven.t.petersen@intel.com)
  2. **Peter Doerschuk** [pd83@cornell.edu](mailto:pd83@cornell.edu)
  3. **James Shealy** [jrs27@cornell.edu](mailto:jrs27@cornell.edu)
  - 4.
  - 5.
- 

Are you interested in studying with specific faculty members? (List names below)

1. First Name **Oliver** Last Name **Cossairt**
  2. First Name **Jack** Last Name **Tumblin**
  3. First Name **Anne Marie** Last Name **Piper**
  4. First Name \_\_\_\_\_ Last Name \_\_\_\_\_
- 

Please indicate the highest level of education completed by your parent(s) or guardian(s) (the one or two people most responsible for raising you)

First individual's highest level of education completed: **Bachelor's degree or equivalent**

If other, please explain:

Second individual's highest level of education completed: **Bachelor's degree or equivalent**

If other, please explain:

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Language

Reading

Writing

Speaking

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Self-Reported Test Scores

GRE Gen **11-24-2018** Verbal **159** **83** Quant **166** **90** A.W. **4** **59**

GRE Sub     LSAT

TOEFL  Ovr  Read  List  Speak  Writ  IELTS  Ovr

GMAT  Tot   Verb   Quant   A.W.   I.R.

MCAT  Bioscience   Verbal   Physical Science

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Please list any honors you have been awarded  
**Dean's List [Spring 2016, 2018]**  
**IHSA State Badminton Singles State Champion [2013, 2014, 2015]**

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Have you applied for or been awarded an external fellowship?

Yes  No  If yes, please specify:

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Please describe your plans for the future.

**I intend to pursue a professional career involving computer graphics or human-computer interaction. My goal is to work for a creativity software firm, specifically to develop illustration and animation platforms.**

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Other Universities Applied (in preferred rank order)

- |  |  |                   |
|--|--|-------------------|
| 1. School Drop Down                        | <b>University of Illinois-Urbana</b>     | 5. School "other" |
| 2. School Drop Down                        | <b>Cornell University</b>                | 6. School "other" |
| 3. School Drop Down                        | <b>University of California-Berkeley</b> | 7. School "other" |
| 4. School Drop Down                        | <b>University of Michigan</b>            | 8. School "other" |
| <b>University of Minnesota-Twin Cities</b> |  |                   |
- 

Academic misconduct? Yes  No  Convicted of crime? Yes  No

If answered yes, applicant is asked to upload explanation. If uploaded, explanation will be attached to end of application PDF.

## Statement of Purpose

During my undergraduate studies, I was exposed to the extensive breadth of Cornell's Electrical and Computer Engineering department. My academic basis in hardware and computer systems gives me the platform to begin exploring my interests in the computer science field. I am strongly motivated to study graphics and human-computer interaction because of my personal experience with creativity software. I aim to utilize my artistic and technical backgrounds to design ergonomic and aesthetic interfaces for visual media creators.

One of my keystone undergraduate projects was a mock heart rate monitor on an FPGA board. This project was the culmination of computer organization concepts such as combinational logic, memory latency, and pipelining. I used Verilog to implement data path modules and control signals for two different processors: one with data forwarding and two-way set associative caches, and one without. I also implemented arrhythmia detection and heart rate indicators, displaying data both numerically as well as on a scale of frequency-dependent LEDs. After extensive simulation, I learned how forwarding, branch prediction, and various cache replacement policies effectively boost performance in terms of execution time, power, and area. During this process, I developed a strong affinity for structural coding logic and was introduced to unit testing. Most importantly, this project was meaningful because I witnessed the results of my coding on a complex, integrated device.

To gain further insight on the applications of my coursework, I interned with a full-chip verification team last summer at Intel Corporation in Hillsboro, Oregon. There, I learned the fundamentals of test-driven development and applied them to my tasks. I attended a series of verification seminars to understand how Intel's teams were utilizing checking and coverage to enhance design flows and debug tests. My team tasked me with writing a program to translate the completeness of core-uncore data transactions into a clear visual representation. I challenged myself to consider the clarity and thoroughness of my program output and develop flexible code adaptable to related tasks. I used Python and PyCharm to generate machine-readable xml scenario files while collaborating with Intel's Israeli team, ultimately achieving accurate and informative coverage messages. My main contributions included improving coverage data extraction, exposing limitations in the provided testing tools, and streamlining the transaction checking process.

My internship spurred me to explore human perception of visual data and how I could connect it with my non-technical skills. Recently, I had the opportunity to take a course in creative character design at Cornell, which inspired me to combine my passion for artistic design with my engineering background. Outside my student life, I am a freelance digital artist specializing in custom raster graphics, with extensive experience in free-hand illustration and traditional animation. I work closely with editing programs such as Clip Studio Paint and the Adobe Suite, which include functionalities such as raster-to-vector transformation, 3D modeling, and pattern

detection. I am most curious about the intersection between traditional and digital animation in emerging software packages such as TVPaint and Clip Studio Paint EX. The combination of manual illustration and computer graphics promises a new age of speed and artistic excellence for digital artists such as myself. The challenges of creating digital art can be attributed to three broad but interrelated issues: software inefficiency, intuitiveness of the interface, and physical discomfort. Industry professionals bound by strict deadlines often suffer from health issues such as carpal tunnel syndrome and sciatica from long hours at their desks. Improving the functionality of their software programs would increase efficacy and alleviate many time-related concerns without sacrificing quality of work. My ultimate goal is to enhance the efficiency and user-friendliness of creativity software used in both professional and amateur environments.

For these reasons, I would like to study computer graphics and human-computer interaction at Northwestern University. I aspire to join a research group such as Associate Professor Oliver Cossairt's Computational Photography Lab. His work in utilizing optics and image processing to render computer graphics correlates with my desire to improve creativity software. I am keen to learn how computational cameras and image processing can potentially apply to both 2D and 3D illustration software. In particular, techniques such as CGI animation and 2D rotoscoping could greatly benefit from tools that translate the traits of physical objects from images to digital settings. The demand for better, smarter creativity software is spurred by the soaring popularity of online webcomic hosts such as LINE and Tapas. Groups such as the Computational Photography Lab would provide the framework for me to explore the junction between computer programming, creative interfaces, and the budding artistic communities that seek these new tools. It would be a privilege to conduct research under the guidance of fellow students and Northwestern University's remarkable faculty.

Alongside my primary curriculum, I have completed/plan to complete coursework in object-oriented programming, discrete structures, and data structures. I feel that I am well-prepared to venture further into the computer science field, having established a solid foothold in electrical and computer engineering. I wish to pursue the union of my artistic will and technological education in Northwestern University's Master of Science program. Through my graduate studies, I expect to work hard to become an innovative problem-solver and an inspired creator.



Cornell University

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RECORD OF: Stephanie C Lin

CORNELL I.D. NO.: 3583950

RECORD DATE: 12/20/2018

PAGE: 1 of 2



COURSE TITLE	SUBJECT/NUMBER	MEDIAN	TOTAL ENROLLED	UNITS	GRADE	COURSE TITLE	SUBJECT/NUMBER	MEDIAN	TOTAL ENROLLED	UNITS	GRADE
<b>FALL 2015</b>											
Program: Engineering						Program: Engineering					
Plan: Unaffiliated						Plan: Unaffiliated					
INTRO BIO: COMP PHYSIOLOGY	BIOG 1440	(A-)	(350)	3.00	A-	MARKETING	AEM 2400	(A)	(384)	3.00	A
ENGINEERING GENERAL CHEMISTRY	CHEM 2090	(B)	(355)	4.00	B+	OBJ-ORIENTED PROG & DATA STRUC	ENGRD 2110	(B)	(426)	3.00	B+
INTRO COMPUTING USING MATLAB	CS 1112	(B)	(227)	4.00	B	DIGITAL LOGIC & COMPUTER ORG.	ENGRD 2300	(A-)	(126)	4.00	A-
FWS: MYSTERY IN THE STORY	ENGL 1147	(A-)	(66)	3.00	A	DIFFERENTIAL EQUATIONS ENGRS	MATH 2930	(B)	(400)	4.00	B
ENGINEERING SEMINAR	ENGRG 1050	(N/A)		1.00	SX	PHYS III-OSC WAVES & QUAN PHYS	PHYS 2214	(B+)	(128)	4.00	B
COOPERATIVE WORKSHOP MATH 1910	ENGRG 1091	(N/A)		1.00	SX	TEACHING AND LEARNING PHYSICS	PHYS 4484	(N/A)		1.00	SX
CALCULUS FOR ENGINEERS	MATH 1910	(B)	(294)	4.00	B	TEACHING EXPERIENCE I	PHYS 4485	(N/A)		1.00	SX
BALLROOM DANCING	PE 1150	(N/A)		1.00	SX						
TEST CREDITS APPLIED TOWARD ENGINEERING PROGRAM											
AP Biology	BIOG 1101F			4.00	4.0						
AP Computer Science A	CS 1110			4.00	5.0						
AP English Literature & Compos	ENGL 1100F			3.00	5.0						
AP English Language & Composit	ENGL 1102A			3.00	5.0						
AP European Hist/World Culture	HIST 9999			4.00	5.0						
AP Mathematics: Calculus BC	MATH 1910			4.00	5.0						
AP Physics C - Mechanics	PHYS 1112			4.00	5.0						
AP Spanish Language	SPAN 1100C			3.00	5.0						
AP U.S. History	UNIV 1101			4.00	5.0						
Transfer Totals:				33.00							
<b>SPRING 2016</b>											
Program: Engineering						Program: Engineering					
Plan: Unaffiliated						Plan: Electrical and Computer Engineering					
DISCRETE STRUCTURES	CS 2800	(B+)	(329)	3.00	C+	INTRO TO CIRC ELEC & COMP ENGR	ECE 2100	(A-)	(54)	4.00	A
ENGR APPLICATIONS OF ORIE	ENGRI 1101	(A)	(41)	3.00	A	SIGNALS AND INFORMATION	ECE 2200	(B)	(80)	4.00	C
MULTIVARIABLE CALCULUS ENGRS	MATH 1920	(B+)	(364)	4.00	A-	EMBEDDED SYSTEMS	ECE 3140	(B+)	(166)	4.00	B
SWING DANCE I	PE 1170	(N/A)		1.00	SX	INTRO MICROECONOMICS	ECON 1110	(B+)	(460)	3.00	B+
PHYSICS II: ELECTROMAGNETISM	PHYS 2213	(B+)	(237)	4.00	A	LINEAR ALGEBRA FOR ENGINEERS	MATH 2940	(B)	(489)	4.00	B
						TEACHING EXPERIENCE I	PHYS 4485	(N/A)		1.00	SX
**DEAN'S LIST**											
<b>FALL 2016</b>											
Program: Engineering						Program: Engineering					
Plan: Unaffiliated						Plan: Unaffiliated					
MARKETING	AEM 2400	(A)	(384)	3.00	A						
OBJ-ORIENTED PROG & DATA STRUC	ENGRD 2110	(B)	(426)	3.00	B+						
DIGITAL LOGIC & COMPUTER ORG.	ENGRD 2300	(A-)	(126)	4.00	A-						
DIFFERENTIAL EQUATIONS ENGRS	MATH 2930	(B)	(400)	4.00	B						
PHYS III-OSC WAVES & QUAN PHYS	PHYS 2214	(B+)	(128)	4.00	B						
TEACHING AND LEARNING PHYSICS	PHYS 4484	(N/A)		1.00	SX						
TEACHING EXPERIENCE I	PHYS 4485	(N/A)		1.00	SX						
<b>SPRING 2017</b>											
Program: Engineering						Program: Engineering					
Plan: Electrical and Computer Engineering						Plan: Electrical and Computer Engineering					
ELECTROMAGNETIC FIELDS & WAVES	ECE 3030	(B+)	(39)	4.00	B+						
MATH OF SIGNAL & SYS ANALYSIS	ECE 3250	(B+)	(56)	4.00	B-						
INTELLIGENT PHYSICAL SYSTEMS	ECE 3400	(A-)	(97)	4.00	B+						
INTRODUCTION TO ORGS & MGMT	ILRID 1700	(A-)	(61)	3.00	B+						
ELEMENTARY JAPANESE I	JAPAN 1101	(A)	(86)	6.00	A+						
INDIVID/GROUP PROJECTS IN M.E.	MAE 4900	(A)	(300)	3.00	A						
COURSE TOPIC(S): INDEPENDENT RESEARCH											
<b>SPRING 2018</b>											
Program: Engineering						Program: Engineering					
Plan: Electrical and Computer Engineering						Plan: Electrical and Computer Engineering					
GPS: THEORY AND DESIGN	ECE 4150	(N/A)		4.00	B						
COMM FOR ENGINEERING MANAGERS	ENGRC 3350	(A)	(51)	3.00	B+						
BASIC ENGR PROBABILITY & STATS	ENGRD 2700	(B)	(180)	3.00	B						
ELEMENTARY JAPANESE II	JAPAN 1102	(A)	(74)	6.00	A+						
**DEAN'S LIST**											
SEND TO: Stephanie Lin DOCID:21024911 United States											
<b>CASSANDRA DEMBOSKY</b> <b>UNIVERSITY REGISTRAR</b>											

RECORD OF: Stephanie C Lin

RECORD DATE: 12/20/2018

CORNELL I.D. NO.: 3583950

PAGE: 2 of 2



COURSE TITLE	SUBJECT/NUMBER	MEDIAN	TOTAL ENROLLED	UNITS	GRADE	COURSE TITLE	SUBJECT/NUMBER	MEDIAN	TOTAL ENROLLED	UNITS	GRADE
<b>FALL 2018</b>											
Program:	Engineering										
Plan:	Electrical and Computer Engineering										
LASERS AND OPTOELECTRONICS	ECE 4300	(N/A)		4.00	B						
COMPUTER ARCHITECTURE	ECE 4750	(N/A)		4.00	B+						
INTERMEDIATE JAPANESE I	JAPAN 2201	(N/A)		4.00	A						
ARCHERY	PE 1520	(N/A)		1.00	SX						
CREATIVE CHARACTER DESIGN	PMA 3614	(N/A)		3.00	A+						

Cumulative GPA: 3.422

END OF TRANSCRIPT

SEND TO: Stephanie Lin  
DOCID:21024911  
United States

CASSANDRA DEMBOSKY  
UNIVERSITY REGISTRAR

CNC	- Course cancelled after the ninth week of term.
FS, FWS	- First-Year Writing Seminar - Equivalent to one term of English Composition at many institutions.
GL	- In the descriptive title area - course taken at graduate level by Summer Session and Extramural students only.
H	- "HONORS" for LL. M. Candidates.
HH	- "HIGH HONORS" for LL. M. Candidates.
INC	- Course not completed for reasons acceptable to Instructor. Completion is indicated by an asterisk in the last position of the grade field.
NA -	Not attending.
NG	- Non-graded course - Grades are not awarded for these courses.
NGR	- No grade reported - Instructor has not submitted a grade for this course.
R	- Represents multi-term course not graded at end of first term.
S/U	- "S" means C- or above; "U" means D+, D, D- or failure.
SX/UX	- Indicates that a course is graded exclusively on "S" or "U" basis.
V	- Visitor - Audit; course taken on a non-credit basis.
W	- Indicates withdrawal from course after deadline.
*	- Preceding credit hours - indicates temporary credit. Total credit earned with final grade for course appears in the term following.
*	- In the grade field - indicates that the course was originally graded INC and has subsequently been completed.

**Cornell Study Abroad** - Transcript indicates courses taken, credits earned and foreign grades received. Foreign grades are not translated to the Cornell grading system.

**Physical Education** - Before 1982, Physical Education courses automatically printed on the transcript. If student took the course, the grade would be SX. If student did not enroll in the course, the grade would be UX.

**Accreditation** - Cornell University is accredited by the Middle States Association of Colleges and Schools.

**Language** - All courses are taught using the English language with the exception of certain language courses, e.g., French Literature or Japanese.

**Median Grades** - Median grades are posted on transcripts for all undergraduates matriculating in the Fall 2008 and after. Median grades are not reported for all courses.

#### Credit Hour Definition

A student will receive one credit by satisfactorily completing a course that requires at least fifteen hours (15) of instruction and at least thirty hours (30) of supplementary assignments. Hours are adjusted proportionately for other formats of study, e.g., laboratory, studio, research problem-based learning, and independent study.

#### Dean's List

Posting the Dean's List notation began with Fall term 1971. Dean's List awards are posted for all Undergraduate units.

#### Grading Systems prior to September 1965

These are described on a separate sheet which is provided with appropriate transcripts.

#### Current Grading System

Grades are on a letter scale: A+ through D-, pass; F, failure. The grades of S (satisfactory) or U (unsatisfactory) may be used when no greater precision in grading is required. Grades of S or U are not assigned numerical value and thus are not averaged with other grades in computing grade point averages.

Letter grade values are combined with course credit hours to produce an average based on a 4.3 scale. Semester and cumulative averages are included on the transcript.

For the purpose of computing semester, year or cumulative averages, each letter grade is assigned a quality point value as follows:

A+ = 4.3	B+ = 3.3	C+ = 2.3	D+ = 1.3
A = 4.0	B = 3.0	C = 2.0	D = 1.0
A- = 3.7	B- = 2.7	C- = 1.7	D- = 0.7

Beginning with Fall term 1983, Law School averages are computed using the following point values:

A+ = 4.33	B+ = 3.33	C+ = 2.33	D+ = 1.33
A = 4.00	B = 3.00	C = 2.00	D = 1.00
A- = 3.67	B- = 2.67	C- = 1.67	D- = 0.67

**There is only one official university transcript for an individual student which represents the complete Cornell University academic record.**

# STEPHANIE LIN

7512 Forest Hill Rd Burr Ridge, IL 60527 | (630)-337-8278 | scl97@cornell.edu

## EDUCATION

CORNELL UNIVERSITY | Ithaca, NY

B.S. in Electrical & Computer Engineering | Spring 2019 (expected) | GPA: 3.4

### Related Coursework:

- Signal & System Analysis
- Computer Architecture
- Discrete Structures
- Digital Logic/Computer Organization
- Embedded Systems
- Object-Oriented Programming
- GPS: Design & Theory
- Applications of Operations Research
- Intelligent Physical Systems
- Lasers & Optoelectronics
- Circuits and Electronics
- Communication for Engineering Managers

## EXPERIENCE

INTEL CORPORATION | Hillsboro, OR

Full Chip Verification Intern (6/2018 – 8/2018)

- Introduced to basic verification strategies, computer architecture concepts, and design flows.
- Developed code in python to generate thorough and reliable checking/coverage scenarios for core-uncore data transactions, reducing the coverage generation process from seven steps to just one.
- Utilized test-driven development and unit testing to ensure accuracy of 90% of up-to-date model predictions on latest generation Intel SoC specifications.
- Interfaced with SCRUM methodology during stand-up, retrospective, and cross-site meetings.

SEMICONDUCTOR MANUFACTURING INTERNATIONAL CORPORATION (SMIC) | Shanghai, China

Chip Design Intern (6/2017 – 8/2017)

- Participated in one-on-one and group seminars to learn about Verilog testbenches and simulations for a 14nm microcontroller unit.
- Studied digital waveforms to correlate clock safety with program execution in SoC designs.
- Became familiarized with basic git and linux/unix functions.

## PROJECTS

Maze-Traversing Robot | IPS Course Competition (Spring 2017)

- Integrated radio component to FPGA board on assembled robot using Arduino and Verilog.
- Simulated maze traversal using a depth-first search algorithm, displaying a live map correspondance on an FPGA VGA display.
- Outlined blueprints for wall-sensing limbs and conducted main construction (soldering, wiring, assembly) to optimize weight and speed without disrupting structural balance.
- Upgraded robot with custom motors/servos to enhance maneuverability and tuned sensors to detect maze walls and various frequency emitting "treasures."

Life Changing Make-A-Thon: "ParQ App" | 3<sup>rd</sup> Place Winner (Spring 2017)

- Developed business plan for mock tech company and researched target customer population via student body surveys and faculty interviews.
- Constructed model of parking garage with an Arduino board, LED, proximity sensors to simulate a location- and time-based live update app.
- Demonstrated functionality of app/website outline, constructed using HTML/CSS and Javascript.

Simulated Heart Rate Monitor | Digital Logic & Computer Org. Final Project (Fall 2017)

- Assembled basic Verilog processor in Quartus interface to simulate the human heart on an FPGA board.
- Utilized course knowledge involving gate logic, clock timing, branching functions, memory latency, and pipelining to code proper modules and state machine control signals.
- Final product enabled a series of LEDs on FPGA board to indicate heart rate and arrhythmia on a scale of connected lights as well as in numerical format.

## SKILLS

**PROGRAMMING LANGUAGES:** Python, Java, MATLAB, PyMTL Hardware Modeling Framework, Verilog, C, HTML/CSS

**ENVIRONMENTS:** Linux, Unix, Git, Pycharm, Eclipse, uVision, Quartus, SolidWorks

**DIGITAL DESIGN/EDITING:** Adobe Creative Suite, Paint Tool SAI, Clip Studio Paint, Wacom Intuos4

**COMMUNICATION:** Mandarin Chinese (native fluency), Japanese, (basic fluency), Spanish (basic fluency)

## LEADERSHIP & HONORS

Cornell University | Dean's List (Spring 2016 & 2018)

SMIC English Salon | Head Language Instructor (6/2017 – 8/2017)

Cornell University Physics Department | Undergraduate Teaching Assistant (8/2016 – 5/2017)

Encouraging Young Engineers & Scientists | Member (since 8/2016)

Cornell Badminton Club | Member (since 8/2015)

Stephanie Lin

Most Recent Test Date: November 24, 2018

Address: 7512 Forest Hill Rd, Burr Ridge, IL, 60527 United States

Registration Number: 4574304  
Print Date: December 18, 2018

Email: scl97@cornell.edu

Phone: 1-6303378278

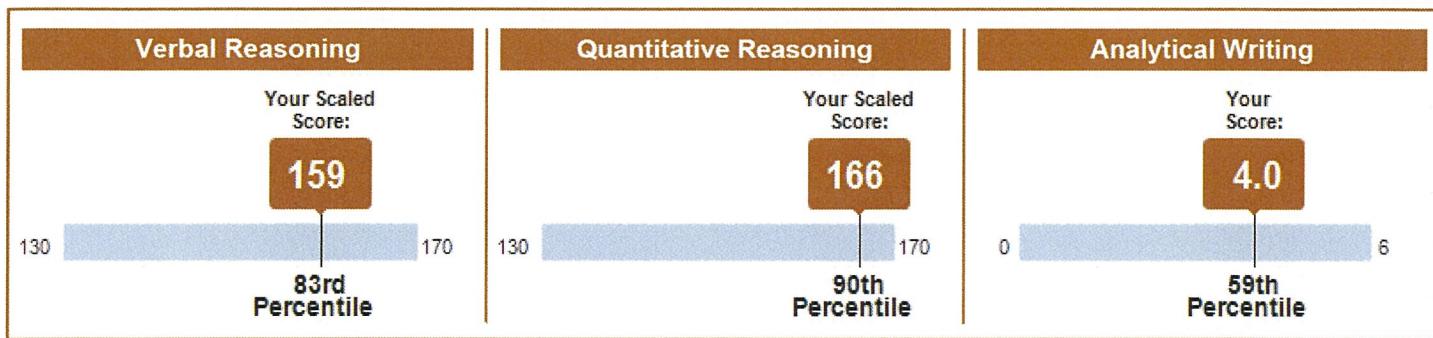
Date of Birth: July 15, 1997

Social Security Number (Last Four Digits): 3693

Gender: Female

Intended Graduate Major: Computer Science (0402)

## Your Scores for the General Test Taken on November 24, 2018



## Your Test Score History

## General Test Scores

	Verbal Reasoning	Quantitative Reasoning	Analytical Writing			
Test Date	Scaled Score	Percentile	Scaled Score	Percentile	Score	Percentile
November 24, 2018	159	83	166	90	4.0	59

## Subject Test Scores

You do not have reportable test scores at this time.

## Your Score Recipient(s)

## Undergraduate Institution

Report Date	Institution (Code)	Department (Code)	Test Title	Test Date

Stephanie Lin

Most Recent Test Date: November 24, 2018

Date of Birth: July 15, 1997

Registration Number: 4574304  
Print Date: December 18, 2018**Designated Score Recipient(s)**

Report Date	Score Recipient (Code)	Department (Code)	Test Title	Test Date
December 7, 2018	NORTHWESTERN UNIVERSITY ( 1565)		General Test	November 24, 2018
December 7, 2018	U CA BERKELEY ( 4833)		General Test	November 24, 2018
December 7, 2018	UNIV ILLINOIS URBANA ( 1836)		General Test	November 24, 2018
December 7, 2018	UNIV MICHIGAN ANN ARBOR ( 1839)		General Test	November 24, 2018
December 7, 2018	UNIV MINNESOTA MINNEAPOLIS ( 6874)		General Test	November 24, 2018
December 7, 2018	UNIV TEXAS AUSTIN ( 6882)		General Test	November 24, 2018

**About Your GRE® Score Report****Score Reporting Policies**

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- Most Recent option – Send your scores from your most recent test administration
- All option – Send your scores from all administrations in the last five years
- Any option – Send your scores from one OR as many test administrations in the last five years (this option is not available on test day when you select up to four FREE score reports)

Scores for a test administration must be reported in their entirety. Institutions will receive score reports that show only the scores that you selected to send to them. There will be no special indication if you have taken additional GRE tests. See the *GRE® Information Bulletin* for details. The policies and procedures explained in the Bulletin for the current testing year supersede previous policies and procedures in previous bulletins.

Scores will be sent to designated score recipients approximately 10-15 days after a computer-delivered test and 5 weeks after a paper-delivered test. If your scores are not available for any reason, you will see "Not Available" in Your Test Score History.

GRE test scores are reportable according to the following policies:

- For tests taken prior to July 1, 2016, scores are reportable for five (5) years following the testing year in which you tested (July 1 – June 30). For example, scores for a test taken on May 15, 2015, are reportable through June 30, 2020. GRE scores earned prior to August 2011 are no longer reportable.
- For tests taken on or after July 1, 2016, scores are reportable for five (5) years following your test date. For example, scores for a test taken on July 3, 2016, are reportable through July 2, 2021.

Note: Score recipients will only receive scores from test administrations that you have selected to send to them.

**Percentile Rank (% Below)**

A percentile rank for a test score indicates the percentage of test takers who took that test and received a lower score. Regardless of when the reported scores were earned, the percentile ranks for General Test and Subject Test scores are based on the scores of all test takers who tested within the most recent three-year period.

Stephanie Lin

Most Recent Test Date: November 24, 2018

Date of Birth: July 15, 1997

Registration Number: 4574304  
Print Date: December 18, 2018**Retaking a GRE Test**

You can take the GRE® General Test *once every 21 days, up to five times* within any continuous rolling 12-month period (365 days). This applies even if you canceled your scores on a test taken previously. You can take the paper-delivered GRE General Test and GRE® Subject Tests as often as they are offered.

Note: This policy will be enforced even if a violation is not immediately identified (e.g., inconsistent registration information) and test scores have been reported. In such cases, the invalid scores will be canceled and score recipients will be notified of the cancellation. Test fees will be forfeited.

**For More Information**

For information about interpreting your scores, see *Interpreting Your GRE Scores* at [www.ets.org/gre/understand](http://www.ets.org/gre/understand).

For detailed information about your performance on the Verbal Reasoning and Quantitative Reasoning sections of the computer-delivered GRE General Test, access the free GRE Diagnostic Service from your ETS account. This service includes a description of the types of questions you answered right and wrong, the difficulty level of each question, and the time spent on each question. This service is available approximately 15 days after your test administration and for six months following your test administration.

If you have any questions concerning your score report, email GRE Services at [gre-info@ets.org](mailto:gre-info@ets.org) or call 1-609-771-7670 or 1-866-473-4373 (toll free for test takers in the U.S., U.S. Territories and Canada) between 8 a.m. and 7:45 p.m. (New York Time).

## Diversity Statement

My first encounter with engineering was through an art piece: “*Orange Cat*,” drawn circa 2000. The medium was waxy orange crayons on 8.5 by 11-inch printer paper. While recreating the likeness of my pet cat was rather impressive for a toddler, Crayola doodles hardly seem like the basis for engineering. The parallels between the two were realized many years later, when I developed a unique identity as an aspiring artist-engineer. Now, my affinities for art and science are what drive me to use my academic accomplishments to pursue the field of computer science.

At the start of my undergraduate career, I struggled to reconcile the ideal engineer with the artist that defined my formative years. At four, I wielded art box crayons and at fourteen, I was illustrating with a digital tablet. But when I enrolled in my most vigorous courses, I could not envision any overlap between computer engineering and creative visual media. The union of these two discrete worlds seemed as far as apart as day and night, and my perception of STEM grew stagnant and flat. Truth be told, I did not find unit testing and signal analysis thrilling, to say the least. I was convinced that beyond the textbook theorems, there would be a treasure chest full of stimulating and brilliant projects awaiting me, but the motivation required to reach it always slipped through my fingers. I lost sight of my origins altogether, doubted my disposition for computer engineering, and wondered if it was really my true calling. I asked myself what had drawn me to this field in the first place, and upon closer examination of my academic life, I found three things: my problem, my solution, and my dormant ambition.

I recalled the love I poured into my artwork, imbuing meaning into the colors, shapes, and symbols for people to interpret and appreciate. For me, the thrill of art is less about the process, and more about the reaction I receive when I share it. Yes, the praise and constructive criticism are welcome, but more than anything I craved the impact I made on my audience. It was the delight in my parents’ eyes as I proudly presented my beloved (and lopsided) orange cat doodle, the enthusiasm of friends who witnessed my shaky first attempts at digital art, and even the pleasant surprise of my internship manager who noticed the background of my phone, set to a scenery I had drawn. Everything I made was for that little lightbulb moment, the spark of interest that gave my art significance and spurred me to create more.

However, at some point during my undergraduate years, I concluded that this was “just a hobby.” My proficiency with several editing and creativity software were rendered irrelevant and obsolete in the face of my more challenging coursework. I truly missed that creative outlet, so I set off on a personal quest to rediscover those roots as a scholar. Come sophomore year, Cornell’s Intelligent Physical Systems course challenged me and my team of five to create a maze-traversing robot with mapping capabilities. My numbness to academia trickled away as I dove into the design project and claimed the responsibilities of structural design and radio connection. When our robot rolled its way through the maze on competition day, I could see the physical results of my code. On top of that, my knack for visual design helped us achieve a functional, organized, and balanced robot. We didn’t win any outstanding prizes, but that little

robot gave me a new sense of pride and accomplishment. It was technology, but it was also art. I was back in my creative groove, rediscovering my passion for engineering.

Instead of hiding away my artistic proficiency, I began integrating it into my work. I considered art as a form of self-expression and engineering its marriage with innovation and science. Controlling ink to draw a perfect line stroke, with just the right weight and flourish, is just as daunting a task as writing any function in code. This was a masterful strength I could channel into my evolving academic niche. During my junior year, I joined a Make-a-Thon competition with four teammates. The theme of the year was “transportation,” so we created a mock mobile app to track the availability of parking spaces and called it ParQ. During our final presentation to a board of potential startup sponsors, I presented a miniature parking lot model I had built with the provided Arduino board and various crafting materials. With technology in one hand and blueprints in the other, I pitched our Make-a-Thon project to the panel, quite literally holding engineering and art hand-in-hand.

ParQ was a springboard into a world of similarly enriching experiences. I became an undergraduate teaching assistant with the physics department, looking to become more well-rounded socially and academically. There, I was both the giver and the receiver, enthralled by the constant positive feedback loop associated with my task. The students I tutored had nonstop lightbulb moments that I never tired of because in turn, they illuminated my desire to guide the learning process. My love for teaching blossomed to such an extent that I even brought it overseas.

During my internship at the Semiconductor Manufacturing International Corporation (SMIC) in Shanghai, China, I volunteered as an English instructor outside my regular duties. I promoted a new curriculum for SMIC’s employees, but given my novice Mandarin skills, overcoming the age and language barriers proved difficult. Despite this setback, I forged an invaluable connection with my coworkers through inventive communication methods. I taught visually and verbally, using drawings and diagrams as our unifying language. We painted with our body gestures, forming words in a game of charades. When elated laughter broke out in the classroom, I knew I’d succeeded in achieving the lightbulb moment. Although we’d completely departed from the realm of engineering, every mind in the room bridged the gap between languages and generated knowledge, enthusiasm, and mutual growth.

I began thriving on the exchange of information, itching to show more than just what I had learned, but also what people could glean from my work. Art provided me the means to both absorb and impart knowledge, a multidirectional technique applicable to any environment. No longer eking out a passive academic life, I started relishing the artistic process of computer engineering, a seemingly menial outlook that proved monumental to me.

I was able to embrace my artistic affinity in two particular school activities. The first was within a group called EYES: Encouraging Young Engineers and Scientists. Just as the name suggests, the club’s purpose is to introduce STEM concepts to K-12 students. We conducted fun and engaging projects, from common science fair experiments to colorful physics demonstrations.

While the vinegar and baking soda volcano is a classic, my favorite project was the paper boat propulsion lab. Very quickly, I learned that although children are the most difficult audience to please, their nascent curiosity leads to a splendid eagerness to learn. Capitalizing on this, I introduced a hands-on activity in which each grade schooler would craft their own boat from paper. Our club members helped unfold their designs into structurally sound boats, bringing their art to life. We blew up balloons, which upon release would propel the boats across the room. With this project, I emphasized visual design, construction, and demonstration of basic physics concepts. The students laughed at the sound of propeller balloon flatulence and grew wide-eyed at the most aerodynamic ships. Surrounded by toothy grins and the children's honest fervor to learn more, I once again witnessed the power of sharing knowledge.

Just this past semester, I met a fellow engineering major in my creative character design course whose project team endeavors shed new light on my capabilities as an electrical and computer engineer. I realized I could impact the art world with my skillset and enable others to share their work just as I have done, or perhaps even better. Inspired by how my classmate translated her classwork on character composition to her technical project, I began solidifying my goals to pursue the computer science track in graduate school. I have decided to study graphics and human-computer interaction, two disciplines that best apply art and communication to technology. Despite my lack of formal artistic training, I possess a passion and talent for visual aesthetics and clean, purposeful portrayals that I can adapt to a programming platform. My longtime ventures with digital art have exposed me to creativity software such as the Adobe Suite, and I am particularly drawn to the recent uptake of AI algorithms in raster programs such as Clip Studio Paint and TVPaint, two Japanese software that I frequently utilize for illustration and 2-D animation. My goal is to impact digital artist communities by developing improvements to similar programs, granting better tools to professionals and amateurs alike. I am well-equipped with my undergraduate curriculum to tackle new challenges in the CS realm and eventually enhance the artistic experience for artists around the world.

My journey to finding a personally poignant and relevant ambition has been a tumultuous but exhilarating process. I have emerged triumphant from it, grasping the brush with which I will paint my future career. Whether it is a crayon cat, a multicore processor, or the software innovations I shall explore in the future, I hope that all my work can evoke a greater sense of creativity. With the resources and mentorships from my graduate education, I will strive for that crowning lightbulb moment in myself, my peers, and my community over and over again.

# Northwestern | THE GRADUATE SCHOOL

## Recommendation Form

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The Graduate School Northwestern University Evanston, IL 60208-1113

Applicant Name: **Stephanie Lin**

Program: **Computer Science: MS**

Applicant Waived Rights\*: **This applicant has waived the right to view their recommendation.**

Recommender Name: **Steven Petersen**

Organization Name: **Intel Corporation**

Title: **DDG SoC Fullchip Validation Manager**

E-mail Address: **steven.t.petersen@intel.com**

Telephone Number: **+1 503-712-9990**

Relationship to Applicant: **Manager**

Certification (Date): **12-09-2018**

\*“Public Law 93-380, Educational Amendments Act of 1974, grants students the right to have access to letters of recommendation in their placement files. By selecting the "Waive access" option you are waiving access to these letters.”

December 9, 2018

Dear Northwestern University Graduate Admissions,

It is my pleasure to recommend Stephanie Lin for admission to the Computer Science graduate program at Northwestern University. I have known Stephanie for the past six months and was her manager during a highly successful three month internship at Intel Corp. this summer. Stephanie's internship involved writing software required for the testing of Intel's latest generation microprocessor design.

Stephanie impressed my team members and me with her ability to quickly learn and apply new concepts. For example, while her academic background was computer hardware focused, she showed a strong ability to learn and apply software skills and was soon coding Python and applying test driven development. Also, she was not initially familiar with the use of coverage code to verify if desired test conditions were achieved during testing of a computer chip design, but was soon able to extend our coverage framework's single event detection to enable identification of sequences of events.

Stephanie brings enthusiasm and team spirit to her work, which was important in our work group where we employ an agile/scrum methodology that requires close communication and collaboration on a day to day basis. Stephanie adapted well to that environment and demonstrated strong communication skills in daily meetings held to report work status and impediments to the team. Her work required her to interact frequently with a tool supplier located at an Intel site in Israel, which can bring communication challenges both due to time zone and culture, none of which proved a problem for Stephanie.

In our group, which is responsible for thoroughly testing microprocessor designs before the expensive step of manufacturing an actual chip, Stephanie's detail orientation and quality focus were great assets to our team. Besides rigorously applying testing to her own software, she was able to uncover performance issues in the coverage tool supplied by the Israeli team. She also streamlined our process for analyzing coverage data, which has saved our team both time and effort.

With her ability to quickly apply learnings to real world problems, strong interpersonal and communication skills, enthusiasm, and detail orientation, I know Stephanie will excel in and be an asset to your graduate program, and I confidently recommend her for admission. Please feel free to contact me at the email address or phone number listed below, if you require any additional information.

Sincerely,  
Steven T. Petersen  
DDG SoC Fullchip Validation Manager  
Intel Corp.

[steven.t.petersen@intel.com](mailto:steven.t.petersen@intel.com)

503-866-1852

# Northwestern | THE GRADUATE SCHOOL

## Recommendation Form

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The Graduate School Northwestern University Evanston, IL 60208-1113

Applicant Name: **Stephanie Lin**

Program: **Computer Science: MS**

Applicant Waived Rights\*: **This applicant has waived the right to view their recommendation.**

Recommender Name: **Peter Doerschuk**

Organization Name: **Cornell University**

Title: **Professor of Electrical & Computer Engineering**

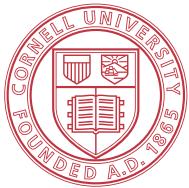
E-mail Address: **pd83@cornell.edu**

Telephone Number: **6072554179**

Relationship to Applicant: **instructor in course**

Certification (Date): **12-03-2018**

\*“Public Law 93-380, Educational Amendments Act of 1974, grants students the right to have access to letters of recommendation in their placement files. By selecting the "Waive access" option you are waiving access to these letters.”



# Cornell University

## School of Electrical and Computer Engineering

School of Electrical and Computer Engineering  
Meinig School of Biomedical Engineering  
Cornell University  
305 Phillips Hall  
Ithaca, NY 14853  
607-255-4179 (voice)  
pd83@cornell.edu

December 3, 2018

Northwestern University  
Computer Science: MS

Dear Admissions Committee:

I write in enthusiastic support of Ms. Stephanie Lin's application to your graduate program.

I know Stephanie because she was in ECE2200 "Signals and Information" during Spring 2017. This is a required sophomore level course in discrete-time and continuous-time linear systems covering topics such as Fourier transforms, convolution, and so forth. The course includes weekly homework, three midterm exams, a final exam, and a software lab (**Matlab**) that meets about 6 weeks of the semester. The grades for the 82 students are computed by an algorithm and she was 65<sup>th</sup> which was a C. The students found the first midterm exam to be very difficult so I gave optional take-home extra-credit problems. Characteristically of Stephanie, she was very determined and got 100% of the extra credit points! Also characteristically of Stephanie, she worked very hard on the homework and received 72 when the mean  $\pm$  standard deviation was  $63 \pm 12$ . She did not do better overall because she did poorly on the second of three midterm exams (51 versus  $77 \pm 16$ ) and a bit below the average on the final exam (113 versus  $146 \pm 31$ ).

Kolbeinn Karlsson, a very successful Ph.D. graduate from Prof. Stephen Wicker's group, was a Teaching Assistant for ECE2200. I encourage the students to study and work on homework together and Stephanie did so. Kolbeinn knows that I have written a letter for Stephanie's team partner and when I asked for information regarding Stephanie, he wrote:

I'm glad to hear that you are writing a letter for Stephanie as well. She is an excellent student and will undoubtedly do well going forward. Stephanie and [partner's name] always came together to office hours. I mostly interacted with them together and what I said about [partner's name] applies equally to Stephanie. She shows up to office hours every week with questions prepared and has clearly given

them a lot of thought beforehand, which speaks volumes of her work ethic. She also possesses that rare quality among students: a desire to truly understand the material and not just how to get through a problem set or an exam. When she got problems wrong on a home work assignment or exam, she didn't frustrate, but rather curious to understand where her mental process had led her astray. Those kinds of interactions illustrated to me not just that she had the analytical skills to do well in the course, but also the persistence it takes to get through grad school.

My recollections are the same, but Kolbeinn is more articulate than I am!

I am very impressed by the extent to which Stephanie has a clear vision about her goals. She is passionate about digital art and would like to explore graphics and human-computer interaction to create better tools for budding illustrators. Stephanie is quite knowledgeable in this area since she has free-lance experience using current software tools in this area. Less directly in the digital art area, but still having important human-computer interaction issues, Stephanie has been a summer intern at Intel doing full-chip verification.

Stephanie writes very well!

In summary, Stephanie will be a well prepared, capable, well motivated, reliable graduate student and I recommend her highly!

Please contact me if you have questions.

Sincerely yours,

*Peter C. Doerschuk*

Peter C. Doerschuk  
Professor of Electrical and Computer  
Engineering and Biomedical  
Engineering

## Recommendation Form

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The Graduate School Northwestern University Evanston, IL 60208-1113

Applicant Name: **Stephanie Lin**

Program: **Computer Science: MS**

Applicant Waived Rights\*: **This applicant has waived the right to view their recommendation.**

Recommender Name: **James Shealy**

Organization Name: **Cornell University**

Title: **Professor of Electrical & Computer Engineering**

E-mail Address: **jrs27@cornell.edu**

Telephone Number: **607-255-4657**

Relationship to Applicant: **Processor in ECE course**

Certification (Date): **11-29-2018**

\*“Public Law 93-380, Educational Amendments Act of 1974, grants students the right to have access to letters of recommendation in their placement files. By selecting the "Waive access" option you are waiving access to these letters.”

I am writing to recommend Stephanie Lin for graduate studies in ECE. I have known her for over a year since she took an Introduction to Electronic Circuits course which I taught. She was in the top one third of the students in this class which all Cornell ECE students must take. While at Cornell, she has taken many courses in CS in addition to her ECE studies. She has significant programming experience and experience in industry (internship at Intel). I believe she is capable of overcoming complex technical challenges and she is highly motivated to perform research in CS for graduate studies.