

Northwestern | THE GRADUATE SCHOOL

Application for Admission

App Type **New Student** Submitted Date **09-10-2018** App ID# **78154569**

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

Last Name **Chang** First **Daniel** Middle

Gender Pronouns (US only) **he** Birthdate **04-18-1994** Gender **Male**

Program **Computer Science: MS** Secondary PhD
Specialization/Area of Interest **Artificial Intelligence and Machine Learning** (MEAS Only)
Cluster MS Consideration
(MEAS Only)
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 **UNITED STATES** Green Card #

Current Address Permanent Address
1027 JFK Blvd
Apt 1
Endwell, NY, 13760
UNITED STATES

Current Phone **3477594103** Permanent Phone
Cell Phone Preferred Phone **Current Phone Number**
Email Address **danielchang@live.com** Number

Previous Institution	From	To	Field of Study	Level	Degree	Date
New York University	09-09-2012	06-01-2016	Computer Eningeering		US Bachelor of Science	06-01-2016

Cumulative UG GPA	3.63	UG Junior/Senior Year GPA	
Cumulative UG GPA - Unconverted		Max UG GPA Scale	
Cumulative Grad GPA			
Cumulative Grad GPA - Unconverted		Max Grad GPA Scale	

Letters of Recommendation

1. **David Lemmon**
2. **Nick Pascarelli**
3. **Luke Benedict**
- 4.
- 5.

david.lemmon@lmco.com
nick.pascarelli@lmco.com
luke.benedict@lmco.com

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

- | | |
|---------------|-----------|
| 1. First Name | Last Name |
| 2. First Name | Last Name |
| 3. First Name | Last Name |
| 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: **High school diploma or equivalent**

If other, please explain:

Second individual's highest level of education completed: **High school diploma or equivalent**

If other, please explain:

Language

Reading

Writing

Speaking

Self-Reported Test Scores

GRE Gen **05-26-2018** Verbal **160** **86** Quant **165** **88** 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

Please list any honors you have been awarded
I was on the Dean's list for every year and graduated with magna cum laude.

Have you applied for or been awarded an external fellowship?
Yes ☐ No ☒ If yes, please specify;

Please describe your plans for the future.
I regard myself as an engineer and want to continue down that road; however, I feel that becoming a data scientist will aid me in many technical fields and preset opportunities in taking up leadership positions and providing greater value and insight to any of my future career choices. The most importance aspect of artificial intelligence is the potential that it has in changing the world, this means that opportunities will continue to grow as the industry becomes more and more widespread. I may not have a concrete company or job in mind while studying in Northwestern but I have no doubt in my capability in finding a life-long career in this field.

-
- Other Universities Applied (in preferred rank order)
- | | |
|---------------------|-------------------|
| 1. School Drop Down | 5. School "other" |
| 2. School Drop Down | 6. School "other" |
| 3. School Drop Down | 7. School "other" |
| 4. School Drop Down | 8. School "other" |

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.

Five years ago, no one would have believed that a computer program can defeat one of the world's leading Go player Lee Sedol. However, in a mere two years of development, AlphaGo stood out and performed what seemed to be impossible. Today, we are looking at a race in a hundred different fronts of data science. From cancer care to self-driving cars, from facial recognition to video game AI, the new innovations created by data scientists today can only be matched with the insight that computer scientists had during the dawn of the information age. I am a computer scientist, a software engineer, and a lifelong learner. During the last two years I had with Lockheed Martin, I have experienced many new things. I have learned a new programming language, toiled away finding and fixing bugs, developed and enhanced software processes, and produced many new software solutions. The first two descriptions of me recounts my work but the last one reveals my nature.

As a philomath, my success lies in the fact that I approached my studies as a professional. I believe that there is only two points that you must satisfy to be a professional. The first is proper scheduling, and the second is to work towards a goal. Ever since I was a college student, I always felt that applying my knowledge is the best way to mastering it. Back then, I joined the NYU's electronics prototyping lab and worked on a multi-sensor wearable device that would help leukemia patients by monitoring and aiding in their physical therapy. During this time, I also had my first encounter with data science. The sensors on our creation overwhelmed the user with movement, muscle capacitance, and heart rate data. Unfortunately, during this time I was an embedded software engineer and worked mainly on the interfacing of the sensors on the microcontroller. I provided and received the data but was entirely incapable of understanding how to manipulate or process it. However, this experience helped in stimulating great interest in a number of areas in computer science and gave me invaluable insight on the importance of Data Science.

The technology has finally caught up to the theories. From music to medicine, new discoveries are found each day through the lens of a data scientist. Prior to the zenith of big data, I would like to take a few early steps in reaching the forefront of that new age. As a software engineer, I can see the obvious benefits of machine learning. The easiest example being that this very essay could be taken apart and used to predict whether or not I qualify as an admissible individual. There is never a lack of things to analyze, from flight patterns of fruit flies to the performance metrics in video games, I could sit down for just a few minutes and feel my heart pounding at all the wondrous ideas that come about. And that inexplicable emotion is what leads me to pursuing this desire.

Name: Daniel Chang
Birthdate (MM/DD): 04/18
Print Date: 06/17/2018
Student ID: N17528064
Institution ID: 002785
Page: 2 of 2



NEW YORK UNIVERSITY

OFFICE OF THE UNIVERSITY
REGISTRAR

FICE School Code: 002785

NEW YORK UNIVERSITY					INTRO TO OPERATING SYSTEMS					CS-UY 3224					4.0	A		
NEW YORK UNIVERSITY					Special Topics: Parallel Computing					CSCI-UA 480					4.0	A		
NEW YORK UNIVERSITY					Advanced Chinese I					EAST-UA 205					4.0	A		
NEW YORK UNIVERSITY					COMPUTER ENGINEERING DESIGN PROJECT II					EE-UY 4323					3.0	A-		
NEW YORK UNIVERSITY					Real Time Embedded Systems					EL-GY 6483					3.0	A-		
NEW YORK UNIVERSITY																		
NEW YORK UNIVERSITY										AHRS					EHRS	QHRS	QPTS	GPA
NEW YORK UNIVERSITY					Current					18.0					18.0	18.0	70.200	3.900
NEW YORK UNIVERSITY					Cumulative					146.0					152.5	133.5	484.150	3.627
NEW YORK UNIVERSITY					Term Honor:					Dean's List for Academic Year								
NEW YORK UNIVERSITY					---													
NEW YORK UNIVERSITY					Tandon School of Engineering has granted degrees under the following institution names:													
NEW YORK UNIVERSITY					2014-2015 New York University Polytechnic School of Engineering*													
NEW YORK UNIVERSITY					2008-2013 Polytechnic Institute of New York University													
NEW YORK UNIVERSITY					1985-2008 Polytechnic University													
NEW YORK UNIVERSITY					1973-1985 Polytechnic Institute of New York**													
NEW YORK UNIVERSITY					1889-1973 Polytechnic Institute of Brooklyn													
NEW YORK UNIVERSITY					1854-1889 Brooklyn Collegiate and Polytechnic Institute													
NEW YORK UNIVERSITY					*On January 1, 2014, Polytechnic School of Engineering became a school of NYU. Prior to this date, it was a separate institution.													
NEW YORK UNIVERSITY					**In 1973 New York University School of Engineering & Science and Polytechnic Institute of Brooklyn merged to form the Polytechnic Institute of New York.													
NEW YORK UNIVERSITY					End of Undergraduate Record													
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DANIEL CHANG

Open to Relocation Nationwide · (347) 759-4103
danielchang@live.com · dc2629@nyu.edu

EXPERIENCE

JULY 2016 - PRESENT

SOFTWARE ENGINEER, LOCKHEED MARTIN.

- Plan, conduct, and coordinate software development activities.
- Designs, develops, documents, tests, and debugs software that contains logical and mathematical solutions to business problems or questions in various programming languages to create solutions using data processing equipment.
- Applies the appropriate standards, processes, procedures, and tools throughout the development lifecycle.
- Applies knowledge of computer hardware and software, subject matter to be programmed in business/mission applications, information processing techniques used, and information gathered from system users to develop software.
- Corrects program errors, prepares operating instructions, compiles documentation of program development, and analyzes system capabilities to resolve questions of program intent, output requirements, input data acquisition, programming techniques, and controls.

SUMMER 2015

SUMMER ENGINEER, LONG ISLAND RAILROAD, NEW YORK.

- Created travel and attendance records, employee suggestion matrix, injuries and motor vehicle accident databases.
- Stored all trial records and employee performance evaluations onto the local server.
- Helped with environmental inspections, inventory checks, and contractor work and documentation.
- Created Tick Bite location map.

SUMMER 2014

IT INTERN, THE ADVERTISING COUNCIL, NEW YORK.

- Provide support for end users in the local site and across the organization.
- Manage desktop systems, including security/update patching and OS deployment.
- Document software, hardware systems, desktop processes and procedures through Microsoft Office (Word, Excel, and Visio).
- Maintenance and monitoring of network systems.

EDUCATION

GRADUATED MAY 2016

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING:

NEW YORK UNIVERSITY,

TANDON SCHOOL OF ENGINEERING, BROOKLYN, NEW YORK

GPA: magna cum laude (3.627)

ACADEMIC PROJECTS

FALL 2015

NYU PROCESSOR DESIGN:

- Designed an 8-bit processor capable of executing programs.
- Programmed in VHDL using Xilinx ISE Design Suite and implemented on the Nexys4 DDR Artix-7 FPGA Board.
- Created common computer architecture components such as instruction memory (RAM), instruction decoder, ALU, program counter, and registers.

FALL 2015

PAGERANK ALGORITHM IN HARDWARE:

- Designed the Google Search Algorithm with a Network on a Chip (NOC) communication subsystem involving a router-based solution.
- Programmed and simulated through ModelSim with Verilog.
- Optimized for latency, power, and area before synthesizing using the Cadence RTL Compiler.

FALL 2014

GAME PROGRAMMING:

- Established fundamental abilities for programming video games in C++ using SDL 2.0, OpenGL, and GLSL.
- Developed a basic game engine.
- Completed several mini-projects involving Pong, Asteroids, Space Invaders, and side-scrollers.

EXTRACURRICULAR ACTIVITIES

WINTER 2014 - SUMMER 2015

MEMBER, MUSCLE EXERCISE GUIDE TEAM (ELECTRONICS PROTOTYPING LAB)

- Design and prototype a multi-sensor device that will help aid patients in physical therapy.
- Program a simple oscilloscope on the Arduino to receive and decode sensor inputs.
- Collaborate with interdisciplinary teams.

TECHNICAL/NON-TECHNICAL SKILLS

- Programming languages: C#, VHDL, Verilog, C++, C, Python, SQL, Java
- Operating System: Microsoft Windows, Android, Linux.
- Software: MS Visual Studios, Git, MS Office Suite, Photoshop, MATLAB, Arduino IDE, PSpice, Cadence, ISE Design Suite, ModelSim.
- Intermediate Level of Chinese (Mandarin).

Daniel Chang

Most Recent Test Date: May 26, 2018

Address: 1027 Jfk Blvd Apt 1, Endwell, NY, 137601834 United States

Registration Number: 3356146

Print Date: September 9, 2018

Email: danielchang@live.com

Phone: 1-3477594103

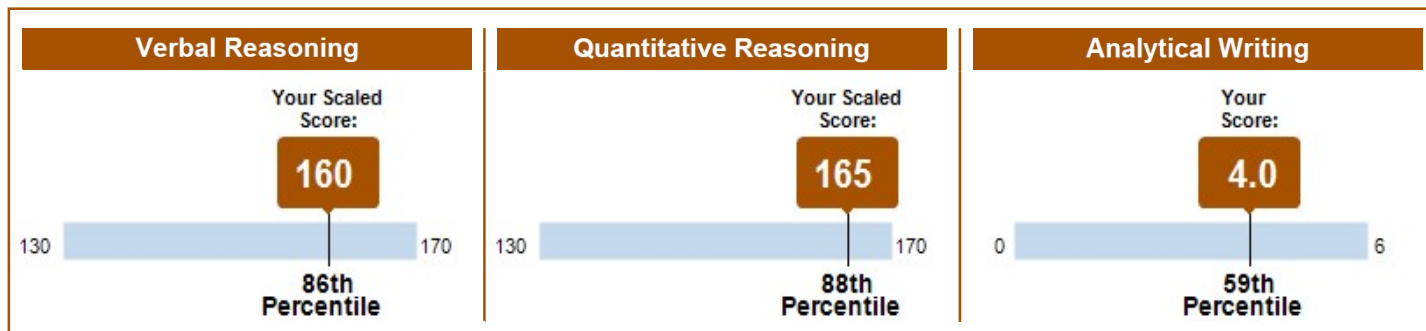
Date of Birth: April 18, 1994

Social Security Number (Last Four Digits): 3606

Gender: Male

Intended Graduate Major: Computer Science (0402)

Your Scores for the General Test Taken on May 26, 2018



Your Test Score History

General Test Scores

Test Date	Verbal Reasoning		Quantitative Reasoning		Analytical Writing	
	Scaled Score	Percentile	Scaled Score	Percentile	Score	Percentile
May 26, 2018	160	86	165	88	4.0	59
April 20, 2018	153	61	168	94	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
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Designated Score Recipient(s)

Report Date	Score Recipient (Code)	Department (Code)	Test Title	Test Date
June 20, 2018	UC BERKELEY MS INFRM DATA SCI (1634)	INFORMATION SCIENCES/STUDIES (0404)	General Test	May 26, 2018

Recommendation Form

The Graduate School Northwestern University Evanston, IL 60208-1113

Applicant Name: **Daniel Chang**

Program: **Computer Science: MS**

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

Recommender Name: **David Lemmon**

Organization Name: **Lockheed Martin**

Title: **Software Engineering Manager**

E-mail Address: **david.lemmon@lmco.com**

Telephone Number: **16077512477**

Relationship to Applicant: **Manager/Supervisor**

Certification (Date): **10-24-2018**

*"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."

David Lemmon

1801 Rte 17c M/D 0532 Owego, NY 13827 | 607 751 2477 | David.lemmon@lmco.com

10/24/2018

Northwestern

To Whom it may concern:

This letter is intended to recommend Daniel Chang to your Masters Degree Program. I am a software engineering manager with 18 direct reports doing development for a helicopter program. The software this team develops provides mission capabilities for the operators enabling them to control sensors and monitor the output. Daniel has been a software engineer in the organization for several years and has demonstrated his ability develop quality software through using industry standard software engineering processes. The SW he's developed has been integrated into an existing software application. This application has many complex facets including a user interface, various files systems, and algorithms to perform the necessary function and system configuration for the user. The output of this SW is then used to configure key functions in an embedded system with various sensors and mission capabilities.

Daniel has primarily focused on the software used for planning and configuring mission data developed in C#. Daniel has learned the infrastructure and design techniques to develop, integrate and maintain this software. He's had the opportunity to work on two different teams and observe the differences between how the teams operate, including different development and test requirements. His observations of the differences have helped him understand the value of sound software development practices.

Daniel has good instincts as to why certain practices are followed and adapts quickly. His work in testing the software has enabled Daniel to understand the importance of good requirements, testing and which have honed his software development skills. Daniel was recently promoted because of his inputs and efforts to improve product quality through automated test efforts.

Sincerely,

David Lemmon
Software Engineering Manager

Recommendation Form

The Graduate School Northwestern University Evanston, IL 60208-1113

Applicant Name: **Daniel Chang**

Program: **Computer Science: MS**

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

Recommender Name: **Nick Pascarelli**

Organization Name: **Lockheed Martin**

Title: **Software Engineer Staff**

E-mail Address: **nick.pascarelli@lmco.com**

Telephone Number: **16077512059**

Relationship to Applicant: **Software Lead**

Certification (Date): **09-11-2018**

*"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."

To Whom It May Concern:

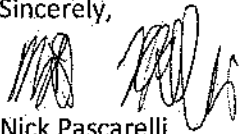
I have worked with Daniel Chang for 2 years at Lockheed Martin. Within this time, he has proven to be an exemplary team member and a dedicated professional.

When Daniel started at Lockheed Martin, he became a member of the MH-60 Mission Planning Software development team. As a member of this team, he has been presented with various software development challenges. In every case, he worked hard and was very successful. He is able to follow instruction, but even more importantly he is able to think creatively and challenge the status quo. His contributions to the team have been more than just the work product, but have included the development of process improvements which will continue to benefit the team and our customer even after Daniel moves onto future projects.

Daniel is a skilled software engineer and at times has been paired with and asked to mentor newer engineers. Daniel has willingly taken on this role and has been able to share his knowledge and experience with others.

Daniel is knowledgeable and is always trying to learn new things. I believe Daniel will continue to be a lifelong learner and will succeed at any challenge he sets his mind to. I strongly recommend him to your institution and believe not only will he benefit from attending, but that he can contribute to other students learning based on his general knowledge, and experience here at Lockheed Martin.

Sincerely,

A handwritten signature in black ink, appearing to read 'Nick Pascarelli', with a stylized, cursive script.

Nick Pascarelli

MH-60 Mission Planning Software Lead

Recommendation Form

The Graduate School Northwestern University Evanston, IL 60208-1113

Applicant Name: **Daniel Chang**

Program: **Computer Science: MS**

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

Recommender Name: **Luke Benedict**

Organization Name: **Lockheed Martin**

Title: **Software Engineer Senior**

E-mail Address: **luke.benedict@lmco.com**

Telephone Number: **16077490416**

Relationship to Applicant: **Colleague**

Certification (Date): **10-02-2018**

*"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."

Lockheed Martin Corporation
1801 State Route 17C Owego, NY 13827
Telephone 407•347•8259 Mobile 607•749•0416



**The Graduate School
Northwestern University
633 Clark Street
Evanston, IL 60208-1113**

October 2, 2018

To Whom It May Concern,

I am writing today to recommend Daniel Chang for admission to Graduate Studies at the Graduate School at Northwestern University. I have been a Lockheed Martin colleague of Mr. Chang for the past two years.

Upon joining our team, Daniel became immediately productive in his daily work as well as began to take on additional assignments above and beyond his normally required duties. In his first months with the company, he was able to work with and understand some existing code and combine it with some components to automate creation of program status reports that previously required manual effort to generate. After only a few weeks on the job, received the praise of management on that assignment.

The previous example demonstrates how right from the beginning, he was able to demonstrate a keen knowledge in the field of Computer Science and the practical application of this knowledge in performance of the design and implementation of software. This was an indicator to us that we made a great decision in hiring him and that many great things were to come.

Daniel shows a strong interest in understanding the way that things work and the reasons behind design decisions in the software that we work on. This is certainly a quality that is not found in every employee and is a sought-after trait. His enthusiasm and contributions to the team are very valued.

If I were to identify one weakness in Daniel, I would say that it is that he could better find balance between his active thoughts and work, and times of relaxation and reflection. At times, he seems to have so much energy, enthusiasm, and drive that he tires himself out, sometimes showing signs of fatigue. I believe that he can perform to the best of his abilities when he takes time to be well-rested.

In conclusion and speaking from experience as I completed my own Master of Science early in my career at Lockheed Martin, I believe that Daniel Chang will excel academically and professionally with his enthusiasm, drive and determination and will be a great asset to both the Graduate School, the University as a whole, the Evanston community, and every life he will touch throughout his professional and academic pursuits.

Respectfully,

Luke A. Benedict, Senior Software Engineer