ThanhVu (Vu) Huy Nguyen's Curriculum Vitae

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Bio: *ThanhVu (Vu) Nguyen is an associate professor in Computer Science and the director of the MS Software Engineering program at George Mason University. He completed his Ph.D. in Computer Science at the University of New Mexico-Albuquerque and a postdoc at the University of Maryland-College Park.*

Nguyen's research lies at the intersection of Software Engineering and Formal Methods, focusing on safety of AI and correctness of programs. He is the recipient of the NSF CAREER Award, the NSF CRII Award, an Amazon Research Award, and three test-of-time paper awards (an IEEE TSE Most Influential Paper Award, an ACM SIGSOFT ICSE 10-year Most Influential Paper Award, and an ACM SIGEVO 10-year Impact Award).

1 Education and Employment History

1.1 Academic Positions

- Dept. of Computer Science, George Mason University (GMU)
  - **Associate Prof. (tenured)** 2024–present
  - **Program Director**, MS in Software Engineering 2023–present
  - Assistant Prof. 2021–2024
- Assistant Prof., Computer Science & Engr., University of Nebraska-Lincoln (UNL) 2016–2021
- Postdoc, Computer Science, University of Maryland, College Park, MD 2014–2016

  Mentor: Jeff Foster

1.2 Industrial and Government Positions

- Internships, Naval Research Laboratory 2004–2025, 2006, 2012–2013

  Three 8-month internships in the Information Technology and Tactical Electronic Warfare divisions

  Produced *twelve* peer-reviewed conference and journal papers, and received an *Incentive Award* from the Navy
- Internship, Advanced Technology Laboratories, Lockheed Martin 2007

1.3 Academic Degrees

- **PhD**, Computer Science, University of New Mexico, Albuquerque, NM 2007–2014

  Advisers: Stephanie Forrest and Deepak Kapur
- **MS**, Computer Science, Penn State University, Harrisburg, PA 2003–2006

  Adviser: Thang N. Bui
- **BS**, Computer Science, Penn State University, University Park, PA 1999–2003

- **High School**
  - Bishop McDevitt, Harrisburg, PA 1997–1999
  - McKinley High School, Honolulu, HI 1995–1997

2 Research

Software Engineering; Formal Methods; Programming Languages; Automated Reasoning; Software Testing and Verification; Neural Networks Verification; Dynamic Invariant Generation

2.1 Awards and Honors

- Nominee, GMU Teaching Excellence Award, GMU 2026
- Best Paper Award [C1], SSBSE 2025
- Spotlight Paper Award [C2], NeurIPS 2025
- Nvidia Academic Grant [G1], NVIDIA 2025
- **Most Influential Paper Award** [J10], IEEE 2025

  Named *"One of the most influential papers of TSE's 4th decade"*, Trans. on Software Engineering (TSE)
- **NeuralSAT** ranked *2nd overall*, VNN-COMP 2025
- **NeuralSAT** ranked *2nd overall*, VNN-COMP 2024
- **NeuralSAT** ranked *4th overall* and received the **New Participant Award**, VNN-COMP 2023
- **Amazon Research Award** [G4] (Automated Reasoning), Amazon Science 2023
- **Faculty Early Career Development (CAREER) Award** [G5], NSF 2023
- **CISE Research Initiation Initiative (CRII) Award** [G9], NSF 2020
- **10-year Most Influential Paper Award** [C33], ACM/SIGSOFT and IEEE/TCSE 2019

  Most influential paper published at the 2009 Int. Conf. on Software Engineering (ICSE)
- **10-year Impact Award** [C35], ACM/SIGEVO 2019

  Highest impact paper published at the 2009 Conf. on Genetic and Evolutionary Computation (GECCO)
- Sigma Xi "Excellence in Graduate Research", UNM 2014

  Voted on by the faculty of the College of Engineering at UNM. Awarded annually to *one graduate student* with outstanding research record
- Dean's Dissertation Fellowship, $8K, UNM 2012–2013

  Voted on by the faculty of UNM. Awarded annually to *two graduating students* based on academic achievements
- Distinguished Paper Award [C32], Int. Conf. on Software Engineering 2012
- Featured Article [J10], IEEE Transactions on Software Engineering 2012
- Research Highlight [J11], Communication of ACM 2010
- Distinguished Paper Award [C33], Int. Conf. on Software Engineering 2009

- **IFIP TC2 Manfred Paul Award for Excellence in Software: Theory and Practice**, $1024, Int. Conf. on Software Engineering 2009

  Given annually across multiple conferences to individuals who have made exceptional contributions to the advancement of software research and practice

- Best Paper Award (Ant Colony Optimization & Swarm Intelligence Track) [C34] Genetic and Evolutionary Computation Conf. 2009
- Best Paper Award (Genetic Programming Track) [C35], Genetic and Evolutionary Computation Conf. 2009
- **ACM SIGEVO "Humies" Gold Medal Award**, $10K, ACM SIGEVO 2009

  For human-competitive results produced by genetic and evolutionary computation

- Best Paper and Presentation [W3], $270, Workshop on Search-Based Software Testing 2009
- Walter Karplus Research Grant, $2.3K, IEEE Computational Intelligence Society 2009

  Summer scholarship grant for graduate students with promising research projects

- Graduate Research Fellowship, $15K, NASA (SpaceGrant) 2008–2010
- Outstanding Submission [W4], High Performance Embedded Computing Workshop 2007
- Best Paper Award [C41], Int. Conf. on Informatics in Control Automation and Robotics 2006
- Incentive Award, Naval Research Laboratory (NRL) 2005

  Award given for internship at NRL (2 peer-reviewed conference papers for work performed during the first 6 months [C47, C46] and in total 12 conference and journal papers in 2 years)

2.2 Research Funding

9 grants (5 NSF, 1 Defense, 2 Industry Gifts, 1 Internal)

Total: $2,804,587, **my share**: $1,563,455; **as PI**: $1,404,605

At GMU: $2,086,420; **my/GMU share**: $1,236,428; **as PI**: $1,236,428

G1 **nvidia2025spark**

G2 **nsf2024dig**

G3 **nsf2023cybolic**

G4 **amz2023neuralsat**

G5 **nsf2023neuralsat**

G6 **fb2022cmake**

G7 **nsf2022dtemporal**

Supplementary REU: $16,000

G8 **unl2021seed**

G9 **nsf2020kbuild**

Transferred $32,768 to GMU
Supplementary REU: $16,000

G10 **aro2018predict**

2.3 Publication Record

Google Scholar: citations 4317, h-index 20, i10-index 33 (as of July 2025).

Refereed papers: journal 12, conference 38, workshop 4.

[1], [2], [3] denote co-authorship with my undergraduate, MS, and PhD students, respectively.

2.3.1 Under Submission

1. **duong2023dplltc**
2. **liu2023drnlac**

2.3.2 Books

B1 **nguyen2025demystify**

B2 **nguyensafe**

2.3.3 Refereed Journal Papers (in print)

J1 **le2025evolutionc**

J2 **duong2024harnessingc**25%

J3 **wang2023graphc**

J4 **nguyen2021usingc**

J5 **ishimwe2021dynaplexc**

J6 **le2020dynamitec**

J7 **mariano2019programc**

J8 **nguyen2014digc**

J9 **kapur2013geometricc**

J10 **le2011genprogc**

Most Influential Paper Award (received in 2025)
Featured Article
1.4K+ citations

J11 **weimer2010automaticc**

Research Highlight
500+ citations

J12 **bui2008antc**

100+ citations

J13 **smith2007autonomousc**

2.3.4 Refereed Conference Papers (in print)

C1 **ishimwe2025llmc**

Best Paper Award

C2 **duong2025compositionalc**

Spotlight Paper

C3 **duong2025generatingc**

C4 **li2025destabilizingc**

C5 **piciorea2025bringingc**

C6 **li2025coolerc**

C7 **duong2025neuralsatc**

C8 **doan2025aic**

C9 **dao2023triggeringc**

C10 **phan2023challengesc**

C11 **brida2022icebarc**

C12 **zheng2022atrc**

C13 **nguyen2022analyzingc**

C14 **nguyen2022towardc**

C15 **ishimwe2022dynaplexc**

C16 **nguyen2022syminferc**

C17 **nguyen2021gentreec**

C18 **zheng2021flackc**

C19 **brida2021boundedc**

C20 **nguyen2021toolc**

C21 **zheng2021toolc**

C22 **brida2021toolc**

C23 **nguyen2020using2c**

C24 **zheng2020debuggingc**

C25 **le2019slingc**

C26 **gazzillo2018localizingc**

C27 **nguyen2017syminferc**

C28 **nguyen2017counterexamplec**

C29 **nguyen2017connectingc**

C30 **nguyen2016igenc**

C31 **nguyen2014usingc**

C32 **nguyen2012usingc**

100+ citations
Distinguished Paper Award

C33 **weimer2009automaticallyc**

10-year Most Influential Paper Award (received in 2019)
1K+ citations
Distinguished Paper Award
IFIP TC2 Manfred Paul Award for Excellence in Software: Theory and Practice

C34 **bui2009parallelc**

Best Paper Award

C35 **forrest2009geneticc**

10-year Impact Award (received in 2019)
300+ citations
Best Paper Award

C36 **smith2007fuzzyc**

C37 **smith2007geneticc**

C38 **bui2006agentc**

C39 **smith2006guidingc**

C40 **smith2006evolutionaryc**

C41 **smith2006fuzzyc**

Best Paper Award

C42 **smith2006fuzzy2c**

C43 **smith2006creatingc**

C44 **smith2006resourcec**

C45 **smith2006geneticc**

C46 **smith2005distributedc**

C47 **smith2005datac**

2.3.5 Refereed Workshop Papers (in print)

W1 **nguyen2020usingc**

W2 **zheng2018automaticc**

W3 **nguyen2009usingc**

Best Paper Award
Best Presentation Award

W4 **viamontes2007efficientc**

Outstanding Submission

2.3.6 Dissertation

T1 **nguyen2014automatingc**

Pass with Distinction
Sigma Xi Award
Dean's Dissertation Fellowship

T2 **nguyen2006graphc**

2.3.7 Patents

- **bagheri2023systems**

2.3.8 Publicly Available Software

S1 **cspicks**

S2 **csconfs**

S3 **neuralsattool**

- ranked **2nd overall** at VNN-COMP'25
- ranked **2nd overall** at VNN-COMP'24
- ranked **4th overall** at VNN-COMP'23 and received the *"New Commer Award"*

S4 **digtool**

S5 **npbench**

2.4 Invited Talks

T1 W. Weimer, C. Le Goues, T. Nguyen, S. Forrest. "It Does What You Say, Not What You Mean: Lessons From A Decade of Program Repair"

Plenary Sessions: Most Influential Paper, Int. Conf. on Software Engineering (ICSE), 2019

T2 "Scalable DNN Verification using Constraint Solving"

Virginia Tech (Northern VA campus), Fall 2022
Michigan State University, Fall 2022

T3 "Improving Software Quality using Automatic Invariant Discovery and Program Repair"

Summer School on Formal Techniques, SRI, Spring 2021
CS Seminar, George Mason University, Spring 2021
CS Seminar, University of Nebraska-Lincoln, Spring 2016
CS Seminar, Auburn, Spring 2016
Galois, Spring 2016
CS Seminar, Virginia Tech, Spring 2014

2.5 Media Coverage

M1 **gmu2025roars**

M2 **gmu2023amazon**

M3 **amazon202379**

M4 **thanhnien2023tiensi**

M5 **gmu2023boom**

M6 **unl2020nguyen**

M7 **unl2019nguyen**

3 Teaching and Student Advising

3.1 Courses

Course Rating: out of 5

† denote a new course I developed

- CS 695/SWE 699 (Special Topic): Deep Neural Network Verification† Fall'25
- SWE 619: OO Software Specification and Construction Spring'25
- SWE 419: OO Software Specification and Construction Fall'24

  Enrollment 28, Responses 20, Instr. Rating 4.2, Course Rating 4.2
- SWE 619: OO Software Specification and Construction Spring'24

  Enrollment 28, Responses 25, Instr. Rating 4.4, Course Rating 4.6
- CS 695/SWE 699 (Seminar): AI Safety and Assurance† Fall'23

  Enrollment 29, Responses 24, Instr. Rating 4.8, Course Rating 4.7
- SWE 619 Online Course Development† Fall'22

  Developed an online version of the SWE 619 course with Wiley publishing. Course launched in Spring'23 and taught every semester.
- SWE 419: OO Software Specification and Construction Fall'22

  Enrollment 16, Responses 16, Instr. Rating 4.4, Course Rating 4.5
- SWE 619: OO Software Specification and Construction Spring'22

  Enrollment 33, Responses 17, Instr. Rating 4.3, Course Rating 4.3
- SWE 619: OO Software Specification and Construction Fall'21

  Enrollment 32, Responses 7, Instr. Rating 3.86, Course Rating 3.86 (Online class due to COVID)
- CSCE 990: Software Verification Seminar† (graduate, enrollment 4) Spring'21
- CSCE 425: Compiler Construction† (undergraduate, enrollment 8) Spring'21
- CSCE 467/861: Software Testing, Verification, and Analysis† (undergraduate, enrollment 15)Fall'20

- CSCE 425: Compiler Construction† (graduate and undergraduate, enrollment 11) Spring'20
- CSCE 990: Software Verification Seminar† (graduate, enrollment 4) Spring'20
- CSCE 467/861: Software Testing, Verification, and Analysis† (undergraduate) Fall'19
- CSCE 990: Software Verification Seminar† (graduate) Spring'19
- SOFT 260: Software Engineering III (undergraduate) Fall'18
- CSCE 428: Automata, Computation, and Formal Languages (graduate) Spring'18
- CSCE 990: Software Verification Seminar† (graduate) Fall'17
- CSCE 428: Automata, Computation, and Formal Languages (graduate) Spring'17
- CSCE 990: Software Verification Seminar† (graduate) Fall'16

3.2 Student Advising

3.2.1 Current

- Nguyen Khoi (PhD student) Fall 2024–present
- Long Doan (PhD student) Summer 2024–present

  Co-author of C8
- Hai Duong (PhD student) Fall 2022–present

  Co-author of C2, C3, C7, J2, C16
- Linhan Li (PhD student) Spring 2021–present

  Outstanding Teaching Assistant Award, GMU Fall 2024

  Co-author of C4, C6
- Didier Ishimwe (PhD student, All but dissertation since 2024) Fall 2019–present

  Co-author of C1, C15, J5, W1
- Muhammad Azan Rasul (undergrad, NSF REU) Fall 2025–present
- Phu Le (undergrad, NSF REU) Fall 2025–present
- Stefania Piciorea (undergrad) Spring 2024–present

  Outstanding Undergraduate Research Award Spring 2024

  Co-author of C5

3.2.2 Graduated

- KimHao Nguyen (BS, UNL) graduated, May 2023

  First job: Jump Trading

  Outstanding Undergraduate Senior Award Spring 2023

  Outstanding Undergraduate Research Assistant Award Spring 2021

  Winner, College of Arts and Science, Nebraska Student Research Days (for GenTree C17) Spring 2021

  UNL UCARE Award

  Garmin Computer Engineering Scholarship (2020–2023)

Co-author of J4, J5, C10, C13, C15, C16, C17, C20, C23

- Guolong Zheng (PhD, UNL) graduated, May 2022

  First job: A10Networks, Now: Minjiang University

  PhD Dissertation: *Ensure Correctness for Imperative and Declarative Programs*

  Co-author C11, C12, C18, C19, C21, C22, C24, C25, W2

- Alexey Malyshev (MS, UNL), Fulbright scholarship graduated, Spring 2021

  First job: Oracle

  MS Thesis: *Discovering Program Invariants Using Static and Dynamic Analysis Techniques*

  Co-author of W1

- Mitch Girrard (MS, UNL), co-advised with Matthew Dwyer graduated, Fall 2019

  Continued to UVA and obtained PhD in 2022

  MS Thesis: *Cooperation Among Program Analyzers*

- **Undergraduate Research**:
  - GMU: Huong Bui, James (Phap) Nguyen; Phuong Priscilla Nguyen (Undergraduate, Boston University); Michael Vittori
  - UNL: KimHao Nguyen, Max Nguyen (UCARE[1]), Linhan Li (UCARE, continued on PhD program at GMU), Ben Galusha (NSF REU), Ethan Butt (Honor Thesis), Conner Hallett (UCARE), Chase Pearson, Nancy Pham, Zixuan Hao.

3.3 Other Teaching Accomplishments

- Mentor, Google Summer of Code, Project: Java PathFinder [W2] Summer'18

4 Service

4.1 Professional Service

4.1.1 Research Proposal Review

- Review Panelist, NSF 2019–present (*10+ panels, **at least once every year** since 2019*)
  - '25 (**7x**[2]), '24 (4x), '23 (2x), '22 (2x), '21 (1x), '20 (1x), '19 (1x)

- Review Panelist, PhD Fellowships (NSF GRFP and DoD NDSEG)

  Details omitted for confidentiality

[1]The Undergraduate Creative Activities and Research Experience (UCARE) program is a paid-position for undergraduate students to do research with UNL faculty.

[2]In 2025, NSF faced many uncertainties and organizational changes, which might have made it difficult for program managers to find people willing to serve on panels and further caused delays in reviews. So I made an effort to say "yes" to all invitations to panels aligned with my expertise, to support NSF and the U.S. funding landscape (though the trade-off was saying "no" to most invitations to conference program committees and journal reviews!).

4.1.2 Conference Committee Members (International)

PC: Technical Program Committee

- PC, Programming Language Design and Implementation (PLDI) 2024
- PC, Object-Oriented Programming, Systems, Languages & Applications (OOPSLA) 2024
- PC, Int. Symposium on Software Testing and Analysis (ISSTA) 2023
- PC, Foundation of Software Engineering (FSE) 2018, 2019
- PC, Automated Software Engineering (ASE) 2018, 2019, 2020
- PC, Java PathFinder Workshop (JPF) 2019, 2020
- New Faculty Symposium Panel, Int. Conf. of Software Engineering (ICSE) 2020
- PC, Int. Conf. of Software Engineering Demo Track (ICSE DEMO) 2020
- PC, Int. Conf. of Software Engineering Posters Track (ICSE Posters) 2020
- PC, Genetic Improvement Workshop 2017, 2020
- PC, ASE Journal First 2019
- PC, Systems and Software Product Line-Challenge Track (SPLC) 2018
- External Review Committee, Programming Language Design and Implementation (PLDI) 2018
- Artifact Evaluation Committee, Principles of Programming Languages (POPL) 2017
- PC, Formal Methods and Models for System Design (MEMOCODE) 2016, 2017, 2018

4.1.3 Conference Organization and Journal Editorships

- PC Chair, Competition Papers, Int. Verification of Neural Networks Competition (VNN-COMP'25) 2025
- Proceedings Co-Chair, Int. Conf. of Software Engineering (ICSE) 2022
- Editor Board, Journal of Systems and Software 2017–2021

4.1.4 Conference Committee Member (Regional)

- Co-Organizer, Midwest Big Data Summer School (Iowa State), Software Analytic Track 2018

4.1.5 Journal Reviewing

Reviewer for Transactions on Software Engineering (TSE), Journal of Systems and Software (JSS), Transactions on Software Engineering and Methodology (TOSEM), Journal of Symbolic Computation, Journal of Evolutionary Intelligence, Transactions on Evolutionary Computation

4.2 Departmental and University Services

4.2.1 Departmental Services

- **Program Director**, MS Software Engineering 2023–present
- Member, Dept. Chair Renewal Committee 2024
- Member, Web Committee 2022–present
  - Co-Lead CS Web Site Migration Committee 2024
- Member, MS Software Engineering Admission Committee 2023–present
- Member, Executive Committee 2022–2023
- Member, PhD Admission Committee 2021–present

  Co-organize Virtual Open House (VOH) events 2021–2023
  Create VOH'23 website (`https://cs-gmu.github.io/cs-phd-voh-s23/`)
- Member, Graduate CS Program Committee 2020–2021
- Member, Faculty Search Committee 2019–2020
- Member, Awards Committee 2018–2019
- Member, Software Engineering Search Committee 2018–2019
- Member, Graduate Recruitment 2018
- Member, Graduate Admission 2016–2020
- Member, Qualifying Exam Committee-Theory Track 2016–2018

4.2.2 University Programs and Services

- Member, **Faculty Senate**, representing the College of Engineering and Computing (CEC) 2024–present
- Scholarship Judge, GMU CEC Representative for the Kimmy Long Scholarship Foundation 2024
- Mentor, ORIEI NSF CAREER Cohort 2024
- Panelist, GMU New Faculty Panel 2022
- Reviewer, UNL Graduate Travel Award Program Committee 2017
- Fellow, UNL Research Development Fellows Program 2016–2017

4.3 Other Services

- Interviewer, Vietnamese Education Foundation 2.0 (VEF2.0) Fellowship Program 2023–2024

  Evaluate applications and interview VEF2.0 fellows for CS PhD applications in the US
- Judge, Thomas Jefferson Highschool (Fairfax, VA) Science and Engineering Fair 2023

5 Professional Affiliations

- **Senior Member**, Association for Computing Machinery (ACM) 2025
- **Senior Member**, Institute of Electrical and Electronics Engineers (IEEE) 2025

6 Miscellaneous

- Citizenship: **U.S** (DoD Secret Clearance—inactive)
- Extracurricular: **Chess** coach for Marshall Elementary School (2025–present)

  Led club to multiple top-3 team finishes and individual medal placements at regional tournaments.
- My Erdős number is ≤ 4

  ThanhVu (Vu) Huy Nguyen $\leftrightarrow$ Thang Bui (MS Adviser) $\leftrightarrow$ Tom Leighton $\leftrightarrow$ Fan Chung $\leftrightarrow$ Pál Erdős
- My Math/CS Genealogy:

  ThanhVu (Vu) Huy Nguyen $\leftrightarrow$ Deepak Kapur (PhD Advisor) $\leftrightarrow$ Barbara Liskov (Turing Award 2008) $\leftrightarrow$ John McCarthy (Turing Award 1971) $\leftrightarrow$ Solomon Lefschetz $\leftrightarrow$ William Story $\leftrightarrow$ ...

  ThanhVu (Vu) Huy Nguyen $\leftrightarrow$ Stephanie Forrest (PhD Advisor) $\leftrightarrow$ John Holland $\leftrightarrow$ Arthur Burks $\leftrightarrow$ Cooper Langford $\leftrightarrow$ Edwin Boring $\leftrightarrow$ Edward Titchener $\leftrightarrow$ ...