Jenna DiVincenzo (Wise), Ph.D.

Assistant Professor
Electrical & Computer Engineering
Purdue University
465 Northwestern Ave., West Lafayette, IN 47907
+1 (765) 494-0723
jennad@purdue.edu
https://jennalwise.github.io/

Research Overview

I do research intersecting software verification, programming languages, and software engineering.
By using holistic methods, such as theory, tool building, and user studies, my research enables software to be verified as it is written, which simplifies the development of secure computer systems.

Education

2017 – 2023 **Doctor of Philosophy in Software Engineering**, Carnegie Mellon University (CMU).
Dissertation: *Gradual Verification of Recursive Heap Data Structures.*
Advisors: Dr. Jonathan Aldrich and Dr. Joshua Sunshine.
Funded by Facebook, Google, the NSF, DARPA, and the Algorand Foundation.

2013 – 2017 **Bachelor of Science with Honors**, Youngstown State University (YSU).
Majors: Computer Science, Mathematics.

Professional Experience

Jan. 2024 – present **Assistant Professor,** Elmore Family School of Electrical and Computer Engineering, Purdue University.

Summer 2018 **Research Intern,** IBM Thomas J. Watson Research Center, Yorktown Heights, NY.

Summer 2017 **Research Intern,** IBM Thomas J. Watson Research Center, Yorktown Heights, NY.

Summer 2016 **Research Intern,** MIT Lincoln Laboratory, Lexington, MA.

Summer 2015 **Research Intern,** MIT Lincoln Laboratory, Lexington, MA.

Aug. 2014 – May 2017 **Research Assistant,** Software Engineering and Empirical Studies Laboratory, Youngstown State University.

Summer 2014 **REU Participant,** School of Computing, Clemson University.

Awards

2024 Distinguished Reviewer Award at ECOOP'24

2022 Rising Star in EECS.

Fellowships

2021 – 2023 Google PhD Fellowship.

2017 – 2022 NSF Graduate Research Fellowship.

2017 Phi Kappa Phi Fellowship.

Awards (continued)

Scholarships

2016 – 2017 Barry Goldwater Scholarship.

2014 – 2017 YSU Foundation Scholarship.

2013 – 2017 YSU Choose Ohio First Scholarship.

YSU Trustees' Award.

Conference Travel Scholarships

2018 SPLASH PLMW

2016 ICSE

Tapia

Grace Hopper Conference

2015 ESEC/FSE

2014 Grace Hopper Conference

Research Publications

Journal Articles

1. **J. DiVincenzo**, I. McCormack, C. Zimmerman, H. Gouni, J. Gorenburg, J.-P. Ramos-Dávila, M. Zhang, J. Sunshine, É. Tanter, and J. Aldrich, "Gradual co: Symbolic execution for gradual verification," *ACM Trans. Program. Lang. Syst. (**TOPLAS**)*, vol. 46, no. 4, Jan. 2025, ISSN: 0164-0925. DOI: 10.1145/3704808.

2. M. Coblenz, G. Kambhatla, P. Koronkevich, **J. L. Wise**, C. Barnaby, J. Sunshine, J. Aldrich, and B. A. Myers, "PLIERS: A process that integrates user-centered methods into programming language design," *ACM Transactions on Computer-Human Interaction (**TOCHI**)*, vol. 28, no. 4, pp. 1–53, 2021. URL: https://dl.acm.org/doi/10.1145/3452379.

3. K. Ye, W. Ni, M. Krieger, D. Ma'ayan, **J. Wise**, J. Aldrich, J. Sunshine, and K. Crane, "Penrose: From mathematical notation to beautiful diagrams," *ACM Transactions on Graphics (**TOG**)*, vol. 39, no. 4, pp. 144–1, 2020. URL: https://penrose.cs.cmu.edu/siggraph20.

4. S. Haigler, A. Orr, E. Shehadi, **J. Wise**, and K. Yazvac, "Redistricting Youngstown police beats," ***SIAM** Undergraduate Research Online*, vol. 9, pp. 404–421, 2016.

5. B. Sharif, T. Shaffer, **J. Wise**, and J. I. Maletic, "Tracking developers' eyes in the IDE," ***IEEE Software***, vol. 33, no. 3, pp. 105–108, 2016. URL: https://www.computer.org/csdl/magazine/so/2016/03/mso2016030105/13rRUwvT9eS.

Conference Proceedings

1. W. Fan, M. Tran, S. Dod, X. Hu, M. Rego, D. Xie, **J. DiVincenzo**, and L. Tan, "An empirical study of LLM-generated specifications for VeriFast," ***Under Submission** at the 37th IEEE International Symposium on Software Reliability Engineering (**ISSRE**)*, 2026.

2. M. Rego, W. Fan, X. Hu, S. Dod, Z. Ni, D. Xie, **J. DiVincenzo**, and L. Tan, "Evaluating the ability of gpt-4o to generate verifiable specifications in verifast," in *2025 IEEE/ACM Second International Conference on AI Foundation Models and Software Engineering (**FORGE**)*, 2025, pp. 246–251. DOI: 10.1109/Forge66646.2025.00035.

3. C. Zimmerman, **J. DiVincenzo**, and J. Aldrich, "Sound gradual verification with symbolic execution," *Proceedings of the ACM on Programming Languages*, vol. 8, no. **POPL**, Jan. 2024. DOI: 10.1145/3632927.

4. S. Estep, **J. L. Wise**, J. Aldrich, É. Tanter, J. Bader, and J. Sunshine, "Gradual Program Analysis for Null Pointers," in *35th European Conference on Object-Oriented Programming (**ECOOP** 2021)*, A. Møller and M. Sridharan, Eds., ser. Leibniz International Proceedings in Informatics (LIPIcs), vol. 194, Dagstuhl, Germany: Schloss Dagstuhl – Leibniz-Zentrum für Informatik, 2021, 3:1–3:25, ISBN: 978-3-95977-190-0. DOI: 10.4230/LIPIcs.ECOOP.2021.3.

5. **J. Wise**, J. Bader, C. Wong, J. Aldrich, É. Tanter, and J. Sunshine, "Gradual verification of recursive heap data structures," *Proceedings of the ACM on Programming Languages*, vol. 4, no. **OOPSLA**, pp. 1–28, 2020. URL: https://dl.acm.org/doi/10.1145/3428296.

6. **J. Wise**, E. Lederman, M. Kumar, and P. Pattnaik, "Performance of graph analytics applications on many-core processors," in *2018 IEEE High Performance extreme Computing Conference (**HPEC**)*, IEEE, 2018, pp. 1–7. URL: https://ieeexplore.ieee.org/document/8547558.

7. T. R. Shaffer, **J. L. Wise**, B. M. Walters, S. C. Müller, M. Falcone, and B. Sharif, "iTrace: Enabling eye tracking on software artifacts within the IDE to support software engineering tasks," in *Proceedings of the 2015 10th Joint Meeting on Foundations of Software Engineering (**ESEC/FSE**)*, 2015, pp. 954–957. URL: https://dl.acm.org/doi/abs/10.1145/2786805.2803188.

Workshop Proceedings

1. C. Zimmerman and **J. DiVincenzo**, "Gradual exact logic: Unifying hoare logic and incorrectness logic via gradual verification," in *Symposium on Principles of Programming Languages, 1st Workshop on the Theory and Practice of Static Analysis (**TPSA**)*, 2025. URL: https://popl25.sigplan.org/details/tpsa-2025-papers/9/Gradual-Exact-Logic-Unifying-Hoare-Logic-and-Incorrectness-Logic-via-Gradual-Verific.

2. H. Sun, K. Singh, J.-P. Ramos-Dávila, J. Aldrich, and **J. DiVincenzo**, "Gradual verification for smart contracts," in *Symposium on Principles of Programming Languages, 8th Workshop on the Principles of Secure Compilation (**PriSC**)*, 2024. URL: https://popl24.sigplan.org/details/prisc-2024-papers/2/Gradual-Verification-for-Smart-Contracts.

3. S. Estep, **J. Wise**, J. Aldrich, É. Tanter, J. Bader, and J. Sunshine, "Gradual program analysis," in *Symposium on Principles of Programming Languages, First ACM SIGPLAN Workshop on Gradual Typing (**WGT**)*, 2020. URL: https://popl20.sigplan.org/details/wgt-2020-papers/9/Gradual-Program-Analysis.

4. **J. Wise**, J. Bader, J. Aldrich, É. Tanter, and J. Sunshine, "Gradual verification of recursive heap data structures," in *Symposium on Principles of Programming Languages, First ACM SIGPLAN Workshop on Gradual Typing (**WGT**)*, 2020. URL: https://popl20.sigplan.org/details/wgt-2020-papers/2/Gradual-Verification-of-Recursive-Heap-Data-Structures.

5. **J. Wise**, B. Prox, B. Clark, and B. Sharif, "Towards an emotionally aware development environment: Invited talk," in *Proceedings of the 1st International Workshop on Emotion Awareness in Software Engineering (**SEMotion**)*, 2016, pp. 26–27. URL: https://dl.acm.org/doi/10.1145/2897000.2897008.

Teaching Experience

Spring 2026 — *VIP: AI for Software Verification*, Purdue University.
Elective course for undergraduates to participate in research.

Fall 2025 — *VIP: AI for Software Verification*, Purdue University.

— *Object-Oriented Programming with C++*, ECE 39595, Purdue University.
Elective course for undergraduates majoring in Computer Engineering.

Spring 2025 — *Types and Programming Languages*, ECE 69500, Purdue University.
New course for PhD students majoring in Computer Engineering.

Teaching Experience (continued)

- Fall 2024 — *Object-Oriented Programming with C++*, ECE 39595, Purdue University.
- Spring 2024 — *Object-Oriented Programming with C++*, ECE 39595, Purdue University.
- Fall 2022 — *SE Reflections*, Teaching Assistant, Carnegie Mellon University.
  Writing workshop styled course required by the undergraduate software engineering minor.
- Spring 2019 — *Program Analysis*, Teaching Assistant, Carnegie Mellon University.
  Undergraduate/graduate swing course satisfying requirement for undergraduate major in computer science.
- Fall 2018 — *CS Pedagogy*, Student, Carnegie Mellon University.
- 2015 – 2017 — *Tutoring*. Mathematics Assistance Center, Youngstown State University.

Research Group

Current PhD/Doctorate Students

- Spring 2026 – present — Rebekah Sowards. PhD. Purdue University.
  Co-advisor: Benjamin Delaware.
- Matthew Borland. Doctorate. Purdue University.
- Fall 2025 – present — Chanhee Cho. PhD. Purdue University.
- Fall 2024 – present — Wen Fan. PhD. Purdue University.
- Matthew Ruiz. PhD. Purdue University.

Current Undergraduate Students

- Summer 2025 – present — Minh Tran. Purdue University.
  Co-author on ISSTA'26 submission.
- Summer 2024 – present — Craig Liu. Purdue University.
  Applying to PhD programs this cycle.
  Second place in the 2025 ACM SRC Grand Finals.
  SPLASH'24 SRC winner.
- Spring 2024 – present — Sanya Dod. Purdue University.
  Co-author on ISSTA'26 submission.
  Co-author on FORGE'25 paper.

Past Masters Students

- Fall 2023 – Spring 2024 — Kunal Singh. Carnegie Mellon University. Co-supervisor: Jonathan Aldrich.
  Co-author on PriSC'24 paper.
  Research project: *Gradual Verification for Smart Contracts*.

Past Undergraduate Students

- Summer 2025 – Fall 2025 — Doruk Alp Mutlu. Michigan State University.
  Applying to PhD programs this cycle.
  POPL'26 SRC abstract and poster.
- Summer 2024 – Summer 2025 — Priyam Gupta. Purdue University.
  Currently, a Masters student at ETH Zurich.
  POPL'25 SRC abstract and poster.

Research Group (continued)

Summer 2024 – Spring 2025
- Marilyn Rego. Purdue University.
  Currently, a PhD student at the University of Michigan.
  Co-first author on FORGE'25 paper.

Spring 2024 – Spring 2025
- Devin Singh. Purdue University.
  Currently, a PhD student at Purdue University.

Fall 2023 – Fall 2024
- Haojia Sun. Shanghai Jiao Tong University.
  First author on PriSC'24 paper.

Summer 2022 – Fall 2023
- Jan-Paul Ramos-Dávila. Cornell University.
  Currently, a PhD student at Boston University.
  Co-author on TOPLAS'25 paper.
  Co-author on PriSC'24 paper.
  POPL'23 SRC third place.

Summer 2021 – Summer 2024
- Conrad Zimmerman. Brown University.
  Currently, a PhD student at Northeastern University.
  NSF GRFP winner.
  First author on TPSA'25 paper.
  First author on POPL'24 paper.
  Co-author on TOPLAS'25 paper.
  SPLASH'21 SRC abstract and poster.

Summer 2021 – Spring 2022
- Hemant Gouni. University of Minnesota.
  Currently, a PhD student at CMU.
  Co-author on TOPLAS'25 paper.
  SPLASH'21 SRC abstract and poster.

Summer 2020 – Spring 2021
- Mona Zhang. Columbia University.
  Co-author on TOPLAS'25 paper.
  SPLASH'20 SRC winner.
- Jacob Gorenburg. Haverford College.
  Co-author on TOPLAS'25 paper.
  SPLASH'20 SRC winner.

Summer 2019 – Spring 2020
- Samuel Estep. Liberty University.
  Currently, a PhD student at CMU.
  First author on ECOOP'21 paper.
  First author on WGT'20 paper.
  SPLASH'19 SRC winner.

Summer 2019
- Henry Blanchette. Reed College.
  Currently, a PhD student at the University of Maryland.

Fall 2018 – Spring 2019
- Kaige Lu. Carnegie Mellon University.

Fall 2018 – Spring 2020
- Cameron Wong. Carnegie Mellon University.
  Currently, a PhD student at Harvard University.
  Co-author on OOPSLA'20 paper.

Committees

Fall 2025 – present
- PhD. Devin Singh. Purdue University.

Fall 2024 – present
- PhD. Aditya Padala. Purdue University.
- PhD. Prasita Mukherjee. Purdue University.

Professional Service

Program Committee	*Object-oriented Programming, Systems, Languages, and Applications* (**OOPSLA**), 2026.
	The Scala Workshop (**The Scala Workshop**), 2025.
	Programming Language Design and Implementation (**PLDI**), 2025.
	Verification and Monitoring at Runtime Execution (**VORTEX**), 2024.
	Programming Language Design and Implementation (**PLDI**) – **SRC**, 2024.
	European Conference on Object-Oriented Programming (**ECOOP**), 2024. Distinguished Reviewer Award
	Principles of Secure Compilation (**PriSC**), 2023.
	Object-oriented Programming, Systems, Languages, and Applications (**OOPSLA**) – **ERC & AEC**, 2023.
Organizer	*Programming Languages Mentoring Workshop at Principles of Programming Languages Conference* (**PLMW @ POPL**), 2026.
	Junior Faculty Programming Languages Community, 2025.
	VerifyThis Program Verification Competition (**VerifyThis**), 2025.
Publicity Chair	*Programming Language Design and Implementation* (**PLDI**), 2026.
Web Chair	*Eye-tracking Research & Applications* (**ETRA**), 2018.
	Software Visualization (**VISSOFT**), 2016.
Grant Panel	*NSF Computing and Communication Foundations* (***CISE/CCF)***, 2025.
Mentorship	Panelist, Programming Languages Mentoring Workshop at Principles of Programming Languages Conference, 2025.
	SIGPLAN-M Mentor, 2025.
	SIGPLAN-M Mentor, 2024.
	Speaker, Hyland's Women in Tech Conference, Westlake, OH, 2016.
Student Volunteer	*Principles of Programming Languages* (**POPL**), 2020.
	Systems, Programming, Languages and Applications: Software for Humanity (**SPLASH**), 2018.
	International Conference on Software Engineering (**ICSE**), 2016.
	European Software Engineering Conference/Foundations of Software Engineering (**ESEC/FSE**), 2015.

Departmental Service

ECE, Purdue University

2025-2026 cycle	*Graduate committee member.*
Spring 2025	*Judge, 3 Minute Thesis Competition, Purdue University.*
Fall 2024	*Panelist, "Future Faculty Bootcamp", Hosted by the Office of Graduate and Postdoctoral Professional Development.*
2024 – 2025 cycle	*Graduate admissions.*
	Graduate committee member.
2023 – 2024 cycle	*Graduate admissions.*

S3D, Carnegie Mellon University

Summer 2021, 2022	*REUSE ombudsperson.*

Departmental Service (continued)

Fall 2020	*Graduate application support program mentor.*
Fall 2020 – Spring 2021	*DEI committee member.*
Fall 2020, 2021	*PhD orientation event organizer.*
2020 – 2021 cycle	*Faculty hiring committee member.*
2019 – 2020 cycle	*Faculty hiring committee member.*
Fall 2019 – Fall 2022	*Weekly SE lunch organizer.*
Fall 2019 – Fall 2021	*SE faculty committee student member.*
Summer 2019, 2020, 2021	*Panelist, "Applying to Graduate School", REUSE seminar.*
Spring 2018, 2019, 2020	*REUSE admissions.*
Spring 2018, 2019, 2020, 2021, 2022	*PhD recruitment open house organizer.*

Professional Membership

2016 – present	*Special Interest Group on Software Engineering* (**SIGSOFT**).
2013 – present	*Association for Computing Machinery* (**ACM**).

Presentations

Invited Talks

June 2025	*Gradual verification: assuring programs incrementally*, Boston Computation Club, Online.
Apr. 2024	*Gradual verification: assuring programs incrementally*, Purdue University Programming Languages Group Seminar, Purdue University.
Oct. 2021	*Gradual verification of recursive heap data structures*, Languages, Systems, and Data Seminar, University of California-Santa Cruz, Online.
Sept. 2021	*Gradual verification of recursive heap data structures*, PLClub, University of Pennsylvania, Online.

Publicity

Sept. 2024	*Gradual Verification with Jenna DiVincenzo*, TheForkJoin Podcast, https://theforkjoin.com/.
	Debugging the Future: How Software Engineering PhD Alum, Jenna DiVincenzo, is Revolutionizing Software Verification, S3D at CMU Alumni Profile.

Conference Talks

Jan. 2025	*Gradual Co: Symbolic Execution for Gradual Verification*, Symposium on Principles of Programming Languages (**POPL**), Denver, CO.
Oct. 2021	*Gradual verification of recursive heap data structures*, Object-oriented Programming, Systems, Languages, and Applications (**OOPSLA**), Chicago, IL.
Nov. 2020	*Gradual verification of recursive heap data structures*, Object-oriented Programming, Systems, Languages, and Applications (**OOPSLA**), Online.

Talks at Workshops and Meetings

Jan. 2020	*Gradual verification of recursive heap data structures*, Workshop on Gradual Typing (**WGT**), New Orleans, LA.

Presentations (continued)

2017 — *Determining developer debugging behavior from eye gazes*, Nebraska Conference for Undergraduate Women in Mathematics (**NCUWM**), University of Nebraska-Lincoln.

2016 — *Towards an emotionally aware development environment*, Workshop on Emotion Awareness in Software Engineering (**SEmotion**), Austin, TX.

— *Summing like Euler*, Mathematical Association of America Regional Conference (**MAA**), Ohio Northern University.

2015 — *On a local-global property of quadratic residues*, Mathematical Association of America MathFest (**MAA MathFest**), Washington D.C.

— *An eye-tracking experiment studying problem solving behavior*, Ohio Celebration of Women in Computing (**OCWIC**), Sandusky, OH.

— *On a local-global property of quadratic residues*, Mathematical Association of America Regional Conference (**MAA**), Marshall University.

2014 — *Minimal weakly connected dominating sets*, Mathematical Association of America MathFest (**MAA MathFest**), Portland, OR.

— *Proof of the Pythagorean Theorem: A geometric series approach*, Mathematical Association of America Regional Conference (**MAA**), University of Toledo.

Poster Presentations

Nov. 2020 — *Gradual verification of recursive heap data structures*, Systems, Programming, Languages, and Applications: Software for Humanity (**SPLASH**), Online.

Jan. 2020 — *Gradual verification of recursive heap data structures*, Principles of Programming Languages (**POPL SRC**), New Orleans, LA.

2016 — *Predicting expertise from eye gazes on source code*, **Tapia** Celebration of Diversity in Computing, Austin, TX

2014 — *Minimal weakly connected dominating sets algorithm*, Grace Hopper Celebration of Women in Computing (**GHC**), Pheonix, AZ

Competitions

2017 — *Meritorious*. Continuous Problem A, Mathematical Contest in Modeling.
From: *The Consortium for Mathematics and its Applications Inc*.

2016 — *Meritorious*. Continuous Problem A, Mathematical Contest in Modeling.
From: *The Consortium for Mathematics and its Applications Inc*.

2015 — *Honorable Mention*. Continuous Problem A, Mathematical Contest in Modeling.
From: *The Consortium for Mathematics and its Applications Inc*.

2014 — *Meritorious*. Discrete Problem B, Mathematical Contest in Modeling.
From: *The Consortium for Mathematics and its Applications Inc*.