# Jason Hemann — Curriculum Vitae

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| Research interests | Domain-specific languages, teaching-oriented languages, constraint logic programming program synthesis, functional programming | |
| Current position | Seton Hall University, South Orange, NJ<br>Assistant Professor of Computer Science | 2022-Present |
| Education | **Indiana University**, Bloomington IN<br>PhD in Computer Science, Minor in Logic<br>Thesis: *Constraint microKanren in the CLP Scheme*<br>Advisor: Dan Friedman<br>MS in Computer Science | 2010-2020 |
| | **Trinity University** San Antonio TX<br>BS in Computer Science, Philosophy<br>BA in History | 2003-2007 |
| Experience | **Seton Hall University**, South Orange, NJ<br>Assistant Professor of Computer Science | 2022–Present |
| | **Northeastern University**, Boston, MA<br>Assistant Teaching Professor<br>Lecturer<br>Part-time Lecturer<br>Visiting Scholar<br>Clinical Instructor | 2018–2022<br>2021–2022<br>2020<br>2020<br>2019<br>2018–2019 |
| | **Rose-Hulman Institute of Technology**, Terre Haute, IN<br>Visiting Faculty | 2017–2018 |
| Funding | Summer Research Award, SHU COAS,<br>CISE Research Initiation Initiative, NSF `CCF-2348408`,<br>REU Supplemental Grant (to `CCF-2348408`)<br>SHU Academy Initiative Grant, SHU<br>Leadership Council Award (for FSM) IU WPLC | 2024-2025<br>2024<br>2024<br>2024<br>2017 |

## SELECTED PUBLICATIONS

### *Books & Dissertations*

[BD1] **Jason Hemann**. "Constraint microKanren in the CLP Scheme." PhD thesis. Indiana University, Bloomington, 01/2020. URL: https://scholarworks.iu.edu/dspace/handle/2022/25183.

[BD2] Daniel P. Friedman, William E. Byrd, Oleg Kiselyov, and **Jason Hemann**. *The Reasoned Schemer, 2nd Edition*. The MIT Press, 01/2018. URL: http://mitpress.mit.edu/books/reasoned-schemer-0.

### *Conferences & Journal*

[JC1] Michael Ballantyne, Mitch Gamburg, and **Jason Hemann**. "Compiled, Extensible, Multi-language DSLs (Functional Pearl)." In: *Proc. International Conference on Functional Programming*. ICFP '24. Forthcoming. 2024.

[JC2] **Jason Hemann** and Daniel P. Friedman. "Some Criteria for Implementing Disjunction and Conjunction in Shallow microKanren Embeddings." In: *24th International Symposium on Trends in Functional Programming*. Boston, Massachussetts, 01/2023. URL: https://trendsfp.github.io/schedule.html.

[JC3] Daniel Schwab, Logan Cole, Karna Desai, **Jason Hemann**, Kate Hummels, and Adam Maltese. "A Summer Stem Outreach Program Run By Graduate Students: Successes, Challenges, And Recommendations For Implementation." In: *Journal of Research in STEM Education* 4 (2 12/2018), pp. 117–129.

[JC4] **Jason Hemann**, Daniel P. Friedman, William E. Byrd, and Matthew Might. "A Small Embedding of Logic Programming with a Simple Complete Search." In: *Proc. of DLS'16*. Amsterdam, Netherlands: ACM, 11/2016. URL: http://dx.doi.org/10.1145/2989225.2989230.

### *Invited Talks & Colloquia*

[T1] **Jason Hemann**. "Challenges in the Design and Implementation of Teaching Languages for EDSLs." Scheme Workshop co-located with ICFP. 09/2024.

[T2] **Jason Hemann**. "Tutorial on Program Transformations." Scheme Workshop co-located with ICFP. 09/2024.

[T3] **Jason Hemann**. "Designing Flexible Programming Assignments to Fit Students Needs." 2022 Gradescope Summit: Building Better Assessments. 04/2022. URL: https://info.gradescope.com/noa-gradescope-summit.

[T4] **Jason Hemann**. "Implementing a Kanren From the Ground Up." NUSHackers @ National University of Singapore. 02/2021. URL: https://www.nushackers.org/2021/01/friday-hacks-199/.

## SERVICE

Scholarly

**Program committee** TFP 2023, 2024 (**chair**), 2025; miniKanren Workshop 2019, 2020 (**chair**), 2022, 2024; Scheme Workshop 2014 (**chair**), 2016, 2019, 2020, 2023; IFL 2023; NSF FMitF panel 2024

**Steering committee** miniKanren Workshop 2019-; TFP 2024-; Scheme Workshop 2023-

**Reviewer** JFP 2024; AI Magazine 2024; ICLP 2023; *Programming* 2021; CPP 2019; ML 2016; ICFP 2015

**Editor** Proceedings of Trends in Functional Programming 2024

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| University | Computer Science Curriculum Committee, SHU | 2024–2024 |
| | Teaching Learning Technology Committee, SHU | 2023–2024 |
| | - Artificial intelligence subcommittee | 2024–2024 |
| | - Emerging trends subcommittee | 2024–2024 |
| | Petersheim Undergraduate Symposium, SHU | 2022–2024 |
| | CS Hiring Committees (AI, DB, ML), SHU | 2023–2024 |
| | Nominations & Elections Committee, SHU | 2024–2024 |
| Outreach | ACM SIGPLAN Student Chapter (**Faculty Sponsor**), SHU | 2024–2024 |
| | Women Who Code, SHU | 2022–2024 |
| | Women's Community of Code, NEU | 2021–2022 |
| | Foundations in Science and Mathematics, IU | 2013–2017 |

## ACADEMIC PRESENTATIONS AND CONTRIBUTIONS

### *Workshop Papers & Technical Reports*

[W1] Brett Schreiber, Brysen Pfingsten, and **Jason Hemann**. "Six Ways to Implement Divisibility by Three in miniKanren." In: *Proc. of the 2024 Workshop on miniKanren and Relational Programming*. 2024. URL: `https://icfp24.sigplan.org/home/minikanren-2024`.

[W2] Jason Hemann and Daniel P. Friedman. "Nearly Macro-free microKanren." In: *Trends in Functional Programming*. Ed. by Stephen Chang. Cham: Springer Nature Switzerland, 2023, pp. 72–91.

[W3] **Jason Hemann** and Daniel P. Friedman. "Some Criteria for Implementations of Disjunction and Conjunction in microKanren." In: *Proc. of the 2022 Workshop on miniKanren and Relational Programming*. 2022. URL: `https://icfp22.sigplan.org/home/minikanren-2022`.

[W4] **Jason Hemann** and Dmitri Boulytchev, eds. *Proceedings of the 2020 Workshop on miniKanren and Relational Programming, Northeastern University Technical Report NU-CCIS-2021-001*. Online: Department of Computer Science, Northeastern University, 08/2021. URL: http://hdl.handle.net/2047/D20413639.

[W5] **Jason Hemann** and Daniel P. Friedman. "Some Novel miniKanren Synthesis Tasks." In: *Proc. of miniKanren '20*. Digital. Online, 08/2020. URL: http://hdl.handle.net/2047/D20413639.

[W6] **Jason Hemann** and Daniel P. Friedman. "A Framework for Extending microKanren with Constraints." In: *Joint Proc of WLP'15/'16/WFLP'16 29th*. Ed. by Sibylle Schwarz and Janis Voigtländer. Vol. 234. EPTCS. Open Publishing Association, 01/2017, pp. 135–149. URL: eptcs.web.cse.unsw.edu.au/content.cgi?WFLP2016.

[W7] **Jason Hemann** and Daniel P. Friedman. "Deriving Pure, Functional One-Pass Operations for Processing Tail-Aligned Lists." In: *Proc. of Scheme '16*. Nara, Japan, 09/2016. URL: http://scheme2016.snow-fort.org/static/scheme16-paper6.pdf.

[W8] **Jason Hemann** and John Clements, eds. *Proceedings of the 2014 Workshop on Scheme and Functional Programming, Indiana University Technical Report TR718*. Washington, D.C., USA: Department of Computer Science, Indiana University, 09/2015. URL: http://cs.indiana.edu/pub/techreports/TR718.pdf.

[W9] **Jason Hemann** and Daniel P. Friedman. "A Framework for Extending microKanren with Constraints." In: *Proc. of Scheme '15, Northeastern University Technical Report NU-CCIS-2016-001*. Ed. by Andrew W. Keep and Ryan Culpepper. 09/2015. URL: http://hdl.handle.net/2047/D20213213.

[W10] **Jason Hemann**, Cameron Swords, and Lawrence S Moss. "Two Advances in the Implementations of Extended Syllogistic Logics." In: *Joint Proc. of NLPAR'15/LNMR'15*. Ed. by Marcello Balduccini, Alessandra Mileo, Ekaterina Ovchinnikova, Alessandra Russo, and Peter Schüller. Lexington, Kentucky, USA, 09/2015, pp. 1–15. URL: http://peterschueller.com/pub/2015/nlpar2015-proceedings.pdf.

[W11] Daniel Brady, **Jason Hemann**, and Daniel P. Friedman. "Little Languages for Relational Programming." In: *Proc of Scheme '14, Indiana University Technical Report TR718*. Washington, D.C., USA, 09/2015, pp. 54–64. URL: http://cs.indiana.edu/pub/techreports/TR718.pdf.

[W12] **Jason Hemann** and Daniel P. Friedman. "$\mu$Kanren: A Minimal Functional Core for Relational Programming." In: *Proc. of Scheme '13*. Digital. Alexandria, Virginia, USA, 11/2013. URL: schemeworkshop.org/2013/papers/HemannMuKanren2013.pdf.

[W13] **Jason Hemann** and Daniel P. Friedman. "$\lambda^*$: Beyond Currying." In: *Proc. of Scheme '13*. Digital. Alexandria, Virginia, USA, 11/2013. URL: schemeworkshop.org/2013/papers/HemannCurrying2013.pdf.

[W14] **Jason Hemann** and Eric Holk. "Visualizing the Turing Tarpit." In: *Proc. of FARM '13*. FARM '13. Boston, Massachusetts, USA: ACM, 2013, pp. 71–76. URL: doi.acm.org/10.1145/2505341.2505348.

[W15] **Jason Hemann**, Fatma Mili, and Paul Myers. "Synchronized Energy Efficient Clustering of Wireless Sensor Networks." In: *Proc. of NCUR 2007*. San Rafael, California, 04/2007. URL: http://ncurproceedings.org/ojs/.

### *Presentations & Demonstrations*

[PD1] **Jason Hemann** and Michael Ballantyne. "Compiled, extensible miniKanren as part of a multi-language." miniKanren Seminar, Online. 04/2024.

[PD2] **Jason Hemann** and Daniel P. Friedman. "Some Criteria for Implementing Disjunction and Conjunction in Shallow microKanren Embeddings." In: *24th International Symposium on Trends in Functional Programming*. Boston, Massachussetts, 01/2023. URL: https://trendsfp.github.io/schedule.html.

[PD3] Daniel P. Friedman and **Jason Hemann**. "Implementing a microKanren." In: *CodeMesh 2016*. London, England, 11/2016. URL: http://youtube.com/watch?v=0FwIwewHC3o.

[PD4] Daniel P. Friedman and **Jason Hemann**. "From Functions To Relations in miniKanren." In: *Øredev 2015*. Malmö, Sweden, 11/2015. URL: http://vimeo.com/144710533.

[PD5] Daniel P. Friedman and **Jason Hemann**. "Generating a Quine." In: *Midwest PL Summit '15*. West Lafayette, Indiana, USA, 12/2015.

[PD6] Daniel P. Friedman and **Jason Hemann**. "How to be a Good Host: miniKanren as a Case Study." In: *Curry On 2015*. Prague, Czech Republic, 07/2015. URL: http://youtube.com/watch?v=b9C3r3dQnNY.

[PD7] Daniel P. Friedman and **Jason Hemann**. "Rapidly Rolling a Relational DSL." In: *Øredev 2015*. Malmö, Sweden, 11/2015. URL: http://vimeo.com/144988186.

[PD8] Daniel P. Friedman and **Jason Hemann**. "Roll Your Own Relational DSL: A Logic Programming Language in Less than 40 Lines." In: *Lambda Jam 2014*. Chicago, Illinois, USA, 07/2014.

[PD9] Daniel P. Friedman and **Jason Hemann**. "It's Only Quine Time." In: *Programming Languages Fest*. Bloomington, Indiana, USA, 10/2013. URL: http://web.archive.org/web/20140113225905/lambda.soic.indiana.edu/programming-languages-fest.

[PD10] Daniel P. Friedman and **Jason Hemann**. "The Art of Several Interpreters, Quickly." In: *Lambda Jam 2013*. Chicago, Illinois, USA, 07/2013.

[PD11] **Jason Hemann**. "A Typed Trivalent Logic to Resolve Category Mistakes." In: *North Georgia Student Philosophy Conference*. Kennesaw, Georgia, USA, 04/2007.

### *Interviews*

[DC1] Edna Pressler. *Teaching Large Classes: Grading and Feedback in the Large Class*. 07/2022. URL: https://learning.northeastern.edu/teaching-large-classes/assessing-for-learning/.

[DC2] Aditi Peyush. *Classroom Q & A: Dr. Jason Hemann and Custom Programming*. 01/2021. URL: https://www.khoury.northeastern.edu/classroom-qa-dr-jason-hemann-and-custom-programming/.

[DC3] Eric Normand. *CodeMesh 2016 Talk Interview*. Interview with Eric Normand of Purely-Functional, Oct. 12, 2016. 2016. URL: http://purelyfunctional.tv/speaker-interview/jason-hemann-code-mesh-2016-interview/.

[DC4] Eric Normand. *Pre-conj Scheme '14 Interview*. Interview with Eric Normand of LispCast, Nov. 17, 2014. 2014. URL: http://lispcast.com/pre-conj-scheme-workshop.