John SARRACINO

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SUMMARY

I am a programming languages and formal methods researcher. I build certified systems in Coq and I make Coq proofs easier. I am broadly interested in the application of PL/FM to networking, systems, and security; and *easing the burden* of certified programming.

RESEARCH POSITIONS

2023 – present	Security consultant for **Bloomberg LP**.
	Manager: Julien Vanegue.
2020 – 2022	Postdoctoral Researcher, **Cornell University**.
	Advisor: Greg Morrisett.
Summer 2019	Research Intern, **Galois Inc**.
	Mentor: Bill Harris.

EDUCATION

2020	Ph.D, Computer Science, **UCSD**.
	Thesis: Language Design for Synthesizing Diagrams, Layouts, and Invariants.
	Advisors: Sorin Lerner and Nadia Polikarpova.
2018	M.S, C.Phil, Computer Science, **UCSD**.
2014	B.S, Mathematics and Computer Science, **Harvey Mudd College**.
	Thesis: Concurrent, Moving Garbage Collection using Transactional Memory.
	Advisor: Ben Wiedermann.

PUBLICATIONS

Conference

Doenges, R., Kappe', T., **Sarracino, J.**, Foster, N., and Morrisett, G. *Leapfrog: Certified Equivalence for Protocol Parsers.* 43rd ACM SIGPLAN Conference on Programming Language Design and Implementation, June 2022 (**PLDI '22**).

Sarracino, J.[*], Lukes, D.[*], Coleman, C., Peleg, H., Lerner, S. and Polikarpova, N. *Synthesis of Web Layouts from Examples.* 29th ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering, August 2021 (**FSE '21**).

Sarracino, J., Barrios-Arciga, O., Zhu, J., Marcus, N., Lerner, S. and Wiedermann, B. *User-Guided Synthesis of Interactive Diagrams.* CHI Conference on Human Factors in Computing Systems, May 2017 (**CHI '17**).

Leung, A., **Sarracino, J.** and Lerner, S. *Interactive parser synthesis by example.* 36th ACM SIGPLAN Conference on Programming Language Design and Implementation, June 2015 (**PLDI '15**).

Kashyap, V., Dewey, K., Kuefner, E.A., Wagner, J., Gibbons, K., **Sarracino, J.**, Wiedermann, B. and Hardekopf, B. *JSAI: A static analysis platform for javascript.* 22nd ACM SIGSOFT International Symposium on Foundations of Software Engineering, November 2014 (**FSE '14**).

Workshop

Sarracino, J., Tan, G., and Morrisett, G. *Certified Parsing with Dependent Grammars.* LangSec: Eighth Workshop on Language Theoretic Security, May 2022 (**LangSec '22**).

Anderson, T.A.[*], O'Neill, M.[*] and **Sarracino, J.**[*]. *Chihuahua: A concurrent, moving, garbage collector using transactional memory.* 10th ACM SIGPLAN Workshop on Transactional Computing, June 2015 (**TRANSACT '15**).

Kashyap, V., **Sarracino, J.**, Wagner, J., Wiedermann, B. and Hardekopf, B. *Type refinement for static analysis of JavaScript.* 9th Symposium on Dynamic Languages, October 2013 (**DLS '13**).

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[*]Equal contribution co-authors

Preprints

Sarracino, J.[*], Sanchez-Stern, A.[*], and Varghese, A. *LambDelphi: Predicting the Difficulty of Interactive Proofs.* In submission to The 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2023), https://goto.ucsd.edu/~john/files/lambdelphi.pdf Feb 2023.

Sarracino, J., Kappé, T., Doenges, R., and Morrisett, G. *Metaprogramming for Practical and Extensible SMT-Powered Coq Proof Automation.* In preparation, https://goto.ucsd.edu/~john/files/mirrorsolve.pdf, October 2022.

Sarracino, J., Barke, S., Peleg, H., Lerner, S and Polikarpova, N. *Targeted Program Synthesis for Programming with Data Invariants.* arXiv:1904.13049, August 2019.

Professional Activities

Service

Program Committee: PLDI '21, LangSec '21

External Review Committee: OOPSLA '23 '22

Artifact Evaluation Committee: CAV '19, ECOOP '23, ICFP '20, PLDI '20 '19 '18, OOPSLA '23 '22 '19 '18

Student Research Competition Committee: SPLASH '18

Conference, Workshop, and Invited Talks

New England Systems Verification Day October '22, DARPA site visit September '22, Galois Tech Talks August '22, LangSec May '22, DARPA PI meeting May '22, DARPA site visit Feb '22, DARPA PI meeting Nov '21, DARPA site visit Aug '21, DARPA site visit Feb '21, DARPA PI meeting Nov '20, Cornell undergraduate research night '20, Cornell PL group '20, CHI '17, SoCalPLs '16, SoCalPLs '15, TRANSACT '15, DLS '13.

Teaching Assistantships

Winter 2020	UCSD CSE 291	Program Synthesis
Fall 2019	UCSD CSE 130-230	Undergraduate and Graduate Programming Languages
Fall 2018	UCSD CSE 130-230	Undergraduate and Graduate Programming Languages
Fall 2018	UCSD CSE 130-230	Undergraduate and Graduate Programming Languages
Fall 2017	UCSD CSE 130-230	Undergraduate and Graduate Programming Languages
Fall 2016	UCSD CSE 130	Undergraduate Programming Languages
Winter 2016	UCSD CSE 130	Undergraduate Programming Languages

Awards

CRA Outstanding Undergraduate Researchers Award Honorable Mention, 2014